

## Attachment 3

# Work Plan



# Attachment 3 San Diego Integrated Regional Water Management 3 Implementation Grant Proposal – Round 2 Work Plan

Attachment 3 consists of the following items:

- ✓ **Work Plan(s).** Attachment 3 contains detailed information regarding the tasks that were and will be performed for each project constituting the proposal, as well as supporting documents such as regional and project maps, and existing data and studies.

This Work Plan contains summary descriptions of all the projects constituting the *San Diego IRWM Implementation Grant Proposal – Round 2* and tasks necessary to complete each project in the proposal. The Work Plan demonstrates that the proposal is ready for implementation, and includes a brief discussion of the supporting studies, data, resources, and deliverables for each project, to ensure implementation of the proposal is based on sound scientific and technical principles. The Work Plan tasks are also consistent with the major tasks and sub-tasks identified in the Budget (Attachment 4) and Schedule (Attachment 5) of this proposal.

## Introduction

The Regional Water Management Group (RWMG) is comprised of the San Diego County Water Authority (Water Authority), City of San Diego (City), and County of San Diego (County). The combined jurisdiction of the three agencies comprises the entire San Diego IRWM region, and their combined responsibilities address all facets of water management. The San Diego IRWM program also includes numerous water management stakeholders who support IRWM planning and implementation through participation in committees, workshops, and projects. The Regional Advisory Committee (RAC) and ad-hoc Workgroups provide essential review, guidance, and recommendations to the RWMG on all IRWM planning topics. The Tri-County Funding Area Coordinating Committee (Tri-County FACC) is a collaborative effort among the three neighboring IRWM regions in the San Diego Funding Area to discuss planning and projects of mutual interest. Both of these groups play an important role in providing guidance for the IRWM program.



In the 2007 San Diego IRWM Plan, the RWMG and RAC identified four goals and nine objectives that were established to guide water resource management in the region. In 2012, the RWMG, RAC, and a workgroup convened for the 2013 IRWM Plan Update (the Priorities and Metrics Workgroup) revised the existing goals and objectives to reflect changed conditions and priorities since the 2007 IRWM Plan was adopted. Each of the draft updated IRWM Plan goals and their corresponding objectives are listed in Table 3-1.

**Table 3-1: Draft 2013 San Diego IRWM Plan Update Goals and Objectives**

IRWM Plan Objective	Primary IRWM Plan Goals Implemented by Objective			
	Goal 1: Improve the reliability and sustainability of regional water supplies	Goal 2: Protect and enhance water quality	Goal 3: Protect and enhance our watersheds and natural resources	Goal 4: Promote and support integrated water resource management
A Encourage the development of integrated solutions to address water management issues and conflicts	○	○	○	●
B Maximize stakeholder/community involvement and stewardship of water resources, emphasizing education and outreach	○	○	●	●
C Effectively obtain, manage, and assess water resource data and information	○	○	○	●
D Further the scientific and technical foundation of water quality management	○	○	●	●
E Develop and maintain a diverse mix of water resources, encouraging their efficient use and development of local water supplies	●			○
F Construct, operate, and maintain a reliable water infrastructure system	●			○
G Enhance natural hydrologic processes to reduce the effects of hydromodification and encourage integrated flood management		●	○	○
H Effectively reduce sources of pollutants and environmental stressors to protect and enhance human health and safety and the environment		●	○	○
I Protect, restore and maintain habitat and open space	○	○	●	○
J Optimize water-based recreational opportunities		○	○	●
K Effectively address climate change through adaptation or mitigation in water resource management	●	●	●	○

- Primary IRWM Plan goal targeted by Plan objective
- Additional IRWM Plan goals targeted by objective

Through development and adoption of the 2007 IRWM Plan and ongoing planning activities, regional stakeholders identified a suite of water management projects and programs that together improve water supply reliability and water quality for the region, reduce dependence on imported water, eliminate or reduce pollution, and protect or restore in sensitive habitat areas. Those projects and programs were used to identify projects submitted and awarded funding as part of the *Proposition 50 Implementation Grant and Proposition 84-Round 1 Implementation Grant*.

As part of the ongoing IRWM program, regional stakeholders continue to periodically revise existing projects and/or submit new projects that further progress toward meeting the regional goals and

objectives. The RWMG, RAC, and a Project Selection Workgroup then review the submitted projects and identify a new suite of projects for submittal in each funding cycle. In 2012, this process was employed (see also description in Attachment 1) to develop the proposed funding package in this *San Diego IRWM Implementation Grant Proposal – Round 2*.

The projects included within this Proposal are consistent with the draft 2013 IRWM Plan Update, which includes the 2007 IRWM Plan goals and objectives. Each project included was identified as a Tier 1 high priority project by regional stakeholders (see also description in Attachment 1). As shown in Table 3-2, each of the projects included within this proposal meets one or more of the water management objectives established for the region.

**Table 3-2: Consistency of Proposed Projects with Draft 2013 IRWM Plan Objectives**

Proposal Projects	IRWM Plan Objectives Addressed										
	A	B	C	D	E	F	G	H	I	J	K
North San Diego County Regional Reuse Water Project (NSDCRRWP) – Phase II	●	○	●		●	●		●			○
Turf Replacement and Agricultural Irrigation Efficiency Program	●	●	●		●			●			○
Rural Disadvantaged Community (DAC) Partnership Program	●	●	○	●	●	●		○			●
Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility	●	○	●	●	○			○			○
Sustaining Healthy Tributaries to the Upper San Diego River and Protecting Local Water Supplies	●	●	●	●	○		●	●	●	○	
Chollas Creek Integration Project Phase II	●	●	●				●	●	●		
Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II	●	●	●	●							

● = directly related; ○ = indirectly related

### Integration Activities

Integration is considered a fundamental component of the San Diego IRWM planning effort, as integration is the “I” in IRWM planning. As such, the IRWM Plan Update process, which is currently underway, has included specific efforts to encourage and increase integration within the Region. One specific component of these integration efforts included a Strategic Integration Workshop that was held to encourage the submittal of integrated projects for consideration in this *San Diego IRWM Implementation Grant Proposal – Round 2*. Prior to the Strategic Integration Workshop, stakeholders were asked to submit project concepts describing preliminary project ideas, and project partner forms that described potential services that could be provided to support projects. These project concept and project partner forms were evaluated and discussed by a group of San Diego IRWM stakeholders to determine potential integration opportunities and partnering opportunities. After stakeholders reviewed the project concept and project partner forms, the Strategic Integration Workshop was held on September 12, 2012, during which time local project sponsors and potential project partners were gathered to discuss the preliminary project concepts. The purpose of this workshop was to bring stakeholders together to provide information to stakeholders about projects that were being considered within the Region, and to encourage project sponsors and project partners to get together and discuss ways in which their project concepts could be elaborated upon or potentially combined to increase integration. Prior to the Strategic Integration Workshop, the Priorities and Metrics Workgroup, comprised of a group of San Diego IRWM Stakeholders, determined that integration can take many forms, and for purposes of the IRWM Program has five specific definitions:

- *Partnership Integration:* Establishing partnerships between different organizations can be cost effective by increasing data sharing, resources, and infrastructure.
- *Resource Management Integration:* Employing multiple resource management strategies within a single project can effectively address a variety of issues.

- *Beneficial Use Integration:* Project solutions can be implemented to support several different beneficial uses.
- *Geographical Integration:* Implementing watershed-or regional-scale projects can benefit from economies of scale.
- *Hydrological Integration:* Addressing different components of the hydrologic cycle.

### Proposal Goals and Objectives

The overall objective of this *San Diego IRWM Implementation Grant Proposal – Round 2* is to present a suite of projects and programs that:

1. Further the mission, vision, goals, and objectives established in the San Diego IRWM Plan;
2. Provide multiple benefits through integration of water management strategies;
3. Implement high priority projects and programs as identified by the RAC; and
4. Assist in meeting the region’s critical water supply, water quality, and natural resources needs.

### Purpose and Need

One of the most significant issues for the San Diego IRWM Region is the availability and reliability of its water supplies, which currently consist primarily of imported water. The region receives imported water from the State Water Project (SWP) and the Colorado River, via the Metropolitan Water District of Southern California (MWD). It also receives Colorado River water that results from the Water Authority’s transfer agreement with the Imperial Irrigation District (IID) and its canal-lining projects in the Imperial and Coachella Valleys. Recent legal and regulatory decisions regarding water management in the Sacramento-San Joaquin River Delta may reduce the amount of water delivered by the SWP. This situation, coupled with the recent droughts affecting both the SWP and the Colorado River, serves as a reminder that the region’s water supply is vulnerable to events outside the region. The region’s water purveyors are working to improve the quantity and reliability of local supplies, primarily through expansion of water conservation and recycling programs.

Another significant issue for the San Diego region is the quality of surface water supplies. The San Diego region contains a number of water bodies on the Clean Water Act Section 303(d) list. Total Maximum Daily Loads (TMDLs) have been established for the higher priority impairments in beaches, creeks, lagoons, and San Diego Bay. The impact to water quality posed by increasing urban runoff from development is a significant concern. The region is also blessed with many natural resources, including a wealth of critical riparian and aquatic habitat that is home to a number of endangered species. An important aspect of IRWM planning is to develop projects that can address the critical water supply and water quality issues, while also achieving goals of habitat preservation and expanded recreational opportunities.

As a result, water supply diversification and water quality improvement have been identified as the cornerstones of the region’s IRWM program. As described in Attachment 1, the RWMG and RAC underwent a detailed project prioritization process to consider the water resources projects to be carried forward for consideration in this proposal. This top tier of projects was reviewed for eligibility for funding through the Proposition 84-Round 2 program and a recommended funding package was considered and approved by the RAC and then the Water Authority Board of Directors.

The San Diego IRWM Region is also lacking in scientific data related to these issues – water supply diversification and water quality. Specifically, the Region’s stakeholders identified a need to invest in data collection and analysis related to basin-appropriate water quality objectives and safety of potable reuse without an environmental buffer. Each of these data gaps, if filled, could provide greater opportunities for effective water resources management in the Region. As noted above, the Region is highly dependent on imported water, and opportunities for supplementing local water supplies are limited, given physical restrictions of local aquifers, climate, and infrastructure. Data relating to basin-specific water quality objectives is also in demand because many of the Region’s water bodies are on the 303(d) list for impairment, but can often sustain or increase their designated beneficial uses if seasonal conditions are considered during regulatory permitting. Scientific data are needed support changes in regulatory policy

by the San Diego Regional Water Quality Control Board (RWQCB) and/or California Department of Public Health (CDPH) who are responsible for implementing surface and drinking water regulations.

Through this process, seven projects and programs were developed to best address the needs of the San Diego region, consistent with the goals and objectives of the 2007 IRWM Plan and the draft 2013 IRWM Plan Update. Each program is comprised of a set of projects aimed at generating geographic balance and a wide array of benefits throughout the region.

For a full explanation of the purpose and need of each project, and how the purpose and need address the San Diego IRWM Plan's goals and objectives, please refer to individual project work plans included in this attachment.

### Project List

This *San Diego IRWM Implementation Grant Proposal – Round 2* is a compilation of projects that will diversify water supply, improve water quality, restore native habitat, and manage flood flows throughout the region. This proposal includes the suite of projects best suited to meeting the current and future challenges of the San Diego region. Each of these projects further contains synergies and linkages with other projects included in this Proposal, resulting in a truly integrated suite of projects that, when implemented together, will assist the region in meeting its critical water management needs in a real and measurable fashion.

Table 3-3 presents the specific projects included as part of the proposal, organized by program. An abstract, current project status, priority of the project, and implementing agency (sponsor) is provided for each project.

**Table 3-3: Projects Included in the San Diego IRWM Implementation Grant Proposal**

Project	Description	
<b>1: North San Diego County Regional Recycled Water Project – Phase II</b>	<i>Abstract:</i>	This project is the second phase of a plan by North San Diego County water and wastewater agencies to regionalize recycled water systems that identifies new agency interconnections, seasonal storage opportunities and indirect potable water uses that will maximize supplies, reduce wastewater discharges to ocean, potentially reduce energy consumption due to diminished delivery of imported water, and allow recycled water to play an even more significant role in meeting future water needs. This phase of the project will construct many of the pipelines, storage tanks, pumps, and connections identified in Phase I.
	<i>Status:</i>	Phase I <i>NSDCRRWP Facilities Plan</i> is complete; Phase II construction components implement the priority interconnections identified in the Facilities Plan.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	Olivenhain Municipal Water District
<b>2: Turf Replacement and Agricultural Irrigation Efficiency Program</b>	<i>Abstract:</i>	This project will expand an outreach and rebate program targeted to urban and agricultural water users that will encourage customers to replace turf with more water efficient landscaping. It will also implement an education and rebate program to encourage increased irrigation efficiency and convert agriculture lands from potable to recycled water.
	<i>Status:</i>	Turf Replacement Program component has been launched and is functioning; this grant funding will provide incentives for continued implementation of the Turf Replacement component and new Agricultural Irrigation component.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	San Diego County Water Authority
<b>3: Rural Disadvantaged Community (DAC) Partnership Program</b>	<i>Abstract:</i>	This project will provide funding to address inadequate water supply and water quality affecting rural DACs, including tribal communities. The project will reduce potential for high public health risks in water and/or wastewater systems. The project will promote environmental justice in rural communities by providing outreach to rural DACs for available infrastructure projects, while promoting IRWM goals. Rural Community Assistance Corporation (RCAC) will manage the Proposition 84 grant funds to facilitate implementation of infrastructure upgrades that protect rural DACs from public health hazards associated with aging or failing water facilities.
	<i>Status:</i>	Phase I projects have been selected and are underway; Phase II will allow 4-5 additional rural DAC infrastructure upgrades to be completed.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	Rural Community Assistance Corporation
<b>4: Failsafe Potable Reuse at the Advanced Water Purification Facility</b>	<i>Abstract:</i>	This project will develop and test a failsafe treatment train for potable reuse without an environmental buffer. The data gathered through this process may be used by the California Department of Public Health (CDPH) in assessing the future potential of direct potable reuse facilities.
	<i>Status:</i>	The City of San Diego's Water Purification Demonstration Plant is currently operational; this project will implement testing of a new failsafe treatment train to test future failsafe potable reuse.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	WaterReuse Research Foundation

Project	Description	
<b>5: Sustaining Healthy Tributaries to the Upper San Diego River</b>	<i>Abstract:</i>	This project will protect and restore a key segment of Boulder Creek upstream of the El Capitan Reservoir. It will protect and restore 3,000 feet of functioning riparian habitat and associated buffer habitat along Boulder Creek, and collect data to use as a baseline for other streams in the San Diego River watershed. This project will also conduct education and outreach to backcountry areas, including tribal communities, about invasive species and their impacts on watershed habitats.
	<i>Status:</i>	The San Diego River Park Foundation (SDRPF) restoration site has been acquired; restoration and monitoring activities have not yet begun.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	San Diego River Park Foundation
<b>6: Chollas Creek Integration Project – Phase II</b>	<i>Abstract:</i>	This project will improve water quality and prevent flooding through (1) engineered modifications to the channel via installation of headwalls and drop structures that will modify creek flow and prevent erosion, (2) contaminate uptake and natural filtration through invasives removal and restoration with native species, and (3) engagement of community volunteers in water quality monitoring and hands-on watershed education. The project improves and maintains Chollas Creek as a natural urban drainage system that serves as a major conduit for stormwater runoff in the Encanto DAC.
	<i>Status:</i>	Phase provided for restoration of an adjacent segment of Chollas Creek and implementation of an Opportunities Assessment for invasives control; Phase II will complete a second segment of restoration and implement invasives removal and water quality monitoring by local DAC students.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	Jacobs Center for Neighborhood Innovation
<b>7: Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II</b>	<i>Abstract:</i>	The project aims to establish nutrient water quality goals for the Santa Margarita River (SMR) Estuary (Phase I) and the SMR River (Phase II) that may lead to development of nutrient site-specific objectives by the San Diego Regional Water Quality Control Board (RWQCB) in the main stem of the river that are protective of beneficial uses. The project consists of three major activities: facilitate discussions among a SMR watershed stakeholder group to guide project activities, conduct monitoring and special studies, and develop nutrient water quality goals for the Lower SMR.
	<i>Status:</i>	Phase I established a SMR stakeholder group and began data collection and analysis for establishing water quality objectives for SMR Estuary; Phase II will build on existing efforts by continuing stakeholder-driven expanding data collection and analysis to establish goals for the Lower SMR.
	<i>Priority:</i>	High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Workgroup as a project that should be implemented without delay.
	<i>Sponsor:</i>	County of San Diego

### Integrated Elements of Projects

Several of the projects included in this proposal are linked, and the coordinated implementation of each project is critical to the success of the proposal as a whole. The proposal has been crafted to maximize the linkages and integration between the projects within the proposal, and projects included in the proposal have been selected based on their ability to generate multiple benefits.

The *NSDCRRWP – Phase II* integrates infrastructure between its ten North County project partners and may supply agricultural participants in the *Turf Replacement and Agricultural Irrigation Efficiency Program* with recycled water. It also complements efforts from all the projects in this proposal to protect and improve the Region's water resources. Along with the *Failsafe Potable Reuse at the Advanced Water Treatment Facility*, these three projects work to address the water supply diversification priority of the San Diego IRWM region. The *Rural DACs Partnership Program* further addresses water supply needs, by addressing rural backcountry systems which are largely dependent on small groundwater basins.

*Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II*, *Failsafe Potable Reuse at the Advanced Water Treatment Facility*, and *Sustaining Healthy Tributaries to the Upper San Diego River* will all collect and analyze data for use in water resource management. They will all contribute to the IRWM concept of integrated management, utilizing a collaborative, stakeholder-driven process to address water concerns across a multi-jurisdictional area. These projects will provide the scientific basis needed by the Region's stakeholder to influence regulatory policy that enables both protection and maximization of beneficial uses.

*Sustaining Healthy Tributaries to the Upper San Diego River* and *Chollas Creek Integration Project – Phase II* both seek to protect and restore riparian habitats within the Region. The Watershed Workshops held in 2012 identified the protection of natural resources as an important priority for the Region.

*NSDCRRWP – Phase II*, *Turf Replacement and Agricultural Irrigation Efficiency Program*, *Rural DACs Partnership Program*, *Chollas Creek Integration Project – Phase II*, and *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II* are all continuation of priority projects that were funded through the San Diego IRWM Region's *Proposition 50 Implementation Grant* or *Proposition 84-Round 1 Implementation Grant*. This builds upon work that is already being implemented as part of the San Diego IRWM Program and contributes to attainment of the Region's IRWM Plan Objectives.

For a full explanation of the linkages and synergies between projects, please refer to individual project work plans and Attachment 7.

### Regional Map

Figure 3-1 provides a regional overview of the seven proposed projects in this *San Diego IRWM Implementation Grant Proposal – Round 2*, and Figure 3-2 provides a regional overview of the seven projects in relation to disadvantaged communities (DACs).

### Completed Work

Significant work is expected to be completed prior to the grant award date (October 1, 2013) on projects included in this proposal. Please note that the individual work plans below contain information for each work plan task, demonstrating the work that will be completed before the grant funding is secured. Additionally, work that supports the projects and has been completed is described in the individual project work plans below.

### Existing Data and Studies

Available data and studies have been collected and reviewed to support the feasibility and technical methods of the projects included within this proposal. For a list of the existing data and studies for each project, please refer to individual project work plans included in this attachment. The existing data and studies included for each individual project have been submitted on a separate CD as part of this *San Diego IRWM Implementation Grant Proposal – Round 2*.

### **Project Maps**

Site maps showing each project's geographical location and the surrounding work boundary are included in individual project work plans provided below. Please refer to those individual project maps.

### **Project Timing and Phasing**

Some projects included in this proposal are multi-phases projects and can operate on a standalone basis while others are not. For project timing and phasing for each project please refer to individual project work plans included in this attachment.

### **Interregional Project**

The *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II* project included in this funding application is an interregional project being implemented jointly by the San Diego IRWM and Upper Santa Margarita IRWM regions. Although the Upper Santa Margarita IRWM region is a full partner and benefits will accrue across watershed boundaries to both regions, the entire project work plan, budget, and benefits for the project have been included in this funding application in order to simplify project administration and contracting.

The San Diego Funding Area maintains the Tri-County FACC agreement among the three Regional Water Management Groups (RWMGs) to equitably allocate the Funding Area's Proposition 84 funds. Consequently, the Upper Santa Margarita RWMG has committed both grant funds (per the aforementioned agreement) and matching funds to support this interregional project. Please refer to Appendix 3-1 in Attachment 3 for a letter of support for the interregional project from our San Diego IRWM Program Manager.

### **Work Plan Tasks**

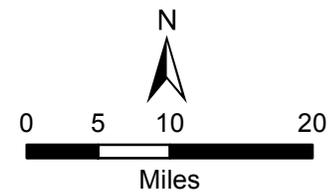
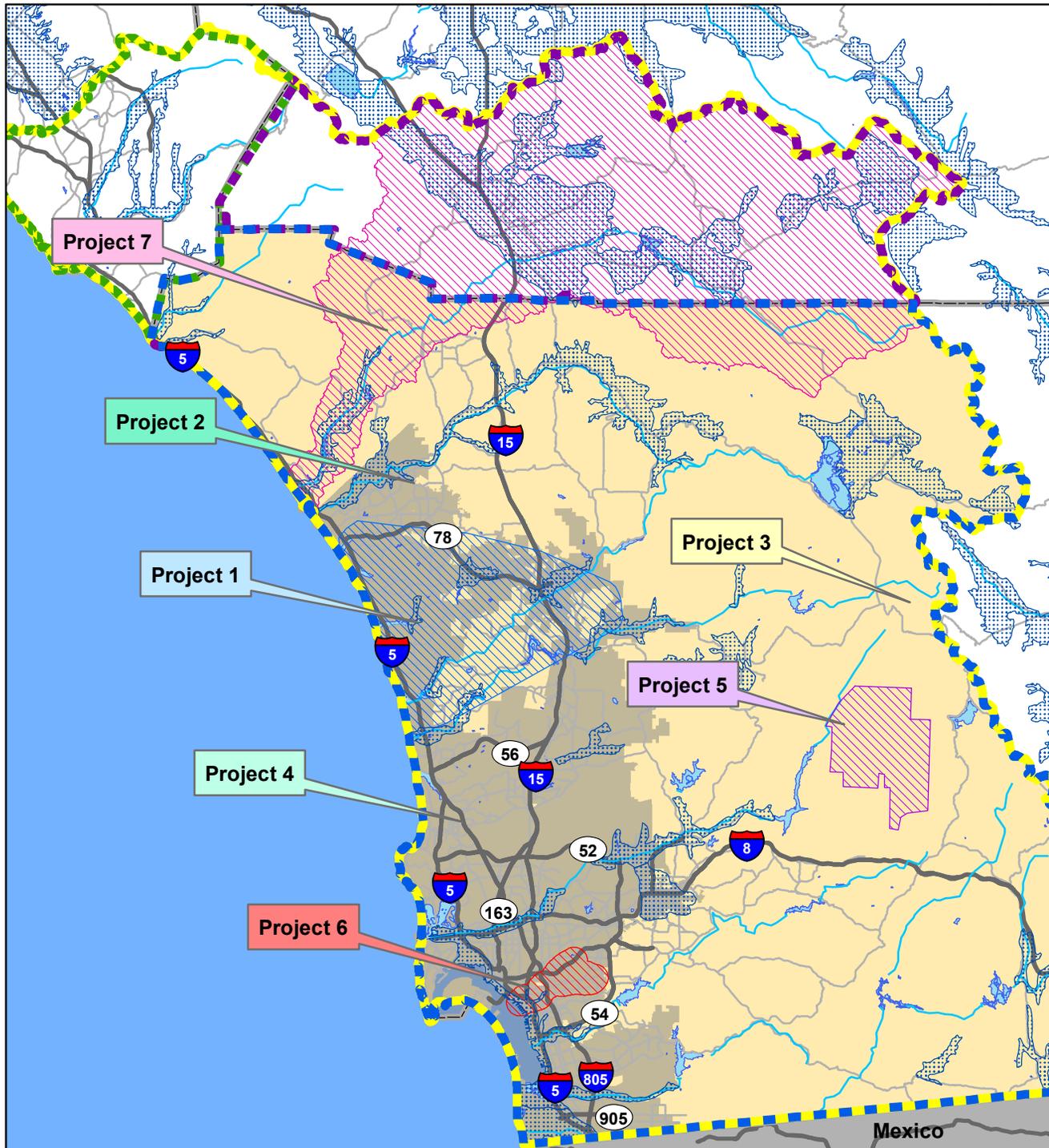
The specific activities that will be performed to implement each project in the *San Diego IRWM Implementation Grant Proposal – Round 2* are described in detail in the individual project work plans, provided below. In addition, the following sections describe the specifics of each project with respect to project sponsors, project need, project purpose, project objectives, project partners, project abstract, linkages and synergies between projects, existing data and studies, project timing and phasing, and project mapping.

# San Diego IRWM Project Locations with Groundwater Basin

## Legend

### Project Location/Beneficiary Area

-  Project 1  
North San Diego County Recycled Water
-  Project 2  
Turf Replacement and Irrigation Efficiency
-  Project 4  
Failsafe Potable Reuse at the AWWP
-  Project 3  
Rural Disadvantaged Communities Partnership
-  Project 5  
Sustaining Healthy Tributaries
-  Project 6  
Chollas Creek Integration Project
-  Project 7  
Implementing Nutrient Management in the SMR
-  Groundwater Basin
-  Funding Area and  
Tri-County FACC Boundary
-  San Diego IRWM Region
-  Upper Santa Margarita Region
-  South Orange County Region
-  Freeway
-  City Boundaries
-  County Boundaries

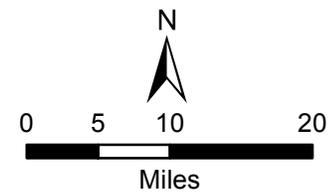
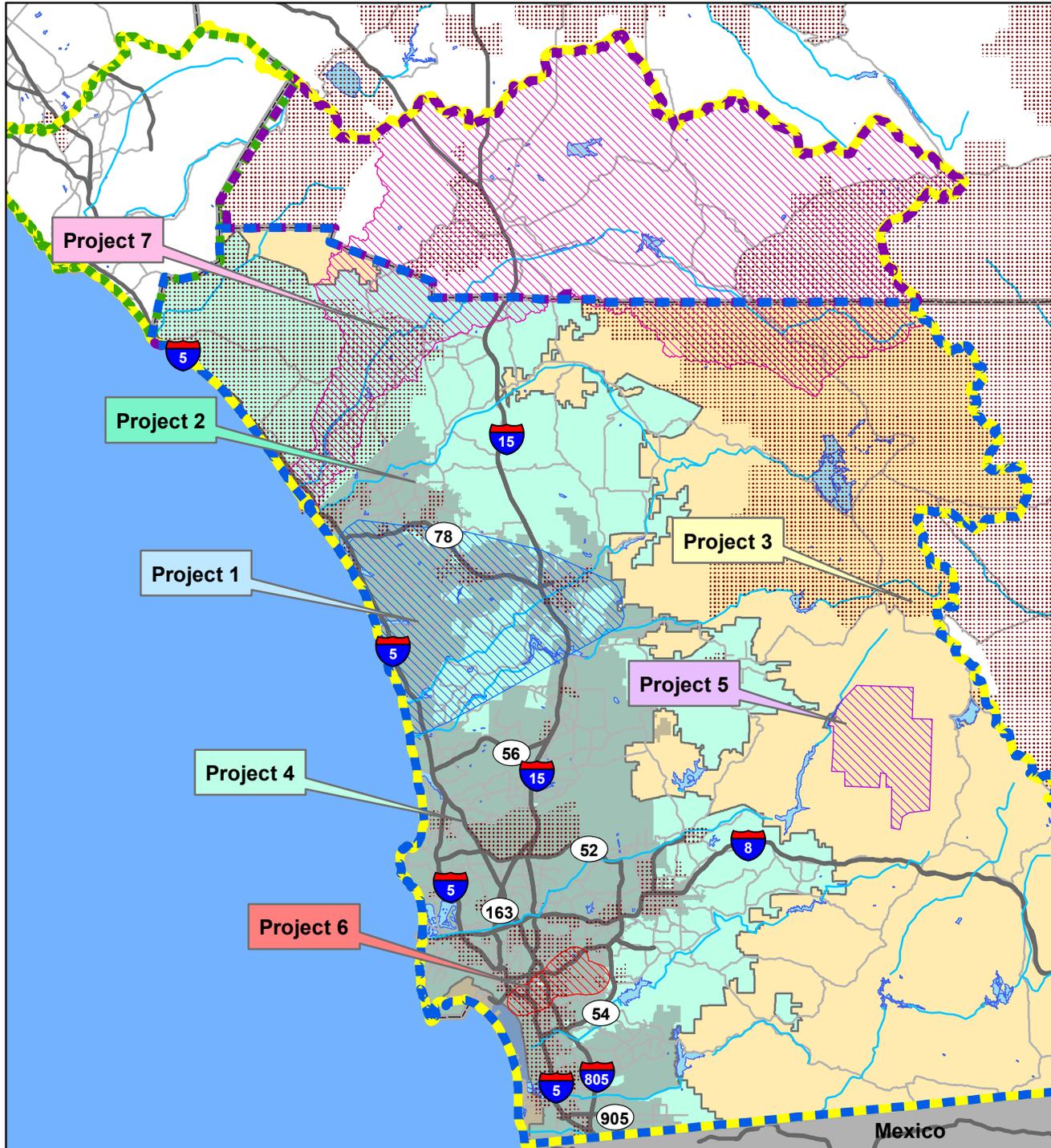


# San Diego IRWM Project Locations with Disadvantaged Communities

## Legend

### Project Location/Beneficiary Area

-  Project 1  
North San Diego County Recycled Water
-  Project 2  
Turf Replacement and Irrigation Efficiency
-  Project 4  
Failsafe Potable Reuse at the AWPf
-  Project 3  
Rural Disadvantaged Communities Partnership
-  Project 5  
Sustaining Healthy Tributaries
-  Project 6  
Chollas Creek Integration Project
-  Project 7  
Implementing Nutrient Management in the SMR
-  DAC community
-  Funding Area and  
Tri-County FACC Boundary
-  San Diego IRWM Region
-  Upper Santa Margarita Region
-  South Orange County Region
-  Freeway
-  City Boundaries
-  County Boundaries



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## ***Project 1: North San Diego County Regional Recycled Water Project – Phase II***

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### **I. Introduction**

#### **Project Sponsor**

Olivenhain Municipal Water District (OMWD) is the project sponsor for *North San Diego County Regional Recycled Water Project (NSDCRRWP) – Phase II*.

#### **Project Need**

Southern California faces many water supply challenges exacerbated by unreliable local water supplies. This has led to a heavy reliance on imported water, particularly in the San Diego IRWM Region, which receives approximately 80% of its water supply from imported sources. Droughts, climate change, population growth, legal, and environmental constraints combine to reduce or strain imported water supply reliability. Recycled water offers a reliable, drought-proof option for augmenting water supplies. *NSDCRRWP-Phase II* will ensure a more reliable water supply for the Region by implementing activities to produce and distribute recycled water to customers for non-potable uses. *NSDCRRWP-Phase II* will also reduce dependence on increasingly expensive imported water, saving money and helping to meet State preferences and priorities.

Over time, the ten partner agencies involved in this project have developed separate and very limited integrated recycled water systems throughout the same general area in northern San Diego County. This project provides an integrated solution to addressing water supply challenges by coordinating development of comprehensive recycled water infrastructure to distribute additional recycled water supplies through integrated systems. Integration of facilities will allow recycled water to play an even more substantial role in meeting future water needs. *NSDCRRWP-Phase II* project will build on elements of an existing project (*NSDCRRWP-Phase I*) to implement multiple construction components of the regional recycled water supply and distribution system.

#### **Project Purpose**

*NSDCRRWP-Phase II* will increase the production and use of recycled water produced in the Region. By increasing the capacity and connectivity of the recycled water storage and distribution systems of the Project Partners, *NSDCRRWP-Phase II* encourages recycled water use, reduces costs, reduces imported water demand, and creates a more efficient system than could be completed the ten Project Partners on an individual basis. Included project components will replace potable water pipelines and irrigation systems with recycled water systems, convert numerous facilities to recycled water service, connect discrete recycled water systems to one another, increase recycled water storage capacity, and redistribute recycled water to more effectively meet demands.

#### **Project Abstract**

*NSDCRRWP-Phase II* represents a coordinated effort between several North San Diego County water and wastewater agencies to maximize recycled water use within the North San Diego County region. The proposed project includes 10 components designed to regionalize recycled water facilities so that agencies with the ability to generate recycled water in excess of local demand (i.e., within their service area) can provide recycled water to areas where additional supplies are needed. Together, the pipelines, pump stations, storage tanks, and interties constructed in this project will cumulatively produce an estimated 6,790 acre-feet per year (AFY) of recycled water and reduce the region's potable water demands. This will directly offset the use of potable supplies imported through the State Water Project (SWP) and the Colorado River Authority (CRA) via the San Diego County Water Authority (Water Authority) and the Metropolitan Water District (MWD).

The following sections describe each of the ten construction components, which will be implemented by the following municipalities:

1. Leucadia Wastewater District (LWD)
2. Vallecitos Water District (VWD)
3. Vista Irrigation District (VID)

4. Rincon del Diablo Municipal Water District (RMWD)
5. Olivenhain Municipal Water District (OMWD)
6. Santa Fe Irrigation District (SFID)
7. Carlsbad Municipal Water District (Carlsbad MWD)
8. City of Escondido (Escondido)
9. City of Oceanside (Oceanside)
10. San Elijo Joint Powers Authority (SEJPA)

Table 3-4 provides an overview of the ten project components and the volume of recycled water produced and distributed by each component.

**Table 3-4: Recycled Water Distributed Via NSDCRRWP-Phase II Components**

NSDCRRWP-Phase II Component	Recycled Water (AFY)
Component 1-1: LWD Regional System Connection	250
Component 1-2: VWD Pump Improvements	300
Component 1-3: VID Golf Course Recycled Water	200
Component 1-4: RMWD Northwest Recycled Water Expansion	16
Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water	350
Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements	50
Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion	454
Component 1-8: Escondido Recycled Water Easterly Main Extension	4,570
Component 1-9: Oceanside Reclaimed Water Main Extension	600
Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage	*
<b>Total</b>	<b>6,790</b>
* Provides 350 AFY storage for Component 1-5	

#### **Component 1-1: LWD Regional System Connection**

LWD owns the Gafner Water Recycling Plant (Gafner WRP), in Carlsbad, CA, which has a peak production capacity of 1 million gallons per day (MGD). Approximately one-half of the Gafner WRP's seasonal demand-dependent production is delivered to the La Costa Resort & Spa's golf course water feature (275 AFY). The LWD Regional System Connection Project would construct a high pressure pump station and 1,200 feet of transmission pipeline to connect to an existing OMWD transmission pipeline. This would allow up to a half of the Gafner WRP's capacity (currently unused) to be used by OMWD, stored in the to-be-converted Wanket Tank (see Project 1-10 below), or fed into Carlsbad MWD's recycled water distribution system, which is being connected to OMWD via a separate future project.

#### **Component 1-2: VWD Pump Improvements**

VWD currently treats an average of 3.85 MGD of wastewater to tertiary (recycled water) standards at its Meadowlark Water Reclamation Facility (WRF). VWD has an agreement with the Carlsbad MWD to supply up to 3.0 MGD of recycled water from the Meadowlark WRF. VWD has a similar agreement with OMWD to supply up to 1.5 MGD of recycled water from the Meadowlark WRF. By expanding the production capacity at the Meadowlark WRF, VWD will be able to deliver additional recycled water to these two agencies and assist in their individual goals and the regional goal to expand recycled water use. This project component would replace a constant speed motor driven pump with a new higher-capacity variable frequency drive at VWD's Lift Station Number 1. This would increase the station's capacity to 3,100 gallons per minute and result in an increase in the wastewater flow to Meadowlark from 4.15 MGD to 4.75 MGD. These additional flows will increase the recycled water production at Meadowlark WRF to an average of 4.4 MGD. This project component will also overhaul the discharge pipeline arrangement and the lift station's electrical package to accommodate the increased flow. Ultimately, this project component will increase the recycled water capacity of the VWD and the region as a whole.

***Component 1-3: VID Golf Course Recycled Water***

The VID component would provide recycled water to the Shadowridge Golf Course. The golf course had previously used recycled water from the Shadowridge WRF. However, that treatment plant was shut down several years ago. This project component will supply recycled water to the golf course by connecting to and using water from Carlsbad MWD's recycled water system. This project component will include construction of a metered connection from Carlsbad MWD's 12-inch recycled water main at the intersection of Melrose Dr. and Faraday Ave. to the Shadowridge WRF's 14-inch failsafe pipeline. A major piece of this project component would utilize a portion of the Shadowridge WRF's failsafe pipeline, which has been idled since the plant was shutdown. Joints in the section of the failsafe pipeline downstream of the Shadowridge WRF to the connection with Carlsbad MWD's system would be inspected and restrained, to ensure pipeline integrity. The project component would also require installation of approximately 400 feet of 8-inch pipeline from the terminus of failsafe pipe at the Shadowridge WRF to VID's existing 16-inch pipeline north of the Shadowridge WRF. Lastly, a 4-inch potable water meter would also be installed at golf course's irrigation pond for supplemental water supply and blending.

***Component 1-4: RMWD Northwest Recycled Water Expansion***

RMWD's Northwest Recycled Water Expansion Project aims to provide recycled water for irrigation in open areas near the Escondido Country Club that are currently irrigated with potable water. It will also serve potential customers in the northern portion of the RMWD's service area, and extend recycled water piping to serve a future filling station near the Rockhoff Pump Station for construction water use. It is estimated that potable water demand will be offset by 16 AFY once this project has been completed.

***Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water***

This project will construct new and convert existing potable facilities in OMWD's Northwest Quadrant service area to expand OMWD's recycled water system. Facilities will be constructed in the Village Park community of Encinitas to convert common areas of homeowner associations and schools from potable to recycled water. This project is estimated to offset 350 AFY of current potable water use with recycled water, and improve access to recycled water supplies in the area.

***Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements***

SFID purchases wholesale recycled water from SEJPA for use by multiple customers within its western service area. Additional customers have been identified who could be converted from potable water to recycled water use if appropriate on-site retrofit improvements were made. This project would construct the required on-site recycled water irrigation improvements for a mixture of schools, commercial properties, homeowners associations, and estate residences. It is estimated that approximately 50 AFY of potable water use would be offset by recycled water when this project is completed. Additionally, the proposed residential estate customer would serve as a template for connecting other large estates to recycled water systems in the region.

***Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion***

The Carlsbad MWD and the City of Oceanside will partner on this project to extend the North El Camino Real Recycled Water Pipeline, with Carlsbad MWD taking the lead. This expansion would install 14,000 feet of pipeline within El Camino Real and Vista Way, enabling Carlsbad MWD and the City of Oceanside to meet existing irrigation demands with recycled water. Customers converting from potable water use to recycled water use include schools, parks, homeowner associations, a mall, golf course driving range, median landscaping, and the El Camino County Club. This project component will allow an estimated 454 AFY of potable water demand to be offset with recycled water, including 180 AFY of demand at the County Club, which is located in the City of Oceanside.

***Component 1-8: Escondido Recycled Water Easterly Main Extension***

The Escondido Recycled Water Easterly Main Extension Project will reduce the amount of treated wastewater being sent to the ocean via a near-capacity outfall. This project component involves the construction of 5.1 miles of a 24-inch recycled water main, which will allow Escondido to reduce the amount of potable water that is currently being used for agricultural, golf course, park, and other irrigation

purposes. As with several of the other project components, increasing recycled water use will also help prevent the need for a new ocean outfall, reduce dependence on imported water, and reduce costs.

**Component 1-9: Oceanside Reclaimed Water Main Extension**

The City of Oceanside’s project component would consist of a pipeline extension from Faraday Ave. (in Carlsbad MWD service area) to Melrose Dr. (in VID’s service area) to serve the Shadowridge Golf Course (see Component 1-3) and an extension to the west (in Oceanside’s service area) to serve the Ocean Hills golf course and greenbelt areas. The project may involve purchase of an abandoned failsafe outfall pipeline in Melrose Dr., currently owned by the City of Vista and converting the pipeline to recycled water use. The remainder of the project consists of the installation of pipeline along Melrose from the Shadowridge Golf Course north to Cannon Rd. and west to Lake Blvd., servicing both a middle school and an elementary school. The total project consists of approximately 8,140 feet of 12-inch pipeline and 6,300 feet of 8-inch pipeline.

**Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage**

SEJPA seeks to increase its recycled water capacity by converting existing potable water tanks to recycled water storage. Currently, SEJPA is considering two tanks for conversion: (1) a 3-million-gallon steel water tank jointly owned by OMWD and the San Dieguito Water District and (2) an earthen-basin wastewater equalization tank at the San Elijo Water Reclamation Facility. An evaluation of the tanks for conversion to recycled water storage will determine which of the two will be more economical to convert, which will allow for conversion of one of the tanks to move forward. The steel tank would allow recycled water use to be expanded in the City of Encinitas, providing an estimated 350 AFY of recycled water. The earthen basin tank would allow onsite storage of approximately one million gallons of finished-product recycled water, and is estimated to also provide approximately 350 AFY of additional capacity to the four water purveyors that the SEJPA currently serves. As such, the addition of recycled water storage through conversion of either tank will allow SEJPA to serve at least 350 AFY of new system demand.

**Project Objectives**

Though each component included within this project may have its own specific objectives, the cumulative objectives of the overall NSDCRRWP-Phase II are presented below. These objectives encompass all of the individual objectives of each individual component.

- Increase the storage, production, and use of recycled water
- Reduce the Region’s dependence on imported water
- Reduce the amount of wastewater sent to the ocean
- Improve water supply reliability
- Achieve better economy of scale and provide cost-effective recycled water supplies
- Expand interagency cooperation
- Improve the implementation process for recycled water systems
- Assist agencies in meeting the target of reducing potable water use by 20% by 2020 as set forth in the Water Conservation Act of 2009 (Senate Bill X7-7)

Table 3-5 provides an overview of the draft 2013 IRWM Plan Update Objectives that are expected to be achieved through implementation of the *North San Diego County Regional Recycled Water Project – Phase II*.

**Table 3-5: Contribution to Draft 2013 IRWM Plan Update Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
North San Diego County Regional Recycled Water Project	●	○	●		●	●		●			○

○ = indirectly related  
● = directly related

The *North San Diego County Regional Recycled Water Project – Phase II* will contribute to the following draft IRWM Plan Update Objectives:

**Objective A – Integrated solutions to water management issues and conflicts:** This project developed in part through the Strategic Integration Workshop, as described above. This project is also achieves the Integrated Solutions objective by meeting the Partnership, Beneficial Uses, and Geography definitions of integration, as described above.

**Objective B – Maximize stakeholder involvement and stewardship:** This project will involve community outreach and education components about the benefits of using recycled water for non-potable uses. All 10 partners in this process will conduct specific outreach to potential recycled water users.

**Objective C – Effectively obtain, manage, and assess water resources data:** This project will collect and assess data related to the recycled water systems within the project partners' combined service areas. As a result, the 10 partners will have access to a consolidated dataset that identifies existing and planned recycled water facilities throughout the region.

**Objective E – Develop and maintain a diverse mix of water resources:** The project will include construction of facilities to provide approximately 6,790 additional AFY of recycled water to users throughout northern San Diego County. This will help to diversify water resources within the project area.

**Objective F – Construct, operate, and maintain a reliable infrastructure:** This project will implement project components that interconnect and maximize the use of recycled water within the project partners' combined service area. Coordination of 10 recycled water systems will maximize the use of current and planned treatment plants and conveyance facilities.

**Objective H – Effectively reduce sources of pollutants and environmental stressors:** This project will maximize use of recycled water, which will reduce wastewater discharges to ocean outfalls.

**Objective K – Effectively address climate change through adaptation or mitigation in water resource management:** Expanded recycled water use would reduce greenhouse gas (GHG) emissions associated with the conveyance and treatment of imported water. Diversifying local water supplies is an important climate change adaptation measure for the San Diego Region.

**Project Partners**

All project partners are part of the North San Diego County Regional Recycled Water Group, which is implementing many of the projects identified in the NSDCRRWP. Partners specific to each component of the *NSDCRRWP – Phase II* are listed in Table 3.6 below.

**Table 3-6: Project Partners for NSDCRRWP-Phase II Components**

Project Component	Lead Agency	Partners
Component 1-1: LWD Regional System Connection	Leucadia Wastewater District	Olivenhain Municipal Water District, City of Carlsbad
Component 1-2: VWD Pump Improvements	Vallecitos Water District	
Component 1-3: VID Golf Course Recycled Water	Vista Irrigation District	City of Carlsbad, City of Oceanside
Component 1-4: RMWD Northwest Recycled Water Expansion	Rincon del Diablo Municipal Water District	City of Escondido
Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water	Olivenhain Municipal Water District	San Elijo Joint Powers Authority, Carlsbad Municipal Water District, and Leucadia Wastewater District
Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements	Santa Fe Irrigation District	San Elijo Joint Powers Authority, City of Solana Beach, and County of San Diego
Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion	Carlsbad Municipal Water District	City of Oceanside
Component 1-8: Escondido Recycled Water Easterly Main Extension	City of Escondido	
Component 1-9: Oceanside Reclaimed Water Main Extension	City of Oceanside	Vista Irrigation District, Carlsbad Municipal Water District
Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage	San Elijo Joint Powers Authority	Olivenhain Municipal Water District, San Dieguito Water District, and Encinitas Ranch Golf Authority

### **Project Integration**

The NSDCRRWP-Phase II components are intended to provide a comprehensive approach to further development and expansion of recycled water systems in the north San Diego County area. All projects will help to improve water supply reliability by providing recycled water to users in place of potable water supplies. Specific integration of the components and the larger recycled water systems within the North County are discussed below:

#### ***Component 1-1: LWD Regional System Connection***

The LWD Regional System Connection has a linkage with the OMWD Conversion of Distribution Facilities to Recycled Water (Component 1-5), which includes conversion of the 3-million gallon Wanket Tank from potable to recycled water service. The LWD project will provide flexibility to OMWD in procuring recycled water from several neighboring agencies of which LWD is one.

#### ***Component 1-2: VWD Pump Improvements***

VWD has an agreement with the Carlsbad MWD to supply up to 3.0 MGD of recycled water from the Meadowlark WRF. VWD has a similar agreement with the OMWD to supply up to 1.5 MGD of recycled water from the Meadowlark WRF. By expanding the production capacity at the Meadowlark WRF, VWD is able to deliver additional recycled water to these two agencies and assist in their individual goals and the regional goal to expand recycled water use.

#### ***Component 1-3: VID Golf Course Recycled Water***

The NSDCRRWP identified supplying recycled water to the Shadowridge Golf Course and other recycled water markets in the vicinity as a potential project that would require integration of several agencies projects and systems. The Oceanside Melrose Drive Reclaimed Water Main Extension (Component 1-9) would extend the VID project to markets within the City of Oceanside as well as other VID markets along

the pipeline route. Recycled water from the City of Carlsbad's existing system will provide the supply to both the VID Course Recycled Water component and to Component 1-9.

#### ***Component 1-4: RMWD Northwest Recycled Water Expansion***

This project would utilize recycled water from the City of Escondido's Hale Avenue Resource Recovery Facility (HARRF), as would the Escondido Recycled Water Easterly Main Extension (Component 1-8). As such, it will help with the City's goal to help prevent the need for a new ocean outfall.

#### ***Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water***

OMWD's conversion project will generate the demand to accommodate the additional supply that will be created by SEJPA Conversion of Existing Tanks to Recycled Water Storage (Component 1-10). A recycled water purchase agreement was signed in 2012, and a small interconnection between the two agencies' facilities was constructed in early 2013 near the Wanket Reservoir site. LWD Regional System Connection (Component 1-1) will connect LWD to OMWD recycled water system, offering an additional source of recycled water supply to OMWD. Improved supply and storage reliability in OMWD's system will also help Carlsbad MWD's recycled water system as the two systems are linked via the LWD system, and additional linkages have been identified as part of the North San Diego County Regional Recycled Water Project (NSDCRRWP) – Phase I study.

#### ***Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements***

SFID's project would utilize recycled water produced by SEJPA Conversion of Existing Tanks to Recycled Water Storage (Component 1-10), which has a goal of trying to maximize recycled water use to reduce ocean discharges.

#### ***Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion***

Carlsbad MWD's project will provide recycled water to the City of Oceanside, which will allow both agencies to increase recycled water use and reduce discharges of wastewater to the ocean.

#### ***Component 1-8: Escondido Recycled Water Easterly Main Extension***

This project will provide recycled water to the local agricultural community, thereby improving their water supply reliability. Along with RMWD Northwest Recycled Water Expansion (Component 1-4), the project would distribute recycled water from the HARRF to new customers in the City's eastern service area.

#### ***Component 1-9: Oceanside Melrose Drive Reclaimed Water Main Extension***

This project is in cooperation with the VID Golf Course Recycled Water (Component 1-3), which would allow for additional recycled water to be served to City of Oceanside users via the proposed connection with the Carlsbad MWD's existing recycled water system.

#### ***Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage***

This conversion project will provide necessary recycled water storage to (1) serve new OMWD distribution system and planned customers, (2) serve new San Dieguito Water District customers planned for connection in 2013, (3) serve new SFID customers planned for connection in 2014, and (4) receive recycled water produced from the newly constructed Advanced Water Treatment Facility owned by the SEJPA. In addition, in 2012, the SEJPA and OMWD entered into a 20-year recycled water purchase agreement. Furthermore, LWD Regional System Connection (Component 1-1) will connect LWD to OMWD's recycled water system, potentially offering an alternative source of recycled water supply into the converted 3-million gallon steel reservoir tank. The viability of each of these agencies as a recycled water source for OMWD was established in the Study of Recycled Water Supply Options for the Northwest Quadrant conducted for OMWD by DLM Engineering in May 2012.

#### **Completed Work**

The following sections document completed work for NSDCRRWP-Phase II and each project component. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR.

### ***North San Diego County Regional Recycled Water Project***

- North San Diego County Regional Recycled Water Project Report, Prepared by RMC, April, 2012

#### ***Component 1-1: LWD Regional System Connection***

- Leucadia County Water District (now LWD), La Costa Albertson's No. 6720, Carlsbad, CA, Plans for the Construction of Storm Drain, and Reclaimed Water Pipelines (900 feet of 16" DIP), Sheet 4 of 8, O'Day Consultants, As-Built Drawings July 19, 2002.
- Technical Memorandum for LWD, by Dudek, October 27, 2010, Recycled Water demand and cost per AF for existing and through Phase 5.
- North San Diego County Regional Recycled Water Project Report, Prepared by RMC, April, 2012: 1) Page 3-2 Table 3-1, Existing and Future Recycled Water Supplies, Gafner WRP; 2) Page 3-6, Gafner WRP description; Page 5-6. Table 5-4, Short Term Project – Additional Recycled Water Demand by Plant (200 AFY to OMWD and 200 AFY to Carlsbad).

#### ***Component 1-2: VWD Pump Improvements***

- Vallecitos Water District, Lift Station No. 1 Upgrades Alternatives Analysis. This analysis estimates the amount of wastewater flow that can be delivered to the Meadowlark WRF under several infrastructure improvement alternatives. Under Alternative 4, which is the selected project alternative, the estimated flow rate of wastewater that can be delivered to the Meadowlark WRF is 4.78 after upgrading the pumps to 3,100 gallon-per-minute capacity.
- Design and construction specifications are projected to be completed in April 2013

#### ***Component 1-3: VID MWD Golf Course Recycled Water***

- Shadowridge Golf Course Recycled Water Supply Analysis, dated October 9, 2012 – Water use for the Golf Course in 2010 and 2011 averaged approximately 200 acre-feet per year (page 2).
- City of Carlsbad adopted a Mitigated Negative Declaration that includes the project.
- A study is underway to evaluate the partnership opportunities with the City of Oceanside and potential customers along the proposed pipeline corridor to the City of Oceanside.

#### ***Component 1-4: RMWD Northwest Recycled Water Expansion***

- Preliminary Design Report – alignment evaluation, conceptual filling station siting, existing demand review and pipe sizing, utility coordination, survey, easement review. Average annual recycled water demand for users was based on one-half the maximum monthly demand for each user and total 16 AFY for the project. See page 5 in the attached PDR for a review of existing meter records.
- 50% design and construction specifications
- 90% design and construction specifications
- 100% design and construction specifications
- CEQA Notice of Exemption (NOE)

#### ***Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water***

- Update of Potable and Recycled Water Master Plan Capital Improvement Program, completed by AECOM for OMWD, March 2011. Refer to pages 6-1 through 6-3.
- Northwest Quadrant/Village Park Recycled Water Study, completed by AECOM for OMWD, April 2011. Refer to page 6 for recycled water demands, and to pages 15-16 for cost estimates.
- Study of Recycled Water Supply Options for the Northwest Quadrant conducted by DLM Engineering for OMWD, May 2012.

- Preliminary Design Report for Northwest Quadrant Recycled Water Project Phase II: Wanket Reservoir Improvements, Technical Memorandum 2, prepared by Trussell Technologies, Inc for OMWD, November 2012.
- Preliminary Design Report for Northwest Quadrant Recycled Water Project Phase II: Technical Memorandum 3. This document shows 350 AFY of demand in Village Park based on a hydraulic analysis of irrigation demands in the study area.

#### ***Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements***

- 2009 Asset Management Master Plan- confirmation of users and usage, Section 9, pages 9-1 to 9-20.

#### ***Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion***

- CMWD has completed a feasibility study for its Phase III Recycled Water Project, dated June 2012 showing the existing irrigation customer site locations, summarized their annual and peak irrigation demands, and developed the facilities required to supply the recycled water to the sites and associated project cost estimate. Pipeline Expansion Segment 5 projects a recycled water demand of 454 AFY including 180 AFY within the City of Oceanside. A detail description of the Expansion Segment 5 and customer list are shown on pages 52, 61, and 62 of this report.
- In November 2012, the CMWD Board approved the mitigated negative declaration for the Phase III Recycled Water Project, which include the North El Camino Real Recycled Water Pipeline, referred to as Expansion Segment 5, and appropriated funding to initiate final design.
- Final design of the pipeline is scheduled to be completed prior to the grant award date.

#### ***Component 1-8: Escondido Recycled Water Easterly Main Extension***

- Preliminary Design Report, prepared by RMC Water and Environment, August 2012.
- Final design was began in September 2012 is expected to be completed in June 2013.
- Two construction bid packages are expected to be released in July or August 2013.
- An environmental MND is being prepared and is expected to be completed in June 2013.

#### ***Component 1-9: Oceanside Melrose Drive Reclaimed Water Main Extension***

- North San Diego County Regional Recycled Water Project completed the Regional Recycled Water Facilities Plan that identified the potential recycled water demands which is located on page 4-11 of that report.
- Currently working on the Preliminary Design Report that will detail the pipeline alignment.
- A CEQA Mitigated Negative Declaration will be prepared in the Fall of 2013.

#### ***Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage***

- San Elijo Water Reclamation Facility Master Plan, prepared by Carollo Engineers, December 2007. Refer to pages 28 through 35.
- Conceptual Design Report for: Flow Equalization/Recycled Water Storage Facility, prepared by Infrastructure Engineering Corporation, March 2009
- Update of Potable and Recycled Water Master Plan Capital Improvement Program, completed by AECOM for OMWD, March 2011. Refer to pages 6-1 through 6-3 for a project summary, and to page A-1 for cost estimates. Northwest Quadrant/Village Park Recycled Water Study, completed by AECOM for OMWD, April 2011. Refer to page 6 for recycled water demands, and to pages 12-16 for cost estimates.
- Study of Recycled Water Supply Options for the Northwest Quadrant conducted for OMWD by DLM Engineering in May 2012.

- Preliminary design of Village Park Recycled Water Distribution Facilities currently underway as of January 2013; final design expected prior to September 2013.
- Recycled Water Master Permit Amendment
- Construction of the Advanced Water Treatment Facility at the San Elijo Water Reclamation Facility, March 2013.

### Project Timing and Phasing

In the 1980s and 1990s, several water and wastewater agencies located in the northern portion of the Region partnered together to receive Federal funding (Title XVI recycled water grant funding) to expand their recycled water systems. As a result of this success, additional agencies joined together to conduct further investigations on expanding the use of recycled water within the northern portion of the Region. These additional efforts have resulted in the NSDCRRWP, which will allow the project partners to implement additional expansion and, in some cases, linkages of their recycled water systems to allow for further increases in recycled water use. *NSDCRRWP-Phase I* consisted of a study assessing the potential for further expansion of recycled water in the region, including an assessment of further inter-agency cooperative projects. Recycled water opportunities identified in the first phase were based on previous and ongoing agency planning efforts as well as an assessment of new opportunities.

With the completion of the regional study, agencies have identified an initial set of construction components as *NSDCRRWP-Phase II*. The design, permitting, and environmental documentation for these Phase II projects have been completed or are in progress to be completed such that Phase II will focus on construction and other implementation activities.

### Project Map

The following section contains several maps that demonstrate the geographical location and surrounding work boundaries of each of the ten project components included in the *NSDCRRWP-Phase II*, as well as a general overview map that shows the entire area covered by the project. Note that component maps provided by project partners and were sourced from supporting documents included as Completed Works above.

Figure 3-3 is an overview map that shows the entire NSDCRRWP study area, which is generally bound by the Pacific Ocean to the west, the City of Escondido's service area to the east, the border of the City of Carlsbad's service area and the City of Oceanside's service area to the north, and SFID's service area to the south.

Component 1-1 Map: Figure 3-3-1 depicts the LWD Regional System Connection Project components and locations. Please note that the blue "P" on the map indicates the location of the high pressure pump station, the blue and red pipelines are existing LWD pipelines, and the orange pipeline is the 1,200 feet of transmission pipeline included in the project that would connect to an existing OMWD pipeline (in purple).

Component 1-2 Map: Figure 3-3-2 depicts the VWD Pump Improvements components and locations. As described above, improvements would be made to the existing Lift Station Number 1, located along San Marcos Boulevard in San Marcos, CA.

Component 1-3 Map: Figure 3-3-3 depicts the VID Golf Course Recycled Water Project components and locations. As described above, improvements would be made to the existing 14-inch failsafe pipeline, and would include construction of 400 feet of 8-inch pipeline to connect to an existing VID pipeline to ultimately connect to the Shadowridge Golf Course.

Component 1-4 Map: Figure 3-3-4 depicts the RMWD Northwest Recycled Water Expansion Project components and locations. Existing recycled water infrastructure is indicated in purple, and additional pipelines are indicated in red. In addition, piping would be placed to serve a future filling station near the Rockhoff Pump Station (construction water filling station).

Component 1-5 Map: Figure 3-3-5 depicts the OMWD Conversion of Distribution Facilities to Recycled Water components and locations. New pipelines to serve the Village Park community are indicated in red and yellow.

Component 1-6 Map: Figure 3-3-6 depicts the SFID Onsite Recycled Water Irrigation System Improvements Project components and locations. This project component would serve identified recycled water users within the western area of SFID's service area, which are indicated in blue on the graphic. The pink lines indicate existing recycled water pipelines, while the blue hashed line indicates proposed recycled water pipelines.

Component 1-7 Map: Figure 3-3-7 depicts the Carlsbad MWD Recycled Water Pipeline Expansion Project components and locations. The proposed recycled water pipeline alignment is indicated in green, while existing water pipelines are indicated in purple.

Component 1-8 Map: Figure 3-3-8 depicts the Escondido Recycled Water Easterly Main Extension Project components and locations. The figure shows the proposed and existing recycled water pipelines, as well as the recycled water customers that would be served by the project (eastern agriculture, Oak Hill Memorial Park, Eagle Crest Golf Course, and San Diego Safari Park).

Component 1-9 Map: Figure 3-3-9 depicts the Oceanside Reclaimed Water Main Extension Project components and locations. The figure shows the project area outlined in yellow, which includes the pipeline extension from Faraday Avenue to Melrose Drive to serve the Shadowridge Golf Course, Ocean Hills Golf Course, and greenbelt areas.

Component 1-10 Map: Figure 10 depicts the SEJPA Conversion of Existing Tanks to Recycled Water Storage components and locations. The first graphic shows the location of the existing steel water tank (Wanket Reservoir) in Encinitas, CA. The second graphic shows the San Elijo Water Reclamation Facility where the earthen-basin tank is located. One of these facilities will be converted to recycled water use as part of this project component.

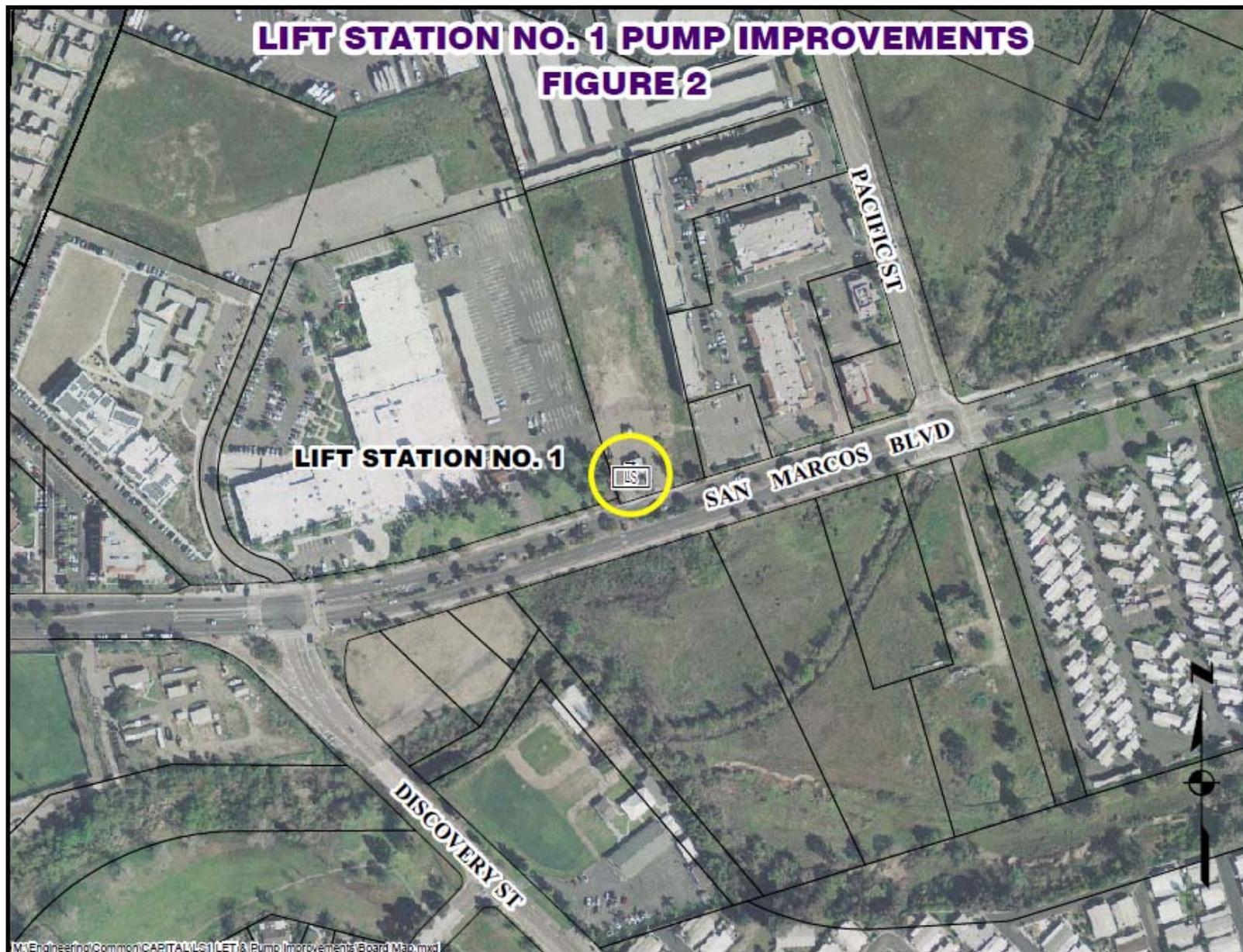


Figure 3-3-1: Map of Component 1-1: LWD Regional System Connection

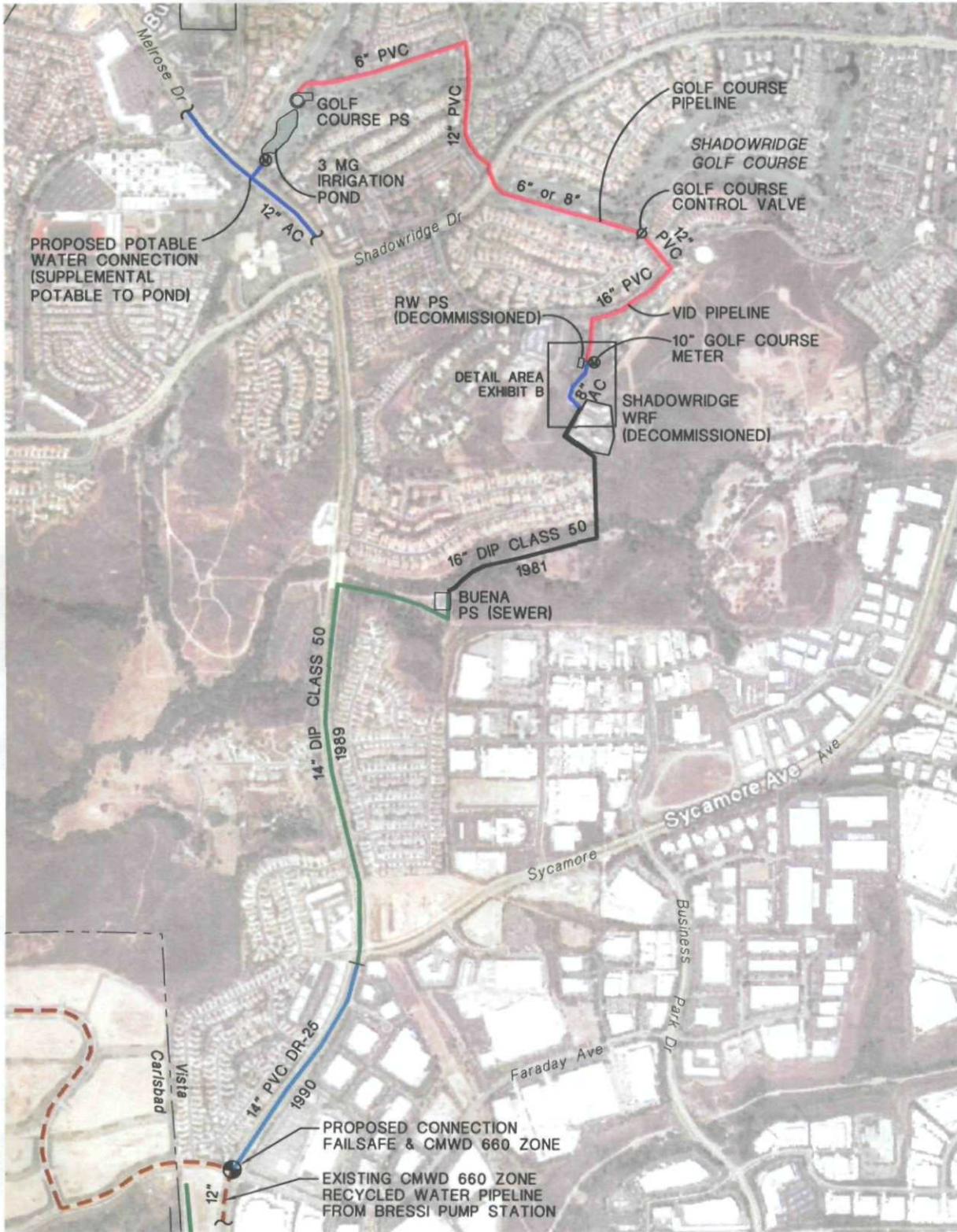


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Figure 3-3-2: Map of Component 1-2: VWD Pump Improvements



**Figure 3-3-3: Map of Component 1-3: VID Golf Course Recycled Water**



**660 ZONE  
PROPOSED RECYCLED WATER SUPPLY  
TO SHADOWRIDGE GOLF COURSE  
ALTERNATIVE A**

Figure 3

**Figure 3-3-4: Map of RMWD Northwest Recycled Water Expansion**

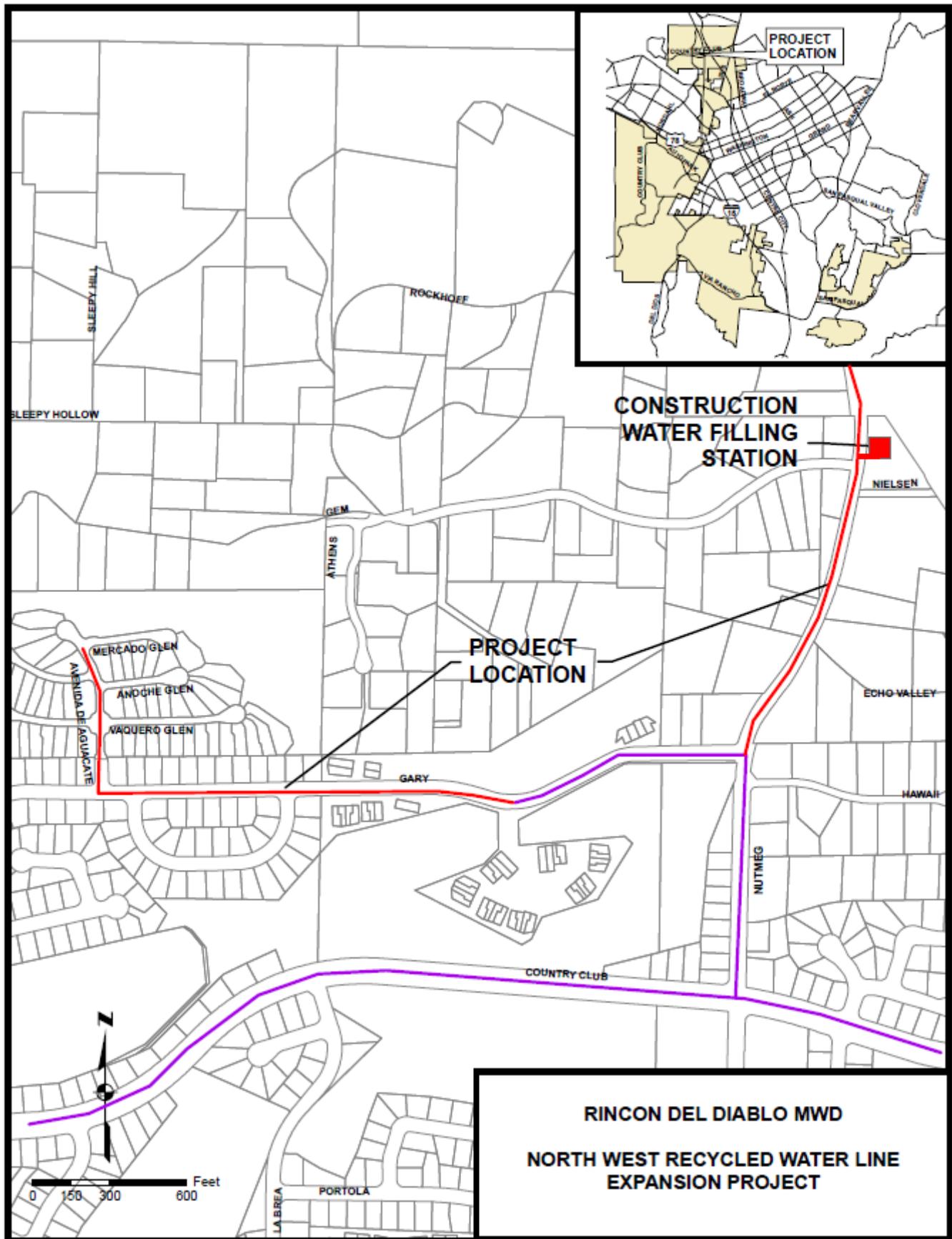
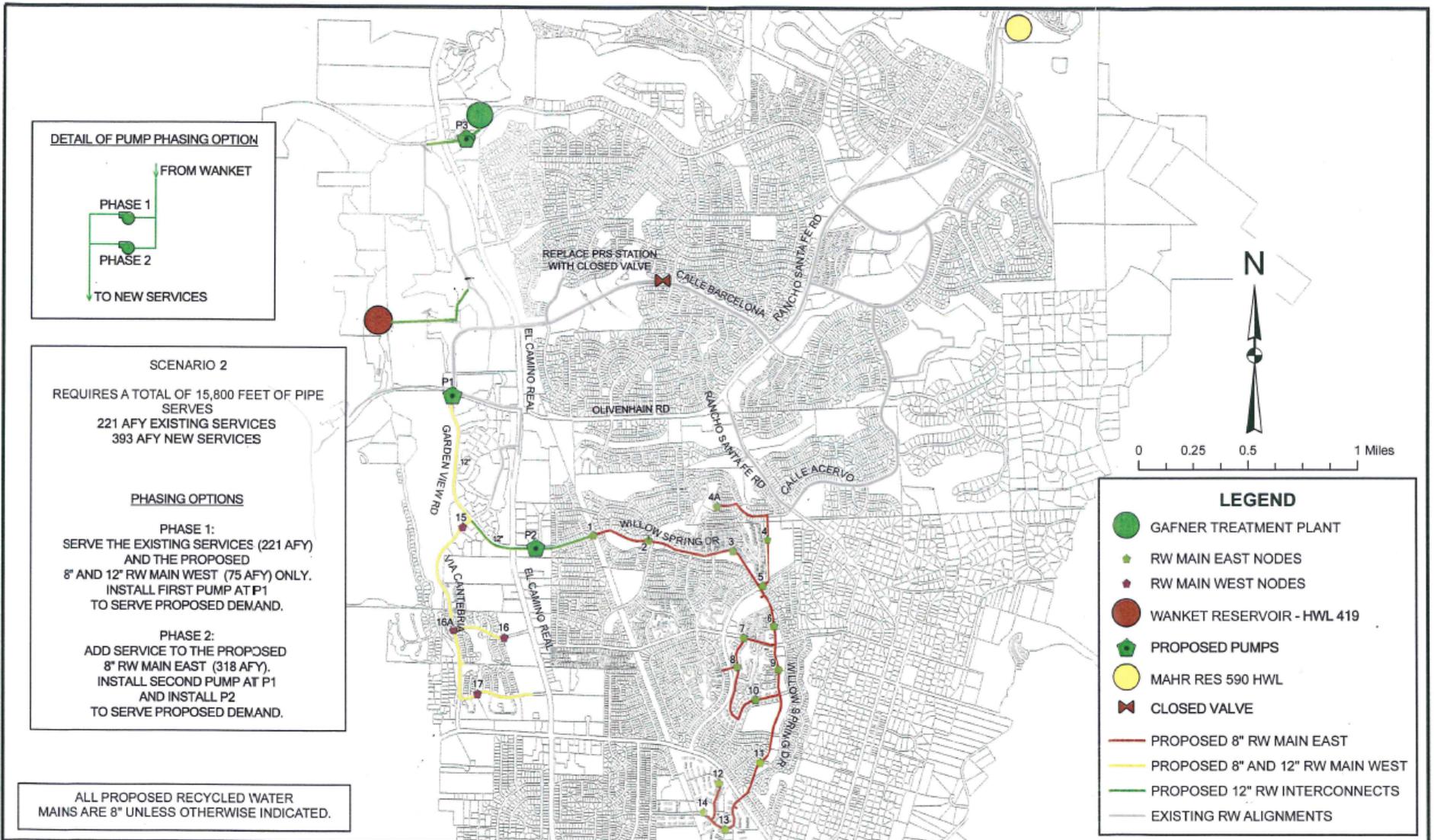
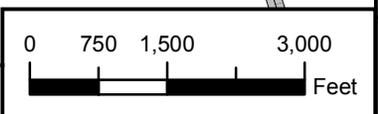
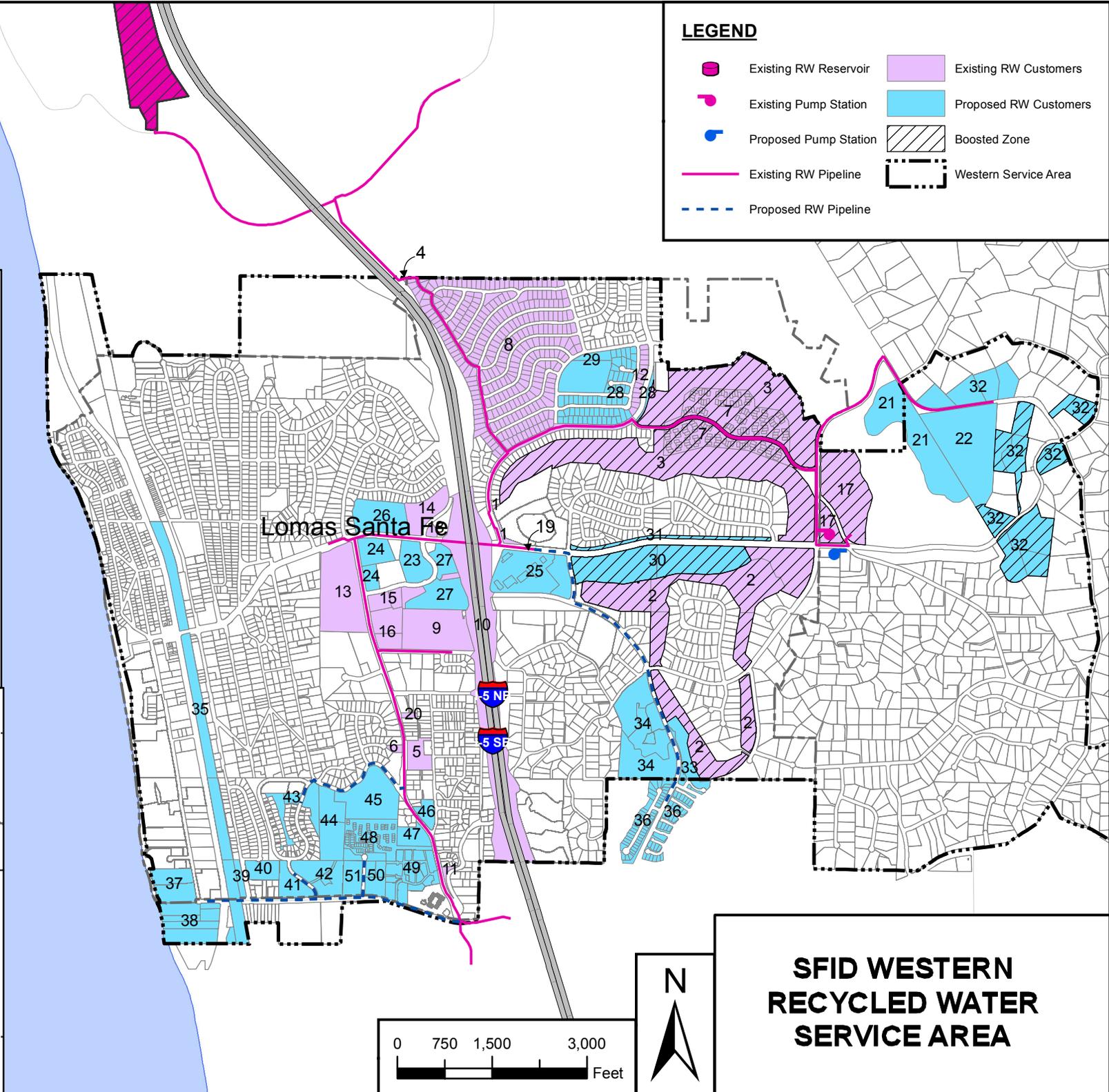
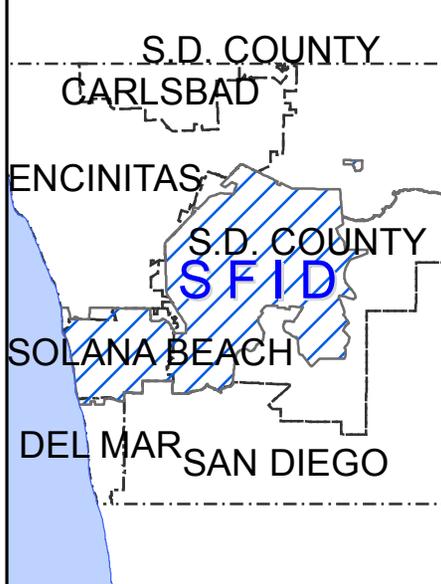


Figure 3-3-5: Map of OMWD Conversion of Distribution Facilities to Recycled Water



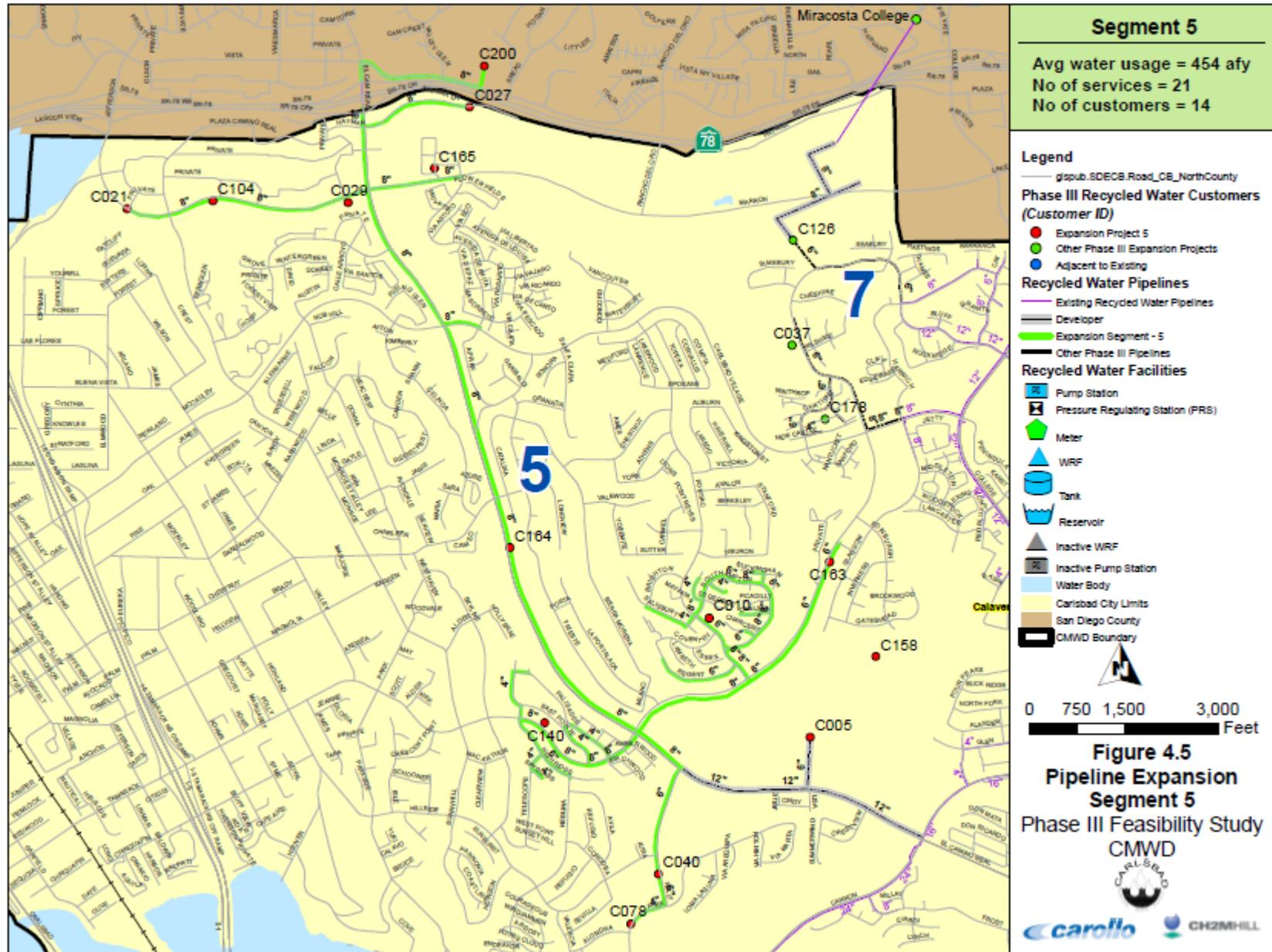
**LEGEND**

-  Existing RW Reservoir
-  Existing RW Pipeline
-  Proposed Pump Station
-  Proposed RW Pipeline
-  Existing RW Customers
-  Proposed RW Customers
-  Boosted Zone
-  Western Service Area



**SFID WESTERN  
RECYCLED WATER  
SERVICE AREA**

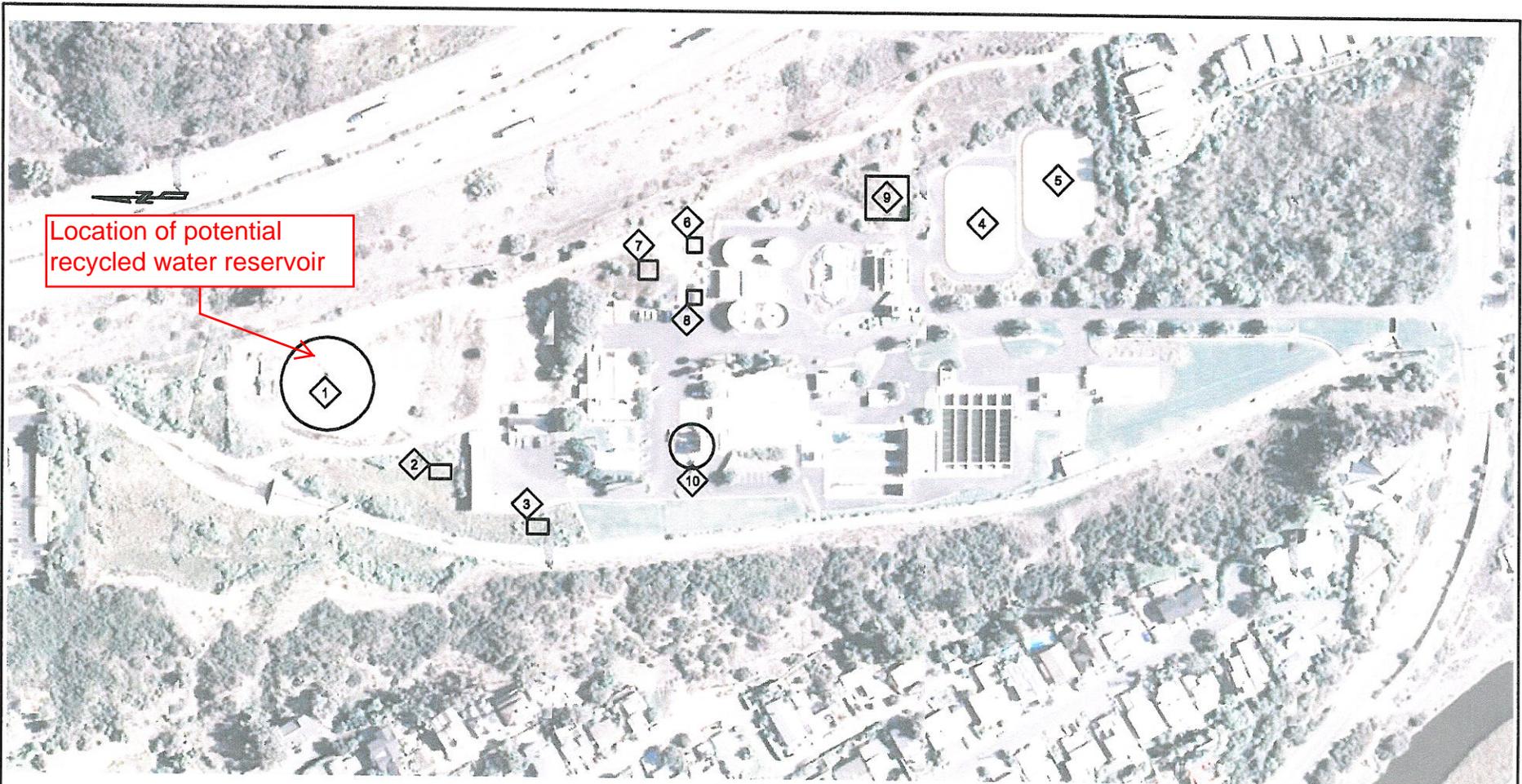
Figure 3-3-7: Map of Component 1-7 Carlsbad MWD Recycled Water Pipeline Extension







**Figure 3-3-10: Map of Component 1-10 SEJPA Conversion of Existing Tanks to Recycled Water Storage**



**LEGEND:**

- |   |  |    |                                    |
|---|--|----|------------------------------------|
| 1 | POTENTIAL RECYCLED WATER RESERVOIR             | 6  | POTENTIAL FOG FACILITIES           |
| 2 | POTENTIAL SOLIDS TRANSFER STATION OPTION No. 1 | 7  | POTENTIAL ACID PHASE DIGESTER      |
| 3 | POTENTIAL SOLIDS TRANSFER STATION OPTION No. 2 | 8  | EXISTING COGENERATION FACILITIES   |
| 4 | EXISTING PRIMARY EFFLUENT EQUALIZATION BASIN   | 9  | POTENTIAL SLUDGE DRYING FACILITIES |
| 5 | EXISTING PRIMARY EFFLUENT EQUALIZATION BASIN   | 10 | EXISTING WASHER/COMPACTOR          |

SAN ELIJO WATER RECLAMATION PLANT  
FACILITY MASTER PLAN  
MASTER SITE PLAN

FIGURE ES1  
SAN ELIJO JOINT POWERS AUTHORITY



## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. *NSDCRRWP- Phase II* will contribute \$103,560 to this administrative effort. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

OMWD will be responsible for administration of the grant contract. The ten partner agencies that participate in the NSDCRRWP operate under cooperative cost sharing agreements. These agreements are entered into with the consent of each of the partnering agencies Board of Directors and approval takes place in open session public meetings. The agreements outline agency responsibilities and cost-sharing commitments. All contract management activities associated with quarterly reporting are included under Task 3; this work plan does not show budget under Task 1.

#### **Task 2: Labor Compliance Program**

All ten components of the *NSDCRRWP-Phase II* are “public works projects” and will require implementation of a Labor Compliance Program (LCP). Each of the individual partners will assure that an LCP, compliant with Department of Industrial Relations standards, is in place prior to any construction activities covered under this grant program. In order to simplify budgeting for this grant application, agency staff costs associated with establishing and implementing the LCPs were not included in this work plan.

#### **Task 3: Reporting**

In order to assess progress and accomplishments of the project, OMWD will prepare quarterly reports and invoices for the project. OMWD will also prepare a project completion report to document to DWR completion of the project and attainment of project goals and objectives. In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority’s grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program’s Data Management System, and made publicly available.

**Table 3-7: Row (a) Direct Project Administration  
North San Diego County Regional Recycled Water Project – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 3: Reporting</b>				
Quarterly Reports and Invoices	Quarterly	Not started		X
Project Completion Report	8/31/2017	Not started		X

### Row (b) Land Purchase/ Easement

No easement acquisitions and/or right-of-ways will be required for project. All construction activities associated with the NSDCRRWP-Phase II components will be completed within roadway rights-of-way or on lands owned by the partner agencies.

**Row (c) Planning / Design / Engineering / Environmental Documentation**

**Task 4: Assessment and Evaluation**

No planning, conceptual, or technical studies are included in this work plan. Completed planning studies for the NSDCRRWP-Phase II components are included in the list of “Completed Work” above.

**Task 5: Final Design**

A majority of the project design work associated with the ten project components have been completed or are underway and have been funded through other means. Completed design reports for the NSDCRRWP-Phase II components are included in the list of “Completed Works” above.

One of the project components requires project design, as described below:

***Project 1-6: Onsite Recycled Water Irrigation System Improvements Project***

Project design deliverables include the following:

1. Preliminary on-site recycled water system improvement concept drawings and specifications - 30% Design (for submittal to DEH for consideration/comment).
2. Draft Final on-site recycled water system improvement drawings and specifications - 90% Design (incorporating DEH comments and submitted to DEH for final comments)
3. Final on-site recycled water system improvement drawings and specifications (incorporating DEH comments and with DEH and other required agency signatures).

Note that there will be approximately five separate sites for which design documents will be prepared. In general, they will be prepared simultaneously.

**Task 6: Environmental Documentation**

Each of the partner agencies will be responsible for complying with the necessary environmental regulations for their project component; no CEQA, NEPA, and other environmental compliance are included in this work plan. Completed environmental documentation for the NSDCRRWP-Phase II components are included in the list of “Completed Work” above.

**Task 7: Permitting**

Each of the partner agencies will be responsible for obtaining the necessary permits for their project component; no permits are included in this work plan.

**Table 3-8: Row (c) Planning/Design/Engineering/Environmental Documentation  
North San Diego County Regional Recycled Water Project – Phase II  
Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements Project**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 5: Project Design</b>				
Preliminary Concept Drawings and Specifications (30%)	January – June 2014	To be completed		X
Draft Final Drawings and Specifications (90%)	July – October 2014	To be completed		X
Final Drawing and Specifications for DEH (and other) signatures (100%)	November – December 2014	To be completed		X

**Row (d) Construction/ Implementation**

**Task 8: Construction Contracting**

Each of the partner agencies will be responsible for obtaining contractors and awarding construction contracts; no contracting is included in this work plan.

**Task 9: Construction**

The following sections describe the construction activities associated with each of the project components for *NSDCRRWP-Phase II*. A majority of the construction activities for this project will occur after contract execution.

***Building Materials and/or Construction Standards***

Projects will be constructed in accordance with all current applicable laws, standards and regulations, including the American Water Works Association standards for materials, construction and testing of pipe, storage tanks, pumps, and valves; NSF approval for materials that come in direct contact with drinking water; California Department of Transportation Standard Specifications for materials, construction and testing; International or California Building Code, California or National Plumbing Code, California Electrical Code, Standard Methods for laboratory testing, California or federal OSHA standards for safety equipment and design requirements.

**Table 3-9: Row (d) Construction/ Implementation Summary  
North San Diego County Regional Recycled Water Project – Phase II**

Project Component	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
Component 1-1: LWD Regional System Connection	November 2015- March 2017	Not yet begun		X
Component 1-2: VWD Pump Improvements	October 2013-August 2014	Not yet begun		X
Component 1-3: VID Golf Course Recycled Water	July 2014 – May 2015	Not yet begun		X
Component 1-4: RMWD Northwest Recycled Water Expansion	May 2014 – April 2015	Not yet begun		X
Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water	October 2013 – August 2015	Not yet begun		X
Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements	April 2015 – February 2016	Not yet begun		X
Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion	September 2014 – July 2015	Not yet begun		X
Component 1-8: Escondido Recycled Water Easterly Main Extension	July 2014 – September 2015	Not yet begun		X
Component 1-9: Oceanside Reclaimed Water Main Extension	July 2015- November 2016	Not yet begun		X
Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage	November 2014 – March 2016	Not yet begun		X

***Component 1-1: LWD Regional System Connection Project***

This project includes the construction of a new 700 gallons per minute (gpm), 1.0 million gallons per day (mgd) pump station needed to boost the recycled water transmission service pressure to 200 pounds per square inch (psi). The High Pressure Pump Station will be constructed on the site of the existing LWD Gafner WRP. The new pumps will discharge to several hundred feet of existing 16-inch pipeline to El Camino Real. This pipeline will be extended with a 12-inch transmission main for approximately 1,200

feet to a connection with the existing OMWD transmission and distribution system. This zone of the OMWD recycled water system will have storage provided by the existing Wanket Tank that will be converted by OMWD from potable to recycled water service.

**Subtask 9.1.1 Mobilization and Site Preparation:**

Mobilization and site preparation for this project will include the establishment of the construction area within the LWD Gafner WRP site. Mobilization will include installation of a construction office trailer, as well as project management planning and submittals - including a detailed time schedule and schedule of charges - for use in progress assessment.

**Subtask 9.1.2 Project Construction:**

The project construction will include site work, excavation, construction of new concrete wet well structures, installation of new 100-horsepower high pressure pumps and all appurtenant piping, as well as electrical and instrumentation work.

**Subtask 9.1.3 Performance Testing and Demobilization:**

Soils compaction, concrete strength, reinforcing steel, etc. will be tested during construction. Testing will include factory and field performance testing of the new pumps and transmission piping.

**Table 3-10: Row (d) Construction/ Implementation – Details for 1-1  
North San Diego County Regional Recycled Water Project – Phase II  
Component 1-1: LWD Regional System Connection Project**

<b>Task 9-1: Construction for LWD Regional System Connection Project</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.1.1 Mobilization and Site Preparation</b>				
Construction permits and management	November - December 2015	Not yet begun		X
Clearing and grading	November - December 2015	Not yet begun		X
<b>Subtask 9.1.2 Project Construction</b>				
Construct on-site pump station and off-site transmission piping	January – December 2016	Not yet begun		X
<b>Subtask 9.1.3 Performance Testing and Demobilization</b>				
Final startup, testing, and operational training	January – March 2017	Not yet begun		X

**Component 1-2: VWD Pump Improvements**

This project's construction involves the replacement of an existing constant speed motor driven pump with a new, higher-capacity pump with variable frequency drive. The existing 10-inch discharge pipeline will be replaced with a larger size pipeline to reduce head loss. To increase meter accuracy, the existing flow meter will be relocated outside of the lift station to a location where a straight run of pipe exists. A new electrical service switchboard will be installed in a new electric meter room on the exterior of the existing building, and a new motor control center with automatic transfer switch will replace the existing indoor switchboard. The existing 1-ton capacity pump crane will be upsized to a lifting capacity of approximately 2 tons.

**Subtask 9.2.1 Mobilization and Site Preparation:**

This task involves costs associated with mobilizing the construction crews and equipment to the work site. It will also involve obtaining the required agency permitting to perform the work and bonding requirements with VWD.

**Subtask 9.2.2 Project Construction:**

This task involves replacing the existing constant speed motor driven pump with a higher-capacity pump with variable frequency drive, relocating the existing flow meter, installing the new electrical package, and upsizing the capacity of the existing 1-ton crane to a 2-ton lifting capacity.

**Subtask 9.2.3 Performance Testing and Demobilization:**

This task involves any and all required materials testing, including soil content and compaction, concrete strength, pump motor horsepower, pump flow, and pipeline pressure testing. It also includes the production and submission of proper operating manuals for the equipment installed as well as demobilizing the construction crew and equipment from the work site.

**Table 3-11: Row (d) Construction/ Implementation – Details for 1-2  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-2: VWD Pump Improvements**

<b>Task 9-2: Construction for VWD Pump Improvements</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.2.1 Mobilization and Site Preparation</b>				
Mobilize equipment & crews	October - November 2013	Not yet begun		X
Insurance and bonds	October - November 2013	Not yet begun		X
Permits and safety plan	October - November 2013	Not yet begun		X
<b>Subtask 9.2.2 Project Construction</b>				
Replacing existing pump with variable frequency drive	December 2013 – May 2014	Not yet begun		X
Relocating existing flow meter	December 2013 – May 2014	Not yet begun		X
Installing new electrical package	December 2013 – May 2014	Not yet begun		X
Upsizing capacity of existing crane	December 2013 – May 2014	Not yet begun		X
<b>Subtask 9.2.3 Performance Testing and Demobilization</b>				
Soil and concrete testing	June – August 2014	Not yet begun		X
Horsepower, flow, & pressure testing	June – August 2014	Not yet begun		X
Operating manuals	June – August 2014	Not yet begun		X
Demobilize equipment and crews	June – August 2014	Not yet begun		X

**Component 1-3: VID Golf Course Recycled Water**

This project will involve the installation of a metered connection from the Carlsbad Municipal Water District's 12-inch recycled water main at the intersection of Melrose Dr. and Faraday Ave. to Shadowridge WRF's 14-inch failsafe pipeline. It will also involve the installation of approximately 400 feet of 8-inch pipeline from the terminus of the failsafe pipe at the Shadowridge WRF to the existing Vista Irrigation

District (VID) 16-inch pipeline north of the SWRF. It will investigate and restrain joints on the section of the failsafe directly downstream of the SWRF, and install a 4-inch potable water meter at a golf course irrigation pond for supplemental water and blending. Arrangements for use or acquisition of the approximately 2 miles of existing 14- and 16-inch failsafe pipeline from the City of Vista will also be part of the project.

**Subtask 9.3.1 Mobilization and Site Preparation:**

This task will involve the location and preparation of staging site(s), construction staking, potholing, and other general activities associate with mobilization and site preparation. It will also include acquisition of the failsafe pipeline from the City of Vista.

**Subtask 9.3.2 Project Construction:**

This task will involve (1) the installation of a metered connection from the CMWD 12-inch” recycled water main at the intersection of Melrose Dr. and Faraday Ave. to the Shadowridge WRF’s 14-inch failsafe pipeline, (2) installation of approximately 400 feet of 8-inch pipeline from the terminus of the failsafe pipe at the SWRF to the existing VID 16-inch recycled water pipeline north of the SWRF, (3) the restraining of joints on the section of the failsafe directly downstream of the SWRF, and (4) installation of a 4-inch potable water meter at a golf course irrigation pond.

**Subtask 9.3.3 Performance Testing and Demobilization:**

This task will involve flushing and pressure testing pipelines.

**Table 3-12: Row (d) Construction/ Implementation – Details for 1-3  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-3: VID Golf Course Recycled Water**

<b>Task 9-3: Construction for VID Golf Course Recycled Water</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.3.1 Mobilization and Site Preparation</b>				
Staging site, staking, potholing, saw cutting, etc	July – August 2014	Not yet begun		X
Acquisition of failsafe pipeline from City of Vista	July – August 2014			
<b>Subtask 9.3.2 Project Construction</b>				
Metered connection to CMWD	September 2014 – February 2015	Not yet begun		X
400 feet of 8-inch pipeline	September 2014 – February 2015	Not yet begun		X
Restrain joints in existing failsafe pipeline	September 2014 – February 2015	Not yet begun		X
Install 4” potable water meter	September 2014 – February 2015	Not yet begun		X
<b>Subtask 9.3.3 Performance Testing and Demobilization</b>				
Flush and pressure test pipelines	March – May 2015	Not yet begun		X

**Component 1-4: RMWD Northwest Recycled Water Expansion**

This project will include the construction of approximately 3,500 feet of 4- and 6-inch pipeline within the existing right-of-way, make site improvements for a future recycled water filling station for construction water use, and install four 2-inch irrigation meters.

**Subtask 9.4.1 Mobilization and Site Preparation:**

This task will include obtaining permits, site staging, implementing stormwater BMPs, labor and equipment mobilization, potholing, shop drawing reviews, traffic control, and other activities associate with site preparation and mobilization.

**Subtask 9.4.2 Project Construction:**

This task will involve installation of pipeline and appurtenances, as well as filling station site work. Filling station site work will include extending 1,400 feet of 6-inch recycled water pipeline to connect to the future location of a new filling station site.

**Subtask 9.4.3 Performance Testing and Demobilization:**

This task includes pressure testing the piping, final inspection of work, site cleanup, and demobilization.

**Table 3-13: Row (d) Construction/ Implementation – Details for 1-4  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-4: RMWD Northwest Recycled Water Extension**

Task 9-4: Construction for RMWD Northwest Recycled Water Expansion				
Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Subtask 9.4.1 Mobilization and Site Preparation</b>				
Mobilization	May – June 2014	Not yet begun		X
Surveying	May – June 2014	Not yet begun		X
Traffic control	May – June 2014	Not yet begun		X
<b>Subtask 9.4.2 Project Construction</b>				
Installation of pipeline and appurtenances	July 2014 – January 2015	Not yet begun		X
Filling station site work	July 2014 – January 2015	Not yet begun		X
<b>Subtask 9.4.3 Performance Testing and Demobilization</b>				
Pressure testing	February – April 2015	Not yet begun		X
Demobilization	February – April 2015	Not yet begun		X

**Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water**

This project will involve the conversion of eligible customers in the Village Park and El Camino Real corridor areas of Encinitas to recycled water. Specifically, OMWD plans to install two pump stations, 6,500 feet of 12-inch PVC pipeline, five 12-inch gate valves, 20,000 feet of 8-inch PVC pipeline, and ten 8-inch gate valves.

**Subtask 9.5.1 Mobilization and Site Preparation:**

This subtask will involve site staging, staking, potholing, saw cutting, and other tasks associated with site preparation and resource mobilization, at both the Village Park location and the location of the pump stations.

**Subtask 9.5.2 Project Construction:**

This subtask will involve the installation of two pump stations, 6,500 feet of 12-inch PVC pipeline, five 12-inch gate valves, 20,000 feet of 8-inch PVC pipeline, and ten 8-inch gate valves. Project construction will also require repaving 26,500 feet of a 4-foot-wide trench.

**Subtask 9.5.3 Performance Testing and Demobilization:**

This subtask will involve flushing and pressure testing pipelines, as well as general demobilization activities at the pump stations and Village Park.

**Table 3-14: Row (d) Construction/ Implementation – Details for 1-5  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-5: OMWD Conversion of Distribution Facilities to Recycled Water**

<b>Task 9-5: Construction for OMWD Conversion of Distribution Facilities to Recycled Water</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.5.1 Mobilization and Site Preparation</b>				
Site staging, staking, potholing, saw cutting, and associated tasks	October 2013 - February 2014	Not yet begun		X
<b>Subtask 9.5.2 Project Construction</b>				
Installation of two pump stations	March 2014 - February 2015	Not yet begun		X
Installation of 12- and 8-inch PVC pipeline and gate valves	March 2014 - February 2015	Not yet begun		X
<b>Subtask 9.5.3 Performance Testing and Demobilization</b>				
Flush and pressure test pipelines, general demobilization	March – August 2015	Not yet begun		X

**Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements**

This project will install small diameter (1-inch to 2-inch) PVC irrigation pipelines, valves, sprinkler heads, irrigation controllers, and other associated irrigation appurtenances. Construction will also include the installation of small diameter (1-inch to 2-inch) copper services connecting the on-site system to the existing recycled water distribution system, and the installation of a new recycled water meter and meter box.

**Subtask 9.6.1 Mobilization and Site Preparation:**

This task will include disconnecting the irrigation system from the existing potable system and providing temporary irrigation piping systems.

**Subtask 9.6.2 Project Construction:**

Project construction involves a series of tasks, which will include:

- Installing proper recycled water identification devices for existing irrigation components
- Replacing sprinkler heads and other potable facilities with those approved for recycled water use
- Installing new small diameter (1-inch to 2-inch) recycled water irrigation pipelines, valves, and other buried components
- Installing backflow devices to protect the potable water system
- Installing small, skid-mounted, on-site booster pumps
- Installing recycled water service and meter

**Subtask 9.6.3 Performance Testing and Demobilization:**

This task will include site and resource demobilization, as well as final start-up testing and approvals.

**Table 3-15: Row (d) Construction/ Implementation – Details for 1-6  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-6: SFID Onsite Recycled Water Irrigation System Improvements**

<b>Task 9-6: Construction for SFID Onsite Recycled Water Irrigation System Improvements</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.6.1 Mobilization and Site Preparation</b>				
Mobilization including disconnecting irrigation system to be modified from existing potable system	April – May 2015	Not yet begun		X
<b>Subtask 9.6.2 Project Construction</b>				
Install proper recycled water identification devices for existing irrigation components	June – November 2015	Not yet begun		X
Replace sprinkler, replace existing potable water valves, relocate fountains, benches, and other typical facilities	June – November 2015	Not yet begun		X
Install new recycled water irrigation pipelines, valves, and other buried components	June – November 2015	Not yet begun		X
Install backflow devices to protect potable water system and connection of new recycled water system components	June – November 2015	Not yet begun		X
Install small skid mounted on-site booster pumps	June – November 2015	Not yet begun		X
Installation of recycled water service and meter	June – November 2015	Not yet begun		X
<b>Subtask 9.6.3 Performance Testing and Demobilization</b>				
Demobilization, final start-up testing/approvals	December 2015 – February 2016	Not yet begun		X

**Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion**

This project includes review and approval of shop drawings, truck and material haul routes, the installation of pipelines with street restoration improvements that meet City of Carlsbad and City of Oceanside standards, pressure testing of the pipelines to CMWD standards, and the completion of all punch list items.

**Subtask 9.7.1 Mobilization and Site Preparation:**

This task will involve setting up the contractor’s staging area.

**Subtask 9.7.2 Project Construction:**

This task includes delivery of the pipe material, excavation of pipeline trenches in public streets, installation of pipelines, re-compaction of earth in the pipeline trench, and restoration of surface improvements.

**Subtask 9.7.3 Performance Testing and Demobilization:**

This task involves pressure testing the installed pipelines as well as removing equipment and material from staging areas.

**Table 3-16: Row (d) Construction/ Implementation – Details for 1-7  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-7: Carlsbad MWD Recycled Water Pipeline Expansion**

<b>Task 9-7: Construction for Carlsbad MWD Recycled Water Pipeline Expansion</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.7.1 Mobilization and Site Preparation</b>				
Establish staging area	September – October 2014	Not yet begun		X
<b>Subtask 9.7.2 Project Construction</b>				
Installation of recycled water pipeline	November 2014 – April 2015	Not yet begun		X
<b>Subtask 9.7.3 Performance Testing and Demobilization</b>				
Pressure testing and staging area restoration	May – July 2015	Not yet begun		X

**Component 1-8: Escondido Recycled Water Easterly Mains Extension**

This project includes the installation of an approximately 5.1 mile long extension of a 24-inch recycled water transmission main in the City of Escondido.

**Subtask 9.8.1 Mobilization and Site Preparation:**

This task involves obtaining all permits, insurance, and bonds; mobilizing labor force, equipment and construction facilities onto the site; providing necessary storage, parking, and staging areas; providing construction water supply; providing on-site sanitary facilities; performing all training; and performing project site cleanup.

**Subtask 9.8.2 Project Construction:**

Construction will involve installing 5.1 miles of 24-inch recycled water transmission main.

**Subtask 9.8.3 Performance Testing and Demobilization:**

This task will include pipeline testing, including flow and pressure testing, as well as site demobilization and the demobilization of equipment and crews.

**Table 3-17: Row (d) Construction/ Implementation – Details for 1-8  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-8: Escondido Recycled Water Easterly Main Extension**

<b>Task 9-8: Construction Escondido Recycled Water Easterly Mains Extension</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.8.1 Mobilization and Site Preparation</b>				
Mobilization, clean-up	July – August 2014	Not yet begun		X
<b>Subtask 9.8.2 Project Construction</b>				
Installation of 24-inch recycled water main	September 2014 – June 2015	Not yet begun		X
Installation of isolation valves, air valves, and blowoff/drain	September 2014 – June 2015	Not yet begun		X
<b>Subtask 9.8.3 Performance Testing and Demobilization</b>				
Pressure testing	July - September 2015	Not yet begun		X
Demobilize equipment and crews	July - September 2015	Not yet begun		X

**Component 1-9: Oceanside Melrose Drive Reclaimed Water Main Extension**

This project will include the installation of approximately 8,140 of 12-inch recycled pipeline and 6,300 of 8-inch recycled pipeline.

**Subtask 9.9.1 Mobilization and Site Preparation:**

This task will involve contractor mobilization to the project site and set up of the contractor’s construction yard and temporary office facilities. It will also involve pipeline survey and layout, as well as preconstruction videos.

**Subtask 9.9.2 Project Construction:**

This task will include traffic control setup, saw cutting the street, trench excavation, trucking materials, pipe installation, pipe bedding and backfill, repaving the street, street striping, and clean up.

**Subtask 9.9.3 Performance Testing and Demobilization:**

This project will conduct compaction testing of the trench backfill and asphalt, as well as pressure testing of pipeline. It will also include the removal of the contractor’s temporary construction yard and office trailers.

**Table 3-18: Row (d) Construction/ Implementation – Details for 1-9  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-9: Oceanside Reclaimed Water Main Extension**

<b>Task 9-9: Construction for Oceanside Melrose Drive Reclaimed Water Main Extension</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.9.1 Mobilization and Site Preparation</b>				
Set up of construction yard and temporary facilities	July – August 2015	Not yet begun		X
<b>Subtask 9.9.2 Project Construction</b>				
Installation of recycled water pipeline	September 2015 – August 2016	Not yet begun		X
<b>Subtask 9.9.3 Performance Testing and Demobilization</b>				
Testing during construction and removal of temporary facilities	September – November 2016	Not yet begun		X

**Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage**

This project will involve the conversion from potable to recycled water of either the existing 3 million gallon steel tank in Encinitas or the 1 million gallon earthen basin wastewater tank. The first task will be to evaluate the two tanks to determine the best candidate. Either tank will require inlet/outlet valves and piping, minor repairs to, and cleaning of, floor, roof and walls, tank painting, and 12-inch to 16-inch connecting pipeline (approximately 200 feet). Additionally, if the steel tank is selected, it will require corrosion system improvements, while the earthen basin would require the replacement of its polyethylene cover if selected.

**Subtask 9.10.1 Mobilization and Site Preparation:**

This task will involve site staging, a utility survey, staking, potholing, saw cutting, and other associated tasks.

**Subtask 9.10.2 Project Construction:**

This task will involve the installation of a new 12-inch meter and recycled water connection, completion of conversion of the tank, installation of a new inlet connection, and conversion of an existing 16-inch pipeline and pressure reducing station to recycled water. It will also involve conducting minor repairs and cleaning to the floor, roof and walls of the tank, and, if the steel tank is selected, tank painting and cathodic protection system improvements or polyethylene cover replacement if the earthen basin is selected. Additionally, this task will involved the installation of approximately 200 feet of 12-inch to 16-inch connecting pipeline.

**Subtask 9.10.3 Performance Testing and Demobilization:**

This task will involve flushing and pressure testing the pipelines, conducting soil and concrete testing, and general demobilization activities.

**Table 3-19: Row (d) Construction/ Implementation– Details for 1-10  
North San Diego County Regional Recycled Water Project – Phase II:  
Component 1-10: SEJPA Conversion of Existing Tanks to Recycled Water Storage**

<b>Task 9-10: Construction for SEJPA Conversion of Existing Tanks to Recycled Water Storage</b>				
<b>Activity or Deliverable</b>	<b>Schedule</b>	<b>Status</b>	<b>Completion of Task</b>	
			<b>Before Sept 2013</b>	<b>After Sept 2013</b>
<b>Subtask 9.10.1 Mobilization and Site Preparation</b>				
Site staging, staking, potholing, saw cutting, and associated tasks	November - December 2014	Not yet begun		X
<b>Subtask 9.10.2 Project Construction</b>				
Installation of a new 12-inch meter and recycled water connection	January -December 2015	Not yet begun		X
Conversion at the tank	January -December 2015	Not yet begun		X
Installation of a new inlet connection	January -December 2015	Not yet begun		X
Conversion of existing 16-inch pipeline and pressure reducing station to recycled water	January -December 2015	Not yet begun		X
<b>Subtask 9.10.3 Performance Testing and Demobilization</b>				
Flushing and pressure testing pipelines, soil and concrete testing, and general demobilization	January - March 2016	Not yet begun		X

**Row (e) Environmental Compliance/ Mitigation/ Enhancement**

**Task 10: Environmental Compliance / Mitigation / Enhancement**

Each of the partner agencies will be responsible for complying with the necessary environmental mitigation or enhancement requirements for their project component; no environmental mitigation is included in this work plan.

**Row (f) Construction Administration**

**Task 11: Construction Administration**

Each of the partner agencies will be responsible for managing the construction contractor for their project component; no construction administration is included in this work plan.

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## ***Project 2: Turf Replacement and Agricultural Irrigation Efficiency Program***

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### **I. Introduction**

#### **Project Sponsor**

The San Diego County Water Authority (Water Authority) is the project sponsor for the *Turf Replacement and Agricultural Efficiency Program*.

#### **Project Need**

The Water Authority, a wholesale water agency, imports approximately 80% of its water supplies from the State Water Project (SWP) and the Colorado River.<sup>1</sup> SWP supplies from the Bay-Delta have been restricted since 2006, due to drought and regulatory restrictions, and additional restrictions on Colorado River water limits its use for additional supplemental supply. In 2009, Senate Bill X7-7 was passed, which mandates a 20% reduction in urban water use by 2020.<sup>2</sup> The intent of the *Turf Replacement and Agricultural Irrigation Efficiency Program* is to encourage changes in the way potable water is used in an outdoor setting. The outdoor emphasis of this program is particularly important considering that approximately 60% of total residential water demand in the Region is attributed to outdoor water use, and approximately 9% of the Region's total water use is attributed to agricultural sources.<sup>3</sup>

Water use efficiency/water conservation is one of the most cost-effective and environmentally- friendly ways to reduce regional water demands. Due to outdoor water demands in the Region, there are large opportunities to improve outdoor water use efficiency in the Region, and this program will help to fulfill those opportunities. This program can also promote awareness towards the value of environmental stewardship by demonstrating that changes made at the individual level have a substantial positive impact to the Region.

#### **Project Purpose**

This regional program will promote outdoor water use efficiency in the residential and commercial sectors by providing financial incentives to replace turf grass with water-wise plant material and to upgrade overhead sprinkler irrigation systems to high-efficiency irrigation systems. The program will also offer incentives to agricultural customers to convert potable water irrigation systems to recycled water systems.

#### **Project Abstract**

The *Turf Replacement and Agricultural Irrigation Efficiency Program* will provide financial incentives, technical assistance, on-site support and guidance, training, and resource lists to encourage and support projects that improve irrigation efficiency and reduce water use in urban landscapes and agricultural lands. There are two components of this program:

1. **Turf Replacement Program**: Turf replacement and irrigation upgrades will be incentivized through cash rebates once projects are completed according to program guidelines. The Water Authority will manage the overall grant and administer the incentive program for customers participating throughout its service area, except for those customers located within the City of San Diego's (City's) service area. The City of San Diego Public Utilities Department - Water Conservation Program will administer the incentive program for customers within its own service area and service areas for which it supplies wholesale water such as Coronado and Imperial Beach, and the City of San Diego Transportation & Storm Water Department - Think Blue/Storm Water Pollution Prevention Program, will provide education and outreach regarding the incentive program with an emphasis on dry weather runoff prevention and water quality protection that are achieved with improvements to irrigation efficiency within the City. This program component has been implemented by the Water Authority and the City for several years, and is ready for continued implementation.

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<sup>1</sup> San Diego County Water Authority. 2011. *2010 Urban Water Management Plan*. Page 4-1, Section 4, San Diego County Water Authority Supplies.

<sup>2</sup> San Diego County Water Authority. 2011. *2010 Urban Water Management Plan*. Page 1-4, Section 1.2.

<sup>3</sup> San Diego County Water Authority. 2011. *2010 Urban Water Management Plan*. Page 2-1, Section 2.1.1 and Page 2-4, Figure 2-1.

2. Agricultural Irrigation Efficiency Program: The Water Authority will also administer a program component that will provide incentives to retrofit potable water irrigation systems to recycled water irrigation systems. This program component has been designed, and is ready for implementation.

The financial incentives, training, and education that are the main components of this program will encourage customers to replace turf grass and upgrade irrigation systems in urban landscapes and increase water use efficiency in the agricultural sector. This program is designed to reduce regional water demands, reduce energy consumption via reduced water demands (considering the energy required for water use), reduce green waste production, and improve surface water quality. Reducing outdoor water use and increasing irrigation efficiency in both agricultural and urban sectors also helps to minimize dry weather runoff that flows into storm drains and receiving waters, and reduces pollutants that contribute to the impairment of watersheds.

### Project Objectives

The *Turf Replacement and Agricultural Irrigation Efficiency Program* seeks to accomplish the following objectives:

- Reduce urban outdoor water use through the provision of financial incentives to upgrade on-site irrigation systems and replace turf with water-wise plant material.
- Reduce agricultural water use through the provision of financial incentives to convert potable irrigation systems to non-potable systems.
- Reduce stormwater runoff by reducing outdoor water use in both the urban and rural portions of the Region.
- Reduce green waste production by providing incentives to replace turf grass with water wise plant material.
- Increase the amount of potable water (water supply) available to other users through implementation of water use efficiency measures and conversion to recycled water.
- Increase environmental stewardship and awareness by implementing visible conservation programs that promote water-efficient landscaping.

This program contributes to the draft IRWM Plan Update objectives in the following ways:

**Table 3-20: Contribution to DRAFT IRWM Plan Update Objectives**

Proposal Projects	Contribution to DRAFT IRWM Plan Update Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Turf Replacement and Agricultural Irrigation Efficiency Program	•	•	•		•			•			○

○ = indirectly related

• = directly related

**Objective A: Integrated solutions to address water management issues and conflicts:** This program was developed through the Strategic Integration Workshop, and meets the San Diego IRWM Program’s Partnerships and Resource Management definitions of integration, as described above.

**Objective B: Maximize stakeholder and community involvement and stewardship:** As part of the Turf Replacement Program, the City of San Diego Public Utilities Water Conservation Program and the City of San Diego Transportation & Storm Water Pollution Prevention and Think Blue Programs will promote an education and outreach campaign for its service area on water efficiency and storm water-friendly landscaping that will promote changes in norms and behaviors toward the use of water and support responsible stewardship of limited water resources while reducing the impact of dry weather flows caused by irrigation.

**Objective C: Effectively obtain, manage, and assess water resource data and information:** The San Water Authority and the City of San Diego will evaluate a sampling of pre- and post-conversion water use data from their Turf Replacement Rebate programs to determine if estimated water savings were achieved. The partners will provide an analysis of sample sites that evaluate before and after water

consumption as well as apply assumed water savings per square foot of turf replaced. For the Water Authority's Agricultural Irrigation Efficiency program, the Water Authority will record pre- and post-conversion water savings using potable water billing records and provide a list of customers and associated acreage that is converted from potable to recycled water.

**Objective E: Develop and maintain a diverse mix of water:** The program is intended to improve water supply reliability and reduce dependence on imported water in urban landscapes and agriculture over the long-term, resulting in increased water use efficiency, and increased use of recycled water. For the Water Authority's Agricultural Irrigation Efficiency program, the Water Authority will provide water billing data to document that source substitution has occurred by participating customers and, if available, will provide records for converting agricultural sites using potable water irrigation systems to recycled water systems. Alternatives to imported water help diversify Water Authority's water portfolio, as does reducing dependence on imported water. Further, increasing recycled water demand (while reducing imported water demand) helps to create and sustain a market for recycled water, which in turn provides opportunities for expansion of recycled water systems.

**Objective H: Effectively reduce sources of pollutants and environmental stressors:** This program will educate residential, commercial, and agricultural sector customers about limiting runoff from their properties as they go through the process of making water-efficient enhancements. The program will also highlight the importance of reducing runoff into the municipal storm drain system and other waterways, as well as educate users about the pollution commonly found in runoff. Enhancement activities will reduce sediment and a nutrient flows to stormwater drains reducing pollutant loads.

**Objective K: Effectively address climate change through adaptation or mitigation in water resource management:** This program will reduce the use of imported and highly treated potable water which is currently delivered to both residential and agricultural users for irrigation. Reducing water use and converting to recycled water reduces the energy needed to supply water, and therefore, reduces greenhouse gas emissions. This will help indirectly address climate change concerns.

### **Project Partners**

The Water Authority is the program lead and will administer the Turf Replacement Program for member agencies (not including the City of San Diego), as well as administer the Agricultural Irrigation Efficiency Program within its service area. The City of San Diego is the primary partner for this integrated program and will implement Turf Replacement Program for City customers (City of San Diego Public Utilities Department -Water Conservation Program) and provide public outreach support for the rebate program with emphasis on opportunities for dry weather runoff reduction and water quality protection achieved through irrigation efficiencies (City of San Diego Transportation & Storm Water Department). The Water Authority's other 23 member agencies, whose customers will be eligible participants in the Turf Replacement Program, will assist with program implementation within individual member agency service areas.

### **Project Integration**

The Water Authority, City of San Diego Public Utilities Department, and City of San Diego Transportation & Storm Water Department all submitted Project Concepts for consideration at the IRWM Strategic Integration Workshop (see Integration Activities on page 3-3 for details). Subsequent to the workshop, the three entities merged concepts into a cumulative program, which is the *Turf Replacement and Agricultural Irrigation Efficiency Program* included in this proposal. In addition, the project partners have previously integrated conservation and turf replacement efforts: The Water Authority and the City's existing Turf Replacement Programs are jointly funded by a grant awarded by DWR through Proposition 50.

### **Completed Work**

The Water Authority developed a microsite (a small website) for its existing Turf Replacement Program to provide program information and resources to the public. The microsite launched in December 2012, and includes dedicated web pages that were specifically developed to provide information to members of the public who are implementing turf replacement retrofits, or are considering applying for City or Water Authority rebates for such activities. Web pages on the microsite include: program criteria, terms and

conditions, rebate application forms, design ideas, resources, “How-To’s”, and FAQs. The link to the microsite is: <http://turfreplacement.watersmartd.org/>.

Further, materials have been developed to support the Water Authority’s and City’s existing Turf Replacement Programs. As described previously, the City and the Water Authority have already implemented outdoor water use efficiency rebate programs, which are partially funded by DWR and the San Diego IRWM Program through Proposition 50. The following includes a list of resources that have been developed through Proposition 50 funding and are relevant to the *Turf Replacement and Agricultural Irrigation Upgrade Program*. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format (on the supporting CD), but can also be found in Appendix 3-2:

- *Customer guidelines and requirements for participation.* Please also refer to the Water Authority’s microsite, <http://turfreplacement.watersmartd.org/>, and to the City’s program website, <http://www.sandiego.gov/water/conservation/residentialoutdoor/index.shtml>
- *Internal protocols for administering the programs*
- *Customer on-line training program and customer resource lists.* Please also refer to the Water Authority’s website, which provides an on-line tutorial that provides project-related information to customers. Customer resource lists for the Water Authority’s program can be found on the website: <http://turfreplacement.watersmartd.org/>. Appendix 3-2 includes a copy of the City’s resources list.
- *Marketing material and related collateral.*
- *Application forms.*

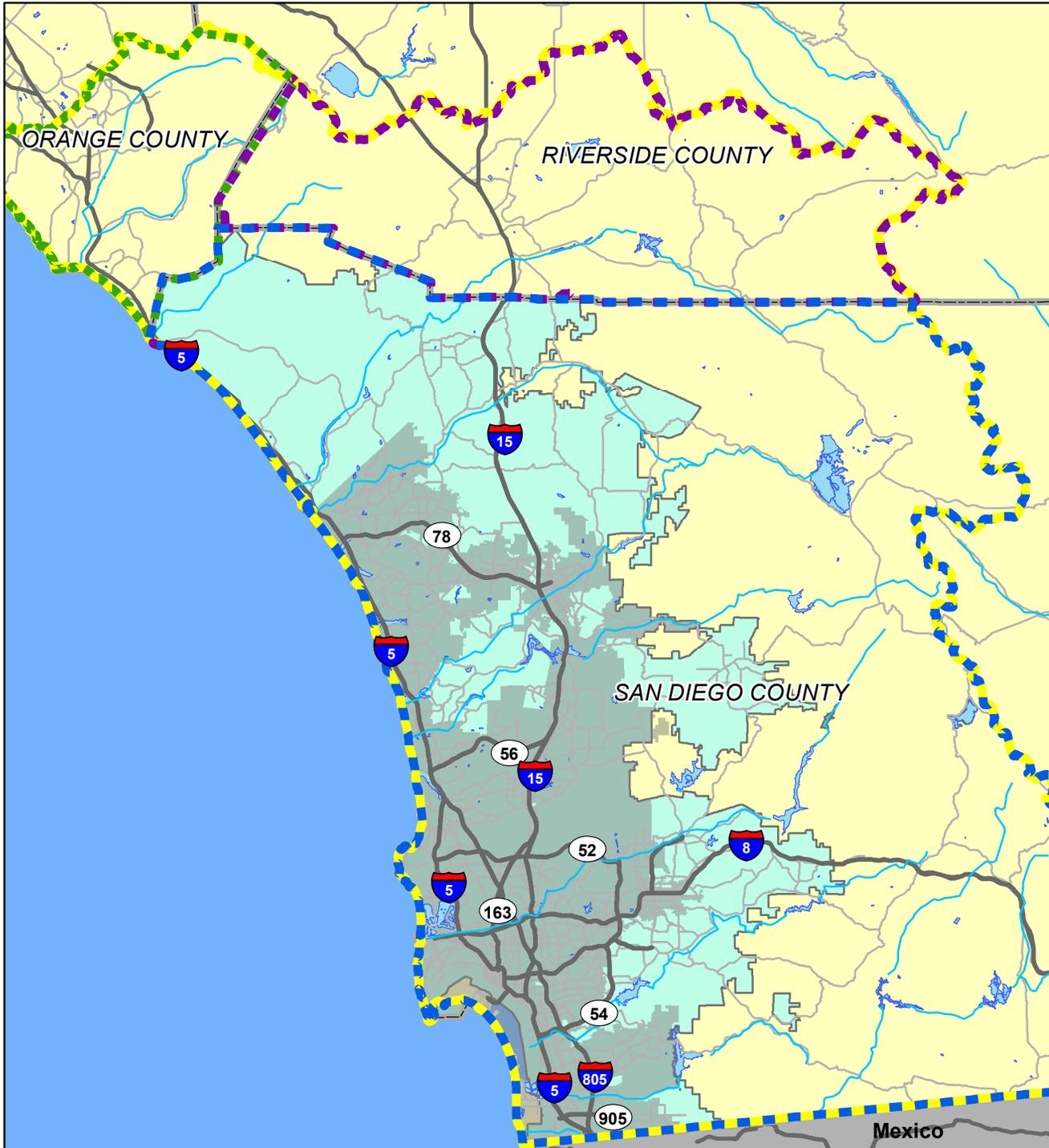
### **Project Timing and Phasing**

The Water Authority’s and City of San Diego’s existing Turf Replacement Programs are being funded by a Proposition 50 grant awarded from DWR’s IRWM Program authorized under the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002 (Proposition 50). As such, the Turf Replacement Program components of this program can be considered a continuation of an existing program. However, this is not a large, multi-phased project as the work being completed under the aforementioned Proposition 50 grant award is independent of the work items included in this grant proposal. The Agricultural Irrigation Efficiency Program component of the program has been designed, but is not currently being implemented, and is not a portion of a larger multi-phased project.

### **Project Map**

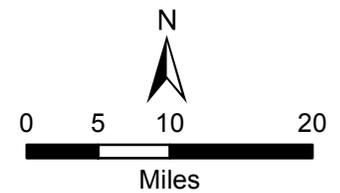
Figure 3-4 is a site map showing the project’s geographical location and surrounding work boundaries.

# San Diego IRWM Turf-Ag Project Area



## Legend

- Water Authority Service Area
- Funding Area and Tri-County FACC Boundary
- San Diego IRWM Region
- Upper Santa Margarita Region
- South Orange County Region
- Freeway
- City Boundaries
- County Boundaries



## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. The *Turf Replacement and Agricultural Irrigation Efficiency Program* will contribute \$17,265 to this administrative effort. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

This task will involve administering the grant contract, tracking budgets, developing and administering the Memorandum of Understanding between the Water Authority and the City, and establishing and administering vendor contracts for both the Water Authority's Turf Replacement Program and the Agricultural Irrigation Efficiency Program. This task will also include efforts necessary to prepare invoices, quarterly reports, project assessment and evaluation plans (PAEPs), and final reports as required by DWR for IRWM contracting purposes. It is assumed that this work will be completed in-house by a Water Resources Specialist at the Water Authority. In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available.

#### **Task 2: Labor Compliance Program**

It is not anticipated that a labor compliance program will be required for the Turf Replacement and Agricultural Irrigation Efficiency Program as construction projects are not a part of the scope and this program has been designed in a manner that is not expected to require labor compliance.

#### **Task 3: Reporting**

Reporting for the Turf Replacement and Agricultural Irrigation Efficiency Program will be included in Task 1: Project Administration.

**Table 3-21: Row (a) Direct Project Administration Budget  
*Turf Replacement and Agricultural Irrigation Efficiency Project***

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 1: Project Administration</b>				
Track budgets, prepare invoices, compile backup documentation, and prepare quarterly reports and PAEPs for DWR	Quarterly after contract execution	Not yet begun		X
Prepare and administer vendor contracts	After contract execution	Not yet begun		X
Prepare and administer MOU with City of San Diego and the Water Authority	After contract execution	Not yet begun		X
Prepare final report	At conclusion of project	Not yet begun		X

### Row (b) Land Purchase/ Easement

No easement acquisitions and/or right-of-ways will be required for this program.

### Row (c) Planning/Design/Engineering/Environmental Documentation

#### **Task 4: Assessment and Evaluation**

No environmental documentation is required to implement the Turf Replacement and Agricultural Irrigation Efficiency Program.

#### **Task 5: Project Design**

As indicated previously, both the Turf Replacement and the Agricultural Irrigation Efficiency components of this overall program are already implemented or have been designed, and are therefore ready for implementation. No design work is required.

#### **Task 6: Environmental Documentation**

There are no CEQA, NEPA, or other environmental compliance requirements for this program.

#### **Task 7: Permitting**

No permits are required to implement this program.

### Row (d) Construction/ Implementation

#### **Task 8: Construction Contracting**

Implementation of the *Turf Replacement and Agricultural Irrigation Efficiency Program* does not require construction contracting. This program provides financial incentives to customers and users for project implementation, and does not involve any construction on the behalf of the Water Authority or the City. As such, construction contracting is not included in this work plan.

#### **Task 9: Construction/ Implementation**

This task includes all elements required to implement the *Turf Replacement and Agricultural Irrigation Efficiency Program*. As such, this task includes the budget for the City's in-house administration of the Turf Replacement Program, the in-house administration of the Water Authority's Turf Replacement Program and vendor contract, and the in-house administration of the Water Authority's Agricultural Irrigation Efficiency Program, which includes management of the vendor that will process pass-through incentives. This task also includes the budget for all rebates and incentives that will be provided to customers who complete replacement or retrofit activities in compliance with the conditions of the program.

**Subtask 9.1 Water Authority Turf Replacement – In house:** This subtask includes work to administer the Water Authority's Turf Replacement Program, including management of the vendor that will operate the program. This task also includes budgeted funds for the Water Authority's Turf Replacement Program rebates. With regards to labor, it is assumed that two Water Authority staff members will be required to implement the Turf Replacement Program. These staff hours include time to administer the program, process invoices from vendors and from customers implementing the program, and maintain the website. Time and effort included within this subtask are based upon previous experience with a similar program funded through Proposition 50 from DWR.

The Water Authority anticipates that this program will fund replacement of a minimum of 81,800 square feet of turf within the Water Authority's service area, including areas that serve DACs.

**Subtask 9.2 Water Authority Turf Replacement - Vendor:** This subtask includes work to operate the Water Authority's Turf Replacement Program throughout the Water Authority's service area (excluding the City of San Diego) by the vendor selected and contracted with by the Water Authority. Work that will be completed by the vendor under this subtask includes: reviewing and processing rebate applications and required submittals, tracking and reporting on the progress of the rebate program, disbursing rebates to customers, conducting onsite inspections, providing customer service, and providing marketing and outreach. The work included in this scope pertains to the time it would take a Program Manager and an Inspector (both vendors) to complete the work items discussed above. Time and effort included within this subtask are based upon previous experience with a similar program funded through Proposition 50 from DWR.

**Subtask 9.3 City of San Diego Turf Replacement - In house:** This subtask includes work to administer and implement the City of San Diego's Turf Replacement Program. Activities include application review and approval, pre- and post-site visits to commercial and residential customer sites, verification of successful project completion, customer support, rebate check processing, and program website maintenance. This task also includes budgeted funds for the City's Turf Replacement rebates. With regards to labor, it is assumed a minimum of three City staff members will be required to implement the Turf Replacement Program. These staff hours include time to complete activities discussed in the preceding paragraph. Time and effort included within this subtask are based upon previous experience with a similar program funded through Proposition 50 from DWR.

The City of San Diego anticipates that this program will fund replacement of a minimum of 237,870 square feet of turf within the City of San Diego, including areas that serve DACs.

**Subtask 9.4 Water Authority Agricultural Irrigation Efficiency Program – In house:** This subtask includes work to administer the Agricultural Irrigation Efficiency Program, including management of the vendor that will process the economic incentives for customers (rebates). This subtask also includes budgeted funds for materials and equipment necessary to implement the agricultural efficiency upgrades. Eligible costs include, but are not limited to: various hardware (recycled water pipelines, weather-based irrigation controllers (WBICs), space tubing, mesh baskets, meters, various valves, etc.).

The Water Authority anticipates converting 50 acres of agricultural land on a minimum of two sites to recycled water irrigation.

**Subtask 9.5 Water Authority Agricultural Irrigation Efficiency Program – Vendor:** This subtask includes operation of the Agricultural Irrigation Efficiency Program by the vendor selected and contracted with by the Water Authority.

**Table 3-22: Row (d) Construction/ Implementation  
Turf Replacement and Agricultural Irrigation Efficiency Program**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 9: Construction / Implementation</b>				
<b>Subtask 9.1 Water Authority Turf Replacement – In house</b>				
Administration of Turf Replacement Program, including management of vendor.	After contract execution	Not yet begun		X
Development of program microsite.	Prior to contract execution	Completed	X	
<b>Subtask 9.2 Water Authority – Vendor</b>				
Operation of the Turf Replacement Program throughout the Water Authority's service area (excluding the City's service area).	After contract execution	Not yet begun		X
<b>Subtask 9.3 City of San Diego Turf Replacement - In house</b>				
Administration and implementation of City's Turf Replacement Rebate Program.	After contract execution	Not yet begun		X
<b>Subtask 9.4 Water Authority Agricultural Irrigation Efficiency Program – In house</b>				
Administration of the Agricultural Irrigation Efficiency Program, including management of the vendor that will operate the incentive program.	After contract execution	Not yet begun		X
<b>Subtask 9.5 Water Authority Agricultural Irrigation Efficiency Program – Vendor</b>				
Operation of the Agricultural Irrigation Efficiency Program	After contract execution	Not yet begun		X

**Row (e) Environmental Compliance/ Mitigation/ Enhancement**

**Task 10: Environmental Compliance/ Mitigation/ Enhancement**

Although the *Turf Replacement and Agricultural Irrigation Efficiency Program* provides incentives and rebates, the administering agencies are not responsible for individual/onsite environmental compliance/mitigation/enhancement. Responsibility for any such requirements lies with the site owner or representative.

**Row (f) Construction Administration**

**Task 11: Construction Administration**

The *Turf Replacement and Agricultural Irrigation Efficiency Program* does not require any direct construction, and therefore will not involve construction management or administrative duties.

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## ***Project 3: Rural Disadvantaged Community (DAC) Partnership Program***

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### **I. Introduction**

#### **Project Sponsor**

The Rural Community Assistance Corporation (RCAC) is the project sponsor for the *Rural DAC Partnership Program*.

#### **Project Need**

Drinking water systems that serve disadvantaged communities (DACs) often lack both access to much needed infrastructure financing and the resources to adequately maintain existing system facilities. As a result, these systems face significant challenges in complying with long standing and new drinking water rules.

Three major problems that impede the sustainability of a small community water system include:

- Contamination of drinking water source water from wastewater intrusion, agricultural influences, and/or contaminant spills from industrial activities;
- Seasonal weather changes resulting in floods or droughts require design options to bypass treatment during rain and storm events and identification of alternative water supplies (including water reuse sources) to increase capacity during droughts; and
- Deteriorating collection and distribution systems compromise source water quality and increase the cost of water treatment.

Rural communities within the San Diego IRWM Region unincorporated areas – which are not served by the Water Authority’s member agencies – have water supply and quality issues exacerbated by climate change, poor economies, and lack of community expertise. Inadequate water supply to support existing communities is a public health risk. The majority of drinking water maximum containment level (MCL) violations occur with small public water systems. Further, inadequate wastewater treatment results in unplanned discharge events.

Groundwater shortages and energy consumption are also critical concerns in the San Diego IRWM Region’s rural areas. This program will decrease water supply losses and therefore, decrease energy usage by reducing groundwater pumping and eliminating leaking tanks. Fire protection is a major issue for tribes and surrounding communities, and increased water storage improves water supplies for firefighting and other emergency conditions.

There is not enough available funding to meet the needs of rural DACs. The California Department of Public Health (CDPH) has 41 small (less than 10,000 population) systems located in San Diego County on its 2013 State Revolving Fund (SRF) Priority Project Funding list. The State Water Resources Control Board (SWRCB) has a similar lengthy list of communities requesting funding from the Clean Water SRF for wastewater improvements.

Rural DACs in the San Diego IRWM Region have water supplies that are inadequate to support existing connections. It is costly to provide supplemental treatment processes to improve the water quality of contaminated drinking water source waters. It is difficult for small DAC drinking water and wastewater systems to afford improvements because they have fewer ratepayers to share the costs. Further, rural DACs lack the technical expertise and financial stability necessary to assemble the information needed for a complex grant program, much less the resources to complete the grant application itself.

#### **Project Purpose**

The goal of the *Rural DAC Partnership Program* is to provide funding to address inadequate water supply and water quality affecting rural DACs, including tribal communities. The program is necessary because DAC system operators generally lack the financial and technical resources to apply on their own. The program will help rural water systems to provide a safe water quality source that is not contaminated with nitrates, bacteria, or other contaminants. The program reduces potential for high public health risks in water and/or wastewater systems through infrastructure improvements and helps small water systems to

provide sufficient quantities of safe drinking water to the residents served by their systems. Public safety will be improved by providing adequate storage necessary for fire-fighting and emergency conditions.

The *Rural DAC Partnership Program* will rely on the Rural DAC Stakeholder Committee – made up of RCAC, CDPH, County Department of Environmental Health (DEH), Indian Health Services (IHS), and RWMG representatives – to identify and select a minimum of four rural DAC projects that address critical water quality or quantity infrastructure improvements. Emphasis will be given to projects ready to be constructed.

The program will assist rural DACs, including tribal communities, with project coordination and oversight. RCAC will utilize other funding programs to provide capacity and technical development support to promote sustainability. Green technologies will be encouraged.

### **Project Abstract**

The *Rural DAC Partnership Program*, administered by RCAC, will fund critical water supply and water quality projects in rural DACs in San Diego County. Rural DACs lack the technical expertise and financial resources necessary to assemble the information needed to complete a complex grant application. Water supply infrastructure deficiencies will be identified and prioritized by the Rural DAC Stakeholder Committee and then funding will be provided via grant reimbursements to resolve those deficiencies. This program helps meet the critical DAC need for safe, healthy, potable, supplies of water that are adequate to meet basic household and fire protection demands, while at the same time recognizing and responding to DACs' needs for technical and managerial support to even request funding for these basic water needs.

RCAC will manage the *Rural DAC Partnership Program* to address inadequate water supply and water quality in rural DACs, including tribal communities, with populations less than 10,000. DACs will be selected based on 2010 Census data as shown in Figure 3-2.

RCAC will continue to use the Rural DAC Stakeholder Committee – made up of RCAC, CDPH, County DEH, IHS, and RWMG representatives – to solicit and select rural DACs for funding of critical infrastructure improvement projects. RCAC will assist rural DACs with outreach, program information, determining project scope/readiness, and preparation of project documentation for funding. RCAC will also provide specialized Technical, Managerial, and Financial (TMF) assessments to DACs and training to support project sustainability assist with project oversight and manage disbursement of payments for completed work. As appropriate, RCAC will provide additional resources including supplementary technical assistance funding through existing RCAC programs and assist in accessing additional financial sources.

Projects will be selected based on need and priorities established by the Rural DAC Stakeholder Committee with an emphasis on critical water supply and water quality issues. The Rural DAC Stakeholder Committee designated the following criteria for DAC selection:

#### *Primary Criteria*

- Disadvantaged community per 2010 Census data
- Construction project
- Addresses public health issue
- Critical water projects (quantity/quality/reliability)
- Adequate TMF capacity (likely to be successful)
- Shovel ready or ability to complete within project time frame

#### *Secondary Criteria*

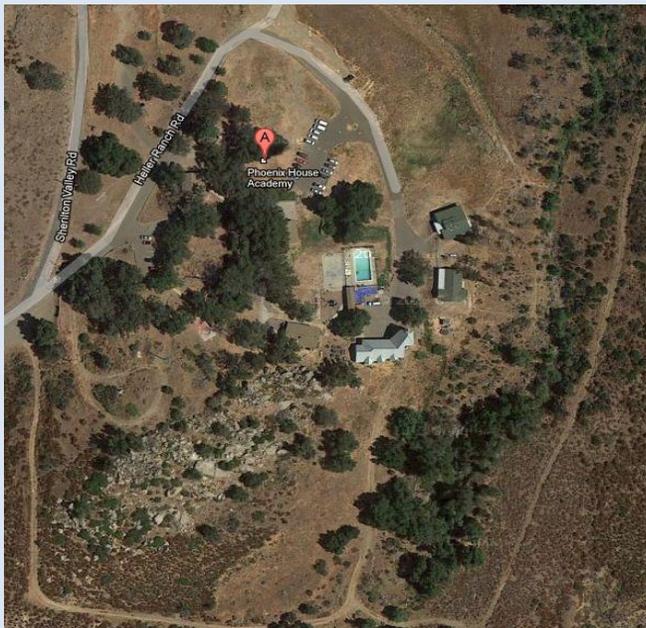
- Project ability to leverage other funding,
- Capital cost per connection,
- Multiple benefits,
- Green technology, and
- Environmental justice concerns.

Opportunities to merge related projects will be evaluated. Projects will be selected from both tribal and non-tribal rural DACs. In every case, RCAC will look at other available funding resources to leverage Prop 84 grant dollars.

RCAC is a certified Community Development Financial Institution (CDFI) and will be responsible for disbursements for selected rural DAC projects. Reporting processes for the DAC projects will, at a minimum, include required reporting to receive Prop 84 grant funds. Work will be verified by RCAC before invoices are submitted and payments are made. RCAC will provide written quarterly reports to the San Diego IRWM program and will be available to report directly to the RAC if requested.

All projects will address inadequate, unsafe, or unreliable water supply and water quality in rural DACs based on priorities already identified by the Rural DAC Stakeholder Committee. The proposed *Rural DAC Partnership Program* will select and implement four or more projects similar to the example projects described below. Three example projects described below have been identified as likely to be, or similar to projects likely to be selected, for inclusion in this program by the Rural DAC Stakeholder Committee.

**Example 3-1: Phoenix House School** – The Phoenix House Foundation owns and operates a small Potable Water System (PWS) serving 75 students and staff in Descanso, CA. The only well that serves this system is located adjacent to a creek, approximately 25 feet from a sewer line that crosses the creek and about 100 feet down gradient from the septic leach field. Due to the location of this well, it is susceptible to exposure from fecal coliform, and has a history of bacteriological failures at the wellhead.<sup>4</sup> The proposed project is construction of a replacement well and two new 10,000 gallon storage tanks. The project will protect the drinking water source from bacteriological contamination and provide sufficient storage to provide the community with water in the event of power outages or routine maintenance procedures on the well pump and motor.<sup>5</sup>



Source: Google Earth, 2013

*Photograph 3-1: Aerial view of Phoenix House School. Note proximity of creek, marked by the line of trees and vegetation in the right of the photo.*

<sup>4</sup> Phoenix House Foundation. 2006. *Preliminary Engineering Report* (System #3701478). Page 1.

<sup>5</sup> Phoenix House Foundation. 2006. *Preliminary Engineering Report* (System #3701478). Page 2.

**Example 3-2: Rancho Estates MWC** – The Rancho Estates Mutual Water Company (MWC) serves an agricultural community of approximately 180 residents in Pauma Valley, CA. The water system is served by 7 active wells and two shallow open cut reservoirs that are approximately 3 million gallons and 1.5 million gallons. Since the community is agricultural, the bulk of the water demands (average of 680 gpm) are used for irrigation of crops. Because the reservoirs are subject to contamination, the County of San Diego has issued Compliance Orders to cover and/or replace them.<sup>6</sup> The water system is also plagued with nitrate and bacterial problems which are violations of the Title 22 California Code of Regulations for drinking water.<sup>7</sup> The water system currently blends water from Yuima Municipal Water District (YMWD) through the distribution system as a control measure for nitrates which has kept them under the nitrate MCL.<sup>8</sup> The proposed project would consolidate the Rancho Estates MWC with the Yuima Municipal Water District. Infrastructure improvements include 16,500 linear feet of distribution pipeline and a new 50,000 gallon water storage tank. The agricultural operations of the Rancho Estates MWC will continue, but Rancho Estates MWC will cease providing potable water. This would protect public health by eliminating potential contamination due to the environmental exposure and address leakage issues.

**Example 3-3: San Pasqual District B Water System** – San Pasqual District B (Western) is a community PWS located near Valley Center, CA, on the San Pasqual Reservation. The water system has 90 residential connections and 12 transient connections. The PWS consists of a consecutive connection to Valley Center Municipal Water District (VCMWD), a booster pump station, a storage tank, and a distribution system.<sup>9</sup> The primary existing tank was constructed in 1992 and has a storage capacity of 100,000 gallons. A small 38,000 gallon corrugated steel tank also exists at the same site. Both USEPA<sup>10</sup> and IHS<sup>11</sup> have concluded that the tank exterior is showing oxidation and significant corrosion, as well as leaking in the base and joints. In addition, the system does not have an adequate amount of storage capacity to meet the County regulation requiring 2 days of storage for fire protection.<sup>12</sup> Due to the age and leaking of the tank and the need for additional storage, replacement of the tank was deemed the most reasonable option for addressing these issues. The proposed project will abandon the aging and leaking 100,000 gallon tank in place, and replace an adjacent 38,000 gallon tank with a new 250,000 gallon welded steel tank to provide greater water storage to the entire distribution system.<sup>13</sup> This would protect public health by eliminating potential contamination due to the leakage, eliminate wasted water supplies, and provide the District B community with adequate storage capacity.

<sup>6</sup> County of San Diego. 2010. *Compliance Order, Rancho Estates Mutual Water Company*.

County of San Diego. 2007. *Compliance Order, Rancho Estates Mutual Water Company*.

<sup>7</sup> Rancho Estates MWC. 2009. *Engineering Report Executive Summary*. Page 1-6.

<sup>8</sup> Rancho Estates MWC. 2009. *Engineering Report Executive Summary*. Page 2-6.

<sup>9</sup> USEPA. 2012. Sanitary Survey of San Pasqual District B (Western) (PWSID #0605080). Prepared by Sleeping Giants Environmental Consultants, LLC. Page 1.

<sup>10</sup> USEPA. 2012. Sanitary Survey of San Pasqual District B (Western) (PWSID #0605080). Prepared by Sleeping Giants Environmental Consultants, LLC. Page 5.

<sup>11</sup> IHS. 2012. *Technical Memorandum No. 2, San Pasqual District B Tank Replacement*. Page 2.

<sup>12</sup> IHS. 2012. *Technical Memorandum No. 2, San Pasqual District B Tank Replacement*. Page 2.

<sup>13</sup> IHS. 2012. *Technical Memorandum No. 2, San Pasqual District B Tank Replacement*. Page 1.



Source: Google Earth, 2013.

*Photograph 3-2: Ariel view of District B's 100,000 gallon tank and abandoned 38,000 gallon tank*

### Project Partners

Rural Communities Assistance Corporation (RCAC) is the project lead and will be providing funding oversight for the *Rural DACs Partnership Program*. Following selection of the priority projects, RCAC will work with small PWS operators, as well as other funding agencies (including USEPA, IHS, CDPH, U.S. Department of Agriculture) to implement water system improvements in the rural DAC systems. In Example Project 3-3, which addresses system deficiencies on tribal lands, IHS is a partner providing design, construction management services, and construction costs for a total of 50% funding. In Example Projects 3-1 and 3-2 that address other small water systems in the backcountry, the State Water Resources Control Board (SWRCB) is a partner providing 80% funding match through the CA Safe Drinking Water State Revolving Fund.

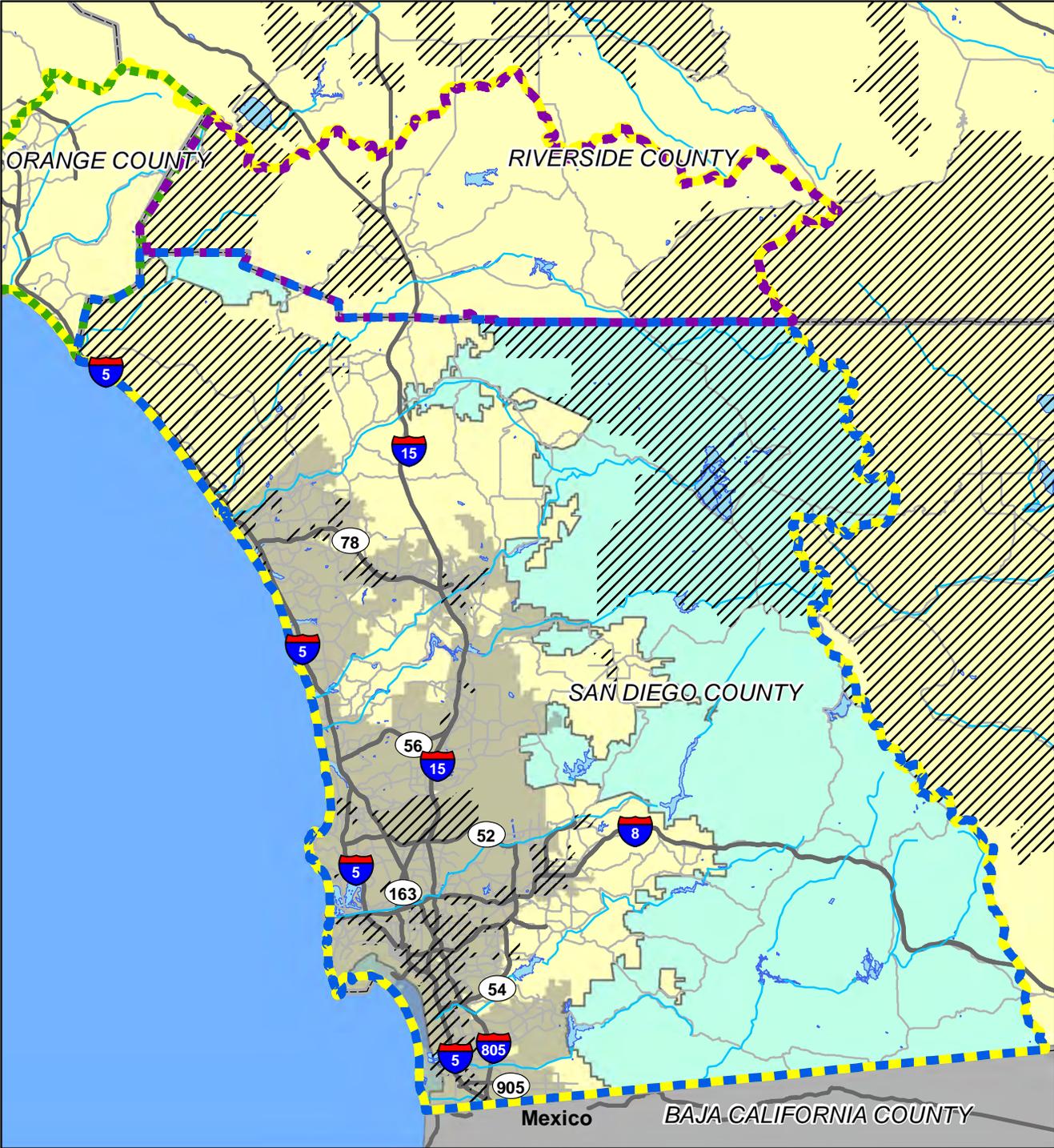
### Project Timing and Phasing

The *Rural DACs Partnership Program* was initiated in Prop 84-Round 1 and designed to address the critical water supply and water quality needs of DACs in rural east county areas. However, the proposed projects in this application can proceed with implementation, independent of any other projects included in the Round 1 package.

### Project Map

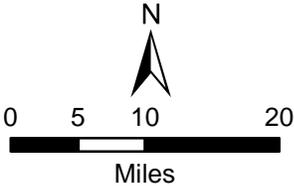
Figure 3-5 is a site map showing the project's geographical location in relation to DACs in the San Diego County backcountry, as mapped by the 2010 U.S. Census. However, as discussed in Attachment 10, RCAC will provide additional income and demographic data as necessary to justify small pockets of DACs within the larger Census tracts, if those PWS's are shown to be in critical need of infrastructure upgrades.

# San Diego IRWM Rural DAC Project Locations



### Legend

- Non-SDCWA service area
- DAC community
- Funding Area and Tri-County FACC Boundary
- San Diego IRWM Region
- Upper Santa Margarita Region
- South Orange County Region
- Freeway
- City Boundaries
- County Boundaries



## Project Objectives

The *Rural DAC Partnership Program* seeks to accomplish the following objectives:

- Recognize and support rural DACs, including tribal communities, in implementing projects that will solve critical water or wastewater system issues. Emphasis will be given to systems lacking safe and reliable delivery of drinking water or deficient wastewater collection and treatment.
- Provide outreach and Prop 84 funding to DACs, including tribal communities, to achieve capacity development and sustainability. Support solutions that address public health risks found in small DACs providing water and/or wastewater services.
- Outreach to rural DACs, including tribal communities, to promote capacity development, sustainable infrastructure, and green operations. To support environmental justice, provide outreach to rural DACs which are not able to access available resources that are available to them.

Efficient use of finite water supplies and energy resources will be incorporated into DAC projects when appropriate and affordable.

Sustainability will be a priority in the development of DAC funded projects. RCAC will leverage sustainability with other state, federal and local programs to provide water board and manager training, operator training, and assist when needed with tasks like selecting the right engineer for infrastructure improvements.

The *Rural DACs Partnership Program* will contribute to the draft San Diego IRWM Plan Update objectives, as summarized in Table 3-23 and described below.

**Table 3-23: Contribution to DRAFT IRWM Plan Update Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Rural DAC Partnership Program	•	•	○	•	•	•		○			•

○ = indirectly related

• = directly related

**A: Integrated solutions to address water management issues and conflicts.** The *Rural DACs Partnership Program* was developed in part by bringing together disparate projects through the Strategic Integration Workshop described above. This project also meets the Partnerships and Resource Management criteria for integration, as defined above.

**B: Maximize stakeholder/community involvement and stewardship of water resources, emphasizing education and outreach.** Selection of DAC projects for funding will be decided by a Rural DAC Stakeholder Committee with representatives from RCAC, CDPH, County DEH, IHS, and RWMG. Additionally, project solicitation outreach meetings will be conducted to inform citizens of the importance of environmental stewardship emphasizing conservation, regulatory (drinking water quality) compliance, and utility efficiency.

**C: Effectively obtain, manage, and assess water resource data and information.** All pertinent water resource data will be obtained and provided to the IRWM DMS. However, there may be an exception for some information obtained from Indian tribes that have restrictions on data distribution and use.

**D: Further scientific and technical foundation of water management.** RCAC works closely with CDPH (small Public Water Systems (PWS)) and USEPA's Region 9 (tribal PWS) drinking water divisions addressing compliance issues and data collection, water quality data, and technical information. Data produced from these activities for the DAC communities will be provided to the IRWM DMS.

**E: Develop and maintain a diverse mix of water resources, encouraging their efficient use and development of local water supplies.** Projects are intended to improve water supplies and water quality for rural DAC communities. They will reduce water loss due to leakage, improve water supply reliability for rural DACs, improve potable water storage, and/or improve drinking water quality.

**F: Construct, operate, and maintain a reliable infrastructure system.** Sustainability will be a priority in the development of DAC funded projects. RCAC will provide water board and manager training, operator training and assist when needed with tasks like selecting the right engineer for infrastructure improvements.

**H: Effectively reduce sources of pollutants and environmental stressors to protect and enhance human health, safety, and the environment.** By improving water supply infrastructure, the program will reduce potential contaminants in water supplies, protect finished water supplies by providing covered storage, and prevent potential contamination from leaks.

**K: Effectively address climate change through adaptation or mitigation in water resource management:** This program will enable small water systems in the Region's backcountry to adapt to climate change vulnerabilities associated with the increased potential for wildfires by increasing storage for emergency response.

### **Project Integration**

This project is the second phase of RCAC's *Rural DAC Partnership Program*. The projects selected for inclusion in this round will be selected by the Rural DAC Stakeholder Committee. Phase II will continue partnerships established in the Phase I portion of this project (funded in Proposition 84-Round 1), and create linkages and continued support with previous IRWM DAC projects. The *Rural DAC Partnership Program* also supports:

- USEPA Region 9 primary regulatory responsibilities for Indian Tribes.
- CDPH State Revolving Fund Priority Project List and primary regulatory responsibilities.
- SWRCB's Small Community Wastewater Strategy which promotes strategies to assist small and/or disadvantaged communities with wastewater needs.
- USDA Rural Development and Health and Human Services' targeted low income projects.
- IHS support for Indian Tribes and public health goals.
- County DEH list of Community Water Systems' compliance orders

RCAC partners with agencies to achieve their goals of assisting rural DACs with infrastructure improvements and protection on public health.

### **Completed Work**

The project selection process for the *Rural DAC Partnership Program* will utilize the following plans and studies. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR:

- Rural Community Assistance Corporation. November 2010. RCAC's Rural Review.
- State Water Resources Control Board. September 2007. 2007 Statewide Competitive Project List: Small Community Wastewater Grant Program.
- Trageser, Claire. January 2010. No Solutions for Rural Water Pollution Problem. Voice of San Diego: January 14, 2010.
- US EPA. September 2002. The Clean Water and Drinking Water Infrastructure Gap Analysis.
- US EPA. March 2008. Investing in a Sustainable Future: Drinking Water State Revolving Fund 2007 Annual Report.
- US EPA. September 2007. Small Drinking Water Systems: State of the Industry and Treatment Technologies to Meet the Safe Drinking Water Act Requirements.
- White, Christine. State of California Revolving Fund CWSRF Program: State Fiscal Year 2010/2011 Project Priority List.

For the three priority projects that have been identified as example projects, the following completed work has been included with this grant application:

- **Example 3-1: Phoenix House School -**
  - Phoenix House Foundation. 2006. *Preliminary Engineering Report*.

- Phoenix House Foundation. 2006. *Department of Health Services, Safe Drinking Water State Revolving Fund, Application for Construction Funds 2006/2007.*
- **Example 3-2: Rancho Estates MWC -**
  - County of San Diego Department of Environmental Health. 2007. *Domestic Water Supply Permit, Rancho Estates Mutual Water Company.*
  - Rancho Estates Mutual Water Company. 2008. *Engineering Report Executive Summary.*
  - County of San Diego Department of Environmental Health. 2010. *Compliance Order, Community Water System, Bacteriological Procedure Failure – System No. 3700936.*
  - Rancho Estates Mutual Water Company. 2010. *Safe Drinking Water State Revolving Fund, Applicant Planning Project Technical Report.*
- **Example 3-3: San Pasqual District B Water System -**
  - Indian Health Service. 2012. *Technical Memorandum No. 2, San Pasqual District B Tank Replacement, San Pasqual Band of Mission Indians, San Diego County, California.*
  - USEPA, Region 9. 2012. *Sanitary Survey Report, San Pasqual District B (Western), PWSID No. 0605080.* Prepared by Sleeping Giant Environmental Consultants, LLP.

## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. The *Rural DAC Partnership Program* will contribute \$56,610 to this effort. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

This task will involve administering the grant contract, tracking budgets, and providing funding oversight for the selected small and tribal water systems. This task will also include efforts necessary to prepare invoices, quarterly reports, project assessment and evaluation plans (PAEPs), and final reports as required by DWR for IRWM contracting purposes. It is assumed that this work will be completed in-house by a Project Manager and Support Staff from RCAC. In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available.

RCAC will also coordinate the funding match for priority projects with IHS, SWRCB, and other federal funding agencies. This task does not include RCAC technical assistance, which is factored into individual tasks elsewhere in the work plan.

#### **Task 2: Labor Compliance Program**

Labor Compliance Programs (LCP) for the priority projects will be completed in accordance with CCR §16421-16439 and will be submitted to the California Department of Industrial Relations for review and approval prior to commencement of any activities that would require an LCP.

#### **Task 3: Reporting**

Reporting for the *Rural RAC Partnership Program* is included above in Task 1: Project Administration.

**Table 3-24: Row (a) Direct Project Administration  
Rural DAC Partnership Program**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 1: Project Administration</b>				
Track budgets, prepare invoices, compile backup documentation, and prepare quarterly reports	Quarterly after contract execution	Not yet begun		X
Prepare and administer PAEP	After contract execution	Not yet begun		X
Prepare project completion report	At conclusion of project	Not yet begun		X
Coordination with federal funding agencies	As needed	Ongoing	X	X
<b>Task 2: Labor Compliance Program</b>				
Preparation, submittal, and implementation of Labor Compliance Program	Prior to construction	Not yet begun		X

**Row (b) Land Purchase/ Easement**

At this point, it is assumed that no easement acquisitions and/or right-of-ways will be required for any of the projects.

**C. Planning/Design/Engineering/Environmental Documentation**

**Task 4: Assessment and Evaluation**

The following provides a list of necessary studies that will be completed in order to assess and evaluate the project. Deliverables that will be a result of this task include: a technical memorandum on selection process and outcomes, and program guidelines.

***Subtask 4.1: Facilitation of Rural DAC Stakeholder Committee***

Subtask 4.1 will involve convening the stakeholder group in order to review the priority list of projects to ensure readiness to proceed and commitment of funding match and, if necessary, reviewing and selecting additional projects for funding. The Stakeholder Committee will meet on an as-needed basis following contract execution with the goal of selecting four or more priority projects for funding. RCAC will convene and facilitate the meetings, develop meeting agenda and notes, and provide all necessary supporting documentation for projects to enable project selection.

***Subtask 4.2: Rural DACs Project Assessment and Selection Study***

The *Rural DACs Project Assessment and Selection Study* will be performed upon contract execution. This study will involve soliciting for additional critical water quantity and/or quality projects from rural DACs (if necessary), finalizing project selection criteria, evaluating other available funding resources to leverage Proposition 84 dollars, providing outreach and program information, and assisting with project scope, readiness, and project documentation for funding. The recommended list of priority projects developed by the Stakeholder Committee will be included, along with documentation of how the project selection criteria were applied and any other rationale for selection.

***Subtask 4.3: Rural DACs Partnership Program Guidelines***

The *Rural DACs Partnership Program Guidelines* will be prepared to provide small and tribal water system operators with the information needed to contract with RCAC under this program. The guidelines will include information about project eligibility, project selection criteria, contracting and reporting requirements, reimbursable activities, roles and responsibilities, and other program requirements.

Although not included directly in this work plan, **Rural DAC Project Planning** (as necessary) shall be completed before contract execution. For any priority project being considered for funding through the *Rural DACs Partnership Program*, project planning should be complete and available to the Stakeholder Committee prior to its meeting. This assessment/evaluation may consist of feasibility studies and/or preliminary engineering studies as needed to evaluate options and provide recommendations and cost estimates (see “Completed Work” above for a list of project planning for the four identified priority projects). RCAC will provide capacity development, training, and technical assistance to support project sustainability utilizing existing RCAC programs.

**Task 5: Final Design**

Completion of the final project design will be determined based on DAC project selection (Task 4). Funding for project design may be provided to small or tribal water systems via the *Rural DACs Partnership Program* implementation in Task 9.

**Task 6: Environmental Documentation**

CEQA, NEPA, and other required environmental documentation will be identified during DAC project selection (Task 4). Funding for environmental compliance may be provided to small or tribal water systems via the *Rural DACs Partnership Program* implementation in Task 9.

**Task 7: Permitting**

All required permitting will be addressed during DAC project selection (Task 4). Although none are anticipated, funding for permitting may be provided to small or tribal water systems via the *Rural DACs Partnership Program* implementation in Task 9.

**Table 3-25: Row (c) Planning/Design/Engineering/Environmental Documentation  
*Rural DAC Partnership Program***

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 4: Assessment and Evaluation</b>				
Subtask 4.1: Facilitation of Rural DACs Stakeholder Committee	September 2014 – February 2015	Not yet begun		X
Subtask 4.2: Preparation of Rural DACs Project Assessment and Selection Study	March – May 2015	Not yet begun		X
Subtask 4.3: Rural DACs Partnership Program Guidelines	March – May 2015	Not yet begun		X

**Row (d) Construction/ Implementation**

**Task 8: Construction Contracting**

All construction contracting for the priority projects will occur after contract execution. Construction contracting will include solicitation of bids and award of contract by the RCAC Project Manager. Funding for construction contracting may be provided to small or tribal water systems via the *Rural DACs Partnership Program* implementation in Task 9.

**Task 9: Construction/Implementation**

This task includes all elements required to implement the *Rural DACs Partnership Program*. As such, this task includes the budget for RCAC’s Project Manager and Support Staff to administer the program, as well as budget to be spent on implementation of infrastructure upgrades in the Region’s disadvantaged backcountry. This task includes the budget for design, environmental, and construction activities that will be provided to small and tribal water systems to construct infrastructure upgrades in compliance with the conditions of the program.

All construction activities for this program will occur after contract execution.

**Building Materials and/or Construction Standards**

The building materials and computational methods for construction will be determined based on DAC project selection (Task 4). Projects will be constructed in accordance with all current applicable laws, standards and regulations, including the American Water Works Association standards for materials, construction and testing of pipe, storage tanks, pumps, and valves; NSF approval for materials that come in direct contact with drinking water; California Department of Transportation Standard Specifications for materials, construction and testing; International or California Building Code, California or National Plumbing Code, California Electrical Code, Standard Methods for laboratory testing, California or federal OSHA standards for safety equipment and design requirements.

**Subtask 9.1: Rural DACs Partnership Program Implementation**

As described above, this task includes work to administer RCAC’s *Rural DACs Partnership Program*, including management of the small and tribal water systems that will be selected for funding. This task will also include coordination with the federal funding agencies (e.g., IHS, SWRCB, USEPA) that will provide funding match for the priority projects. RCAC will collect appropriate documentation of this funding match and submit it to DWR with the quarterly reporting (Task 1). It is assumed that two RCAC staff members will oversee administration of the program. Note that the time and effort included within this subtask are based upon previous experience with a similar program funded through Proposition 84-Round 1.

**Subtask 9.2: Rural DACs Infrastructure Reimbursements**

This task includes the grant funding that will be made available to small and tribal operators to improve and upgrade their water supply infrastructure in compliance with the program guidelines (see Task 4). It is assumed that this program will fund infrastructure upgrades within four or more rural DACs in the Region. Based on the priority projects identified to date by the Stakeholder Committee (see below), this work plan assumes that reimbursements will include, but are not limited to, the following activities:

- Construction of new storage tanks and foundations,
- Connection of the new storage tanks to existing water mains,
- Demolition or abandonment in place of storage tanks,
- Abandonment in place of altitude valves,
- Installation of a pressure reducing valve stations,
- Construction of new sections of water main,
- Installation of an air relief valves,
- Installation of gate valves,
- Construction of new groundwater wells, and
- Construction of piping to connect new wells to existing distribution system.

**Table 3-26: Row (d) Construction/ Implementation  
Rural DAC Partnership Program**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 9: Construction</b>				
Subtask 9.1: Rural DACs Partnership Program Implementation	July 2015 – November 2017	Not yet begun		X
Subtask 9.2: Rural DACs Infrastructure Reimbursements	July 2015 – November 2017	Not yet begun		X

The budget for infrastructure reimbursements will be dependent on DAC project selection (Task 4). The following text box describes implementation tasks associated with the four example projects identified by the Rural DAC Stakeholder Committee to date.

**Example Project Implementation**

Project implementation tasks are described in detail below for the three priority example projects identified to date. Note that this list of priority projects will be revisited upon contract execution to ensure that funded DAC projects are ready to proceed, have committed funding match, and have the technical capacity to manage the new facilities.

**Example 3-1: Phoenix House School**

Design – An updated *Preliminary Engineering Report* will be prepared and will include project planning, existing facilities review, assessment of need for the project, alternatives considered and analyzed, selection of an alternative, and proposed project. Final design and construction specification contract documents will also be needed.

Environmental – Specific environmental compliance requirements are to be determined as part of the project. Due to the limited scope and footprint of the project, a Negative Declaration in compliance with CEQA is anticipated.

Construction – Construction tasks will include construction of a new well and piping to connect to the existing distribution system.

*Subtask 9.1 Mobilization and Site Preparation:*

Site preparation will be needed for the new well site and tank site. Mobilization will include moving equipment and materials to the site.

*Subtask 9.2 Project Construction:*

Project construction includes well drilling and development, disinfection system, treated water storage, and connection to the existing distribution system.

*Subtask 9.3 Performance Testing and Demobilization:*

Well production, water quality, and pressure testing.

**Example 3-2: Rancho Estates MWC**

Design – An updated *Preliminary Engineering Report* will be prepared and will include project planning, existing facilities review, assessment of need for the project, alternatives considered and analyzed, selection of an alternative, and proposed project. Final design and construction specification contract documents will also be needed.

Environmental – N/A

Construction – Construction tasks will include installation of new piping, new storage tank, hydrants, and household connections and meters.

*Subtask 9.1 Mobilization and Site Preparation:*

Site preparation will be needed for the piping and tank sites. Mobilization will include moving equipment and materials to the site.

*Subtask 9.2 Project Construction:*

Project construction includes an improved connection to the Yuima Municipal Water District. Infrastructure improvements include 3,000 feet of 4" pipe and 13,500 feet of 6" pipe, a new 50,000 gallon water storage tank, 41 new hydrants, and 60 household connections and meters.

*Subtask 9.3 Performance Testing and Demobilization:*

All new construction will be pressure tested.

**Example 3-3: San Pasqual District B Water System**

Design – Final engineering design will be needed to complete the project. Community involvement in the project will be facilitated by RCAC.

*Environmental* – Due to the limited scope and footprint of the project, a Finding of No Significant Impact (FONSI) determination for NEPA and a Negative Declaration determination for CEQA are anticipated.

*Construction* – Construction tasks will include construction of a new tank and foundation, connection of the tank to the existing water main, demolition of one tank and abandonment in place of another, construction of a new section of water main, and installation of gate valves.

*Subtask 9.1 Mobilization and Site Preparation:*

The new tank will be installed near an existing tank, so minimal site preparation will be needed. Mobilization will include moving equipment and materials to the site.

*Subtask 9.2 Project Construction:*

A new 250,000 gal water storage tank and foundation will be constructed and connected to an existing water main. Two existing tanks will be removed from service. One will be demolished and the other will be abandoned in place. The construction process will require three water main connections and 400 feet of 8-inch water main. Four 8-inch gate valves will also be installed.

*Subtask 9.3 Performance Testing and Demobilization:*

All new construction will be pressure tested.

### Row (e) Environmental Compliance/Mitigation/Enhancement

#### **Task 10: Environmental Compliance / Mitigation / Enhancement**

All tasks carried out for this project will be conducted in a manner that ensures environmental compliance with CEQA, NEPA, and all other relevant environmental statutes. No environmental mitigation is anticipated for the priority projects; therefore, these activities are not included in the Work Plan or Budget.

### Row (f) Construction Administration

#### **Task 11: Construction Administration**

This task involves administration, coordination, and review of the construction contract and all other related construction tasks. RCAC will review construction progress and approve progress payments based on physical inspection of the project and consultation with the construction manager. Funding for construction contracting may be provided to small or tribal water systems via the *Rural DACs Partnership Program* implementation in Task 9.

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## ***Project 4: Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility***

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### **I. Introduction**

#### **Project Sponsor**

The WaterReuse Research Foundation (WRRF) is the project sponsor for *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility*.

#### **Project Need**

Environmental buffers (i.e., intermediate water storage structures such as reservoirs or aquifers that allow treated reuse water to blend with water from other sources) have been important features of potable water reuse projects constructed in the United States for the last five decades. Over this period, treatment technologies have improved significantly and their costs have decreased. As utilities have become more confident in their ability to meet potable water standards and guidelines, potable reuse projects have been proposed, designed, and in some cases built in the United States without environmental buffers.<sup>14</sup> The increasing interest of utilities in operating potable reuse projects without environmental buffers (i.e., failsafe potable reuse) is driven by a number of factors, including water rights, lack of usable buffers near the locations where reclaimed water is produced, potential for contamination of the reclaimed water when it is released into the environmental buffer, and costs associated with maintenance, operation, and monitoring of environmental buffers.<sup>15</sup> In California, potable reuse without environmental buffers is not yet allowed by state regulatory agencies.

Senate Bill 918 (SB 918) requires the California Department of Public Health (CDPH) to finalize regulations for indirect potable reuse through groundwater recharge and reservoir augmentation by the end of 2013 and 2016, respectively. CDPH must also report on the feasibility of potable reuse without an environmental buffer, wherein purified water is delivered to the raw water conveyance system or the influent channel of a drinking water treatment plant (failsafe potable reuse) and could potentially increase the viability of potable reuse for water agencies throughout the State. One challenge in establishing regulations for all types of potable reuse projects is a lack of industry knowledge regarding specific treatment objectives required to protect public health, the myriad of alternative treatment processes available to enhance water quality, redundancy requirements for the sequential treatment system (treatment train), treatment system reliability requirements, and real-time water quality monitoring techniques.

The United States science and engineering community has struggled with this lack of industry knowledge for some time, dating back to a workshop held in Boulder, Colorado in 1975 by the United States Environmental Protection Agency, the American Water Works Association, the Water Pollution Control Federation, and the University of Colorado. Industry knowledge continues to be an issue, as the scientific community continued to discuss the potential for failsafe potable reuse at the WaterReuse Foundation California Conference held in 2012 in Sacramento, California. Similarly, the National Research Council (NRC) wrestled with the issue in its 1982 Report, *Quality Criteria for Water Reuse*, in its 1984 review of the Potomac Estuary Experimental Water Treatment Plant, and in its 1998 report, *Issues in Potable Reuse*. The NRC targeted this issue once again in its new 2011 report, *Water Reuse: Potential for Expanding the Nation's Water Supply Through Reuse of Municipal Wastewater*. Internationally, Australia recently issued a set of guidelines for potable reuse. All these existing guidelines must be assimilated and supplemented with project-specific criteria for local applicability in California.

This project seeks to fill known knowledge and data gaps and ultimately support wider implementation of potable reuse by increasing industry understanding and easing the burden on regulatory agencies to address the complex issues associated with the variations of possible potable reuse scenarios. The City

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<sup>14</sup> National Research Council. 2012. *Water Reuse: Potential for Expanding the Nation's Water Supply through Reuse of Municipal Water*.

<sup>15</sup> National Research Council. 2012. *Water Reuse: Potential for Expanding the Nation's Water Supply through Reuse of Municipal Water*.

of San Diego's (City) Recycled Water Study (completed in 2012) estimated that augmenting reservoir supplies with advanced-treated purified water (indirect potable reuse via reservoir augmentation) could create 98,560 AFY of new local water supply for southern San Diego County by 2035. In addition, potable reuse projects allow agencies to further the reuse of water, which reduces the volume of water ultimately wasted by discharging to the ocean. Application of the lessons learned from this WRRF study could substantially increase potable reuse throughout the State and nation.

### Project Purpose

The purpose of this project is to develop and demonstrate proper design and process engineering for failsafe potable reuse treatment trains. The project consists of four distinct activities as described below:

1. Develop expert panel guidelines on hazard analysis, redundancy, reliability, and monitoring requirements for potable reuse without an environmental buffer
2. Develop a comprehensive test plan for a failsafe potable reuse system that incorporates failsafe guidelines from previous studies completed by WRRF
3. Perform bench-scale, pilot-scale and demonstration-scale testing at the City of San Diego's existing water purification demonstration facility (demonstration facility)
4. Prepare a final report on a complete strategy for failsafe potable reuse

### Project Abstract

The *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* project will provide comprehensive testing, evaluation, and demonstration of sequential failsafe treatment steps (treatment trains) for potable reuse without an environmental buffer. To accomplish this, the project will draw upon active potable reuse research projects in the United States, Singapore, South Africa, and Australia in addition to worldwide potable reuse applications and practices used and researched in these same countries. Highlighted by a workshop on hazard analysis, critical control points, and redundancy requirements, this project will convene national and international health, treatment, and water quality experts to establish an appropriate framework for demonstration of failsafe potable reuse at the City of San Diego's existing advanced water purification demonstration facility (demonstration facility). This demonstration facility is designed as an educational facility as well, offering tours and education programs that allow the treatment process and the science behind it to be transparent.

This project consists of four distinct phases activities as described below:

*Phase 1 – Develop expert panel guidelines on hazard analysis, redundancy, reliability and monitoring requirements for potable reuse without an environmental buffer.* This task will identify an expert panel to participate in an international workshop that will develop the necessary guidelines to address hazard analysis, redundancy requirements, and appropriate water quality monitoring techniques for implementing potable reuse without an environmental buffer. A two-day workshop will be held in San Diego with the California Department of Public Health (CDPH) and municipalities pursuing potable reuse invited to attend. The expert panel will produce failsafe guidelines that will provide needed guidance for the potable reuse demonstration testing that will be performed as a part of this project.

*Phase 2 - Develop a comprehensive test plan for a failsafe potable reuse system that incorporates failsafe guidelines from previous WRRF studies:* This task will devise a test plan that incorporates the failsafe guidelines developed by the expert panel in this project along with the potable reuse treatment guidelines (developed in WRRF 11-02) and any other salient guidance from on-line monitoring (WRRF 11-01) and/or engineered storage buffer (WRRF 12-06). The test plan will be comprehensive and will include bench-scale work to better develop surrogate and indicator concepts, pilot-scale testing to demonstrate alternative disinfection and oxidation technology performance, as well as demonstration-scale testing to provide proof of failsafe system concept.

*Phase 3 – Perform bench-scale, pilot-scale and demonstration-scale testing at the City of San Diego's water purification demonstration plant.* This task will operate the City's demonstration facility for 52 weeks to develop long-term information that will evaluate the failsafe concepts developed in the test plan. The demonstration testing will involve microbial challenges, evaluations of intentional system failures,

demonstration of on-line monitoring equipment’s response, and redundancy treatment response. In addition to the demonstration testing, pilot-scale testing of alternative disinfection and oxidation processes will also be routinely operated and challenge tested. The combination of demonstration and pilot-scale testing will cover a wide range of treatment alternatives, monitoring, system response, and system reliability concepts.

*Phase 4 – Prepare Final report on complete strategy for failsafe potable reuse:* A final report will be compiled to provide a comprehensive pathway to failsafe potable reuse. The report will summarize expert panel guidelines and all the data gathered for on-line monitoring applications, redundancy and reliability performance, and relevant surrogate and indicators for various treatment processes. The report will be provided along with a workshop to develop a common understanding of project outcomes prior to finalizing the report with any specific comments.

The WaterReuse Research Foundation is actively funding nearly \$3 million in research to better develop potable reuse as a supplemental water supply. This project leverages the expertise from those investments and combines them to demonstrate failsafe potable reuse at the City of San Diego’s demonstration facility.

**Project Objectives**

The Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility Project seeks to accomplish the following objectives:

- Facilitate public education and awareness regarding potable reuse, and the San Diego Region’s efforts to diversify local water supplies
- Conduct research and testing of failsafe mechanisms for potable reuse to provide additional information about the viability and potential regulations that would be required to permit and implement potable reuse projects in California
- Develop and implement guidelines for potable reuse through an expert panel

This project will contribute to the updated SDIRWM Plan Objectives, as summarized in Table 3-27 and detailed below.

**Table 3-27: Contribution to DRAFT IRWM Plan Update Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Failsafe Potable Reuse at the Advanced Water Purification Facility	•	○	•	•	○			○			○

○ = indirectly related  
• = directly related

**Objective A: Integrated solutions to address water management issues and conflicts:** This project seeks to provide an integrated solution to address water management issues by meeting the San Diego IRWM Program’s Partnerships and the Geography definitions of integration, as described above.

**Objective B: Maximize stakeholder/community involvement and stewardship of water resources, emphasizing education and outreach.** As the project will involve testing at the City’s existing demonstration facility, this facility will continue to be open to the public for tours during the operation of the project to educate the community about San Diego’s water supply challenges and the role that full advanced water treatment technology and potable reuse can have in addressing those challenges.

**Objective C: Effectively obtain, manage, and assess water resource data and information.** Potable reuse creates a valuable and sustainable water resource, and the water quality and treatment performance data developed through this project will increase industry and regulatory knowledge of how to regulate and implement potable reuse. Developing better information will help promote potable reuse, which will help provide many benefits to the San Diego Region and to the State of California.

**Objective D: Further scientific and technical foundation of water management.** This project develops and implements guidelines to demonstrate a failsafe potable reuse concept that builds upon the millions in funds that WRRF has invested to research this topic. Without this project, CDPH will face a daunting challenge in assessing the viability of potable reuse without an environmental buffer. The significant benefit of this project is that it will present thorough guidelines and a detailed scientific assessment that will assist CDPH when developing regulations for potable reuse in accordance with SB 918.

**Objective E: Develop and maintain a diverse mix of water resources, encouraging their efficient use and development of local water supplies.** This project would facilitate development of a major new water source under local control, thus diversifying and expanding the Region and State's water supplies. Findings and concepts developed through this project will potentially expand the number of potable reuse endeavors throughout the San Diego Region and the State.

**Objective H: Effectively reduce sources of pollutants and environmental stressors to protect and enhance human health, safety, and the environment.** This project would facilitate increased recycling through potable reuse, which would in turn reduce wastewater discharges to the ocean and the marine environment. The treatment process for producing water for reuse would also destroy chemical and microbial pollutants, producing water that is extremely pure with salinity levels of 50 milligrams per liter (mg/L) or less, whereas imported water salinity levels are typically on the order of 500 mg/L. This advanced treatment will have a tremendous benefit to lowering the salinity in the region's water supply and the total annual amount of salt imported to the San Diego Region.

**Objective K: Effectively address climate change through adaptation or mitigation in water resource management.** This project will contribute to the development of a significant local water source. This will reduce the need for imported water, reducing the greenhouse gases associated with importing water to the Region. By developing guidelines for potable reuse without an environmental buffer, this project could avoid adverse impacts to climate change associated with the construction of additional water conveyance infrastructure and the energy required to transport water through the new conveyance infrastructure. Further, if this project contributes to approval of failsafe potable reuse, it will provide a drought-resistant source of potable water that is independent of imported water, whose use may be subject to additional restraints under the influence of climate change.

### Project Partners

Project partners in the *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* project include the WaterReuse Research Foundation (Lead Project Sponsor), City of San Diego (owner and operator of the demonstration facility), Padre Dam Municipal Water District (participating water agency), and the Helix Water District (participating water agency). Further, the expert panel that will be convened for the project will involve individuals from a multitude of agencies and organizations. Those experts will participate on an individual basis; as such, the organizations which they represent are not considered formal partners for this project.

### Project Integration

This project is integrated with many efforts associated with potable reuse, as it builds upon all relevant research and literature conducted to date with respect to this topic. However, this project is also directly linked to two specific potable reuse efforts. Those efforts are described below.

- WaterReuse Research Foundation Potable Reuse Development Program: Four WRRF research projects with a total budget of more than \$2.98 million (WRRF projects 11-01, 11-02, and 11-10 and 12-06) provide a foundation on which this project will build. This project presents an opportunity to demonstrate the treatment and monitoring methods developed in existing WRRF projects, which is necessary for regulatory approval of the potable reuse project being contemplated in San Diego (see information provided below).
- City of San Diego Water Purification Demonstration Project: The City constructed the demonstration facility to evaluate processes necessary to produce advanced-treated purified water, which would be the water used in a full-scale potable reuse application. The demonstration facility is an ideal facility to demonstrate the advanced treatment and monitoring methods

developed in the WRRF research projects and provide a foundation for regulatory approval of a potential full-scale potable reuse project in San Diego.

### Completed Work

The work included in this project (see below for more information) is contingent upon two completed work items. Those items are described in further detail below. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR.

- WRRF Research Project 11-01: Currently in progress.  
This research project will identify, evaluate, test, and validate potential treatment systems that could be used to assure the public safety of potable reuse. This project specifically focuses on investigating potential online monitoring technologies that could be implemented to remove regulated and unregulated contaminants that would potentially be regulated in failsafe potable reuse applications.
- City of San Diego Water Purification Demonstration Project: Currently in progress.  
The City of San Diego is currently implementing a project that is examining the use of advanced water purification technology to provide safe and reliable water to San Diego. This project includes a public outreach component, a regulatory component, construction and testing at a demonstration-scale facility, and will result in a final report that is due for completion mid-2013. This project is being partially funded through a *Propositions 50 Implementation Grant*.

### Project Timing and Phasing

The Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility Project is part of a multi-phased project, as it is part of WRRF's Potable Reuse Development Program. The Potable Reuse Development Program is a potable reuse funding initiative that has on-going research projects to investigate on-line monitoring technologies (WRRF 11-01) for evaluating system performance as well as alternative potable reuse treatment trains and public health criteria for failsafe potable reuse. The Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility Project will operate a demonstration-scale potable reuse treatment train that will demonstrate the concepts developed in WRRF 11-01. The operation of this project will occur at the demonstration facility, which was constructed and is currently being operated by the City of San Diego for the Water Purification Demonstration Project.

The other phases (WRRF 11-01 and the Water Purification Demonstration Project) described above have already reached critical milestones and salient information from those efforts is available. As such, the Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility Project can be fully implemented at this time.

### Project Map

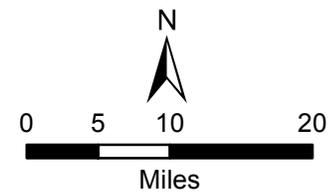
Figure 3-6 is a site map showing the project's geographical location and surrounding work boundaries.



## San Diego IRWM Failsafe Project Location

### Legend

- AWP Facility
- Water Authority Service Area-Benefit from WRRF Study
- Funding Area and Tri-County FACC Boundary
- San Diego IRWM Region
- Upper Santa Margarita Region
- South Orange County Region
- Freeway
- City Boundaries
- County Boundaries



**Advanced Water Purification Demonstration Facility**

## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. The *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* project will contribute \$63,390 to this effort. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

This task involves project administration, coordination, and review of all following project tasks. Funds to support this task will come from the WRRF's administrative budget and are not included in this work plan.

#### **Task 2: Labor Compliance Program**

Labor compliance will not be required for this project as it is not a construction project. However, the City of San Diego has an approved Labor Compliance Program, which is already implemented and applied as necessary to applicable facilities.

#### **Task 3: Reporting**

Reporting for the *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* project will be completed by WRRF. All of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available. To simplify billing for this project, quarterly progress reports and invoicing will be completed as part of the overall project management effort in Task 5.1 below.

### Row (b) Land Purchase/ Easement

No easement acquisitions and/or right-of-ways will be required to implement this project.

### Row (c) Planning/Design/Engineering/Environmental Documentation

Table 3-28, below, provides a summary table of the planning/design/engineering/environmental documentation subtasks for the *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* project.

#### **Task 4: Assessment and Evaluation**

This task describes the scope of work for WateReuse Research Foundation 11-02 project, "Equivalency of Alternative Treatment Trains for Potable Reuse" (WRRF 11-02) that provides the foundation for the demonstration of failsafe potable reuse in this project. This task gathers public health experts to determine proper treatment requirements for potable reuse, conducts a two-day workshop, and produces an expert panel report on treatment requirements for potable reuse. This task also develops a "state of the science" report to summarize all that is known and practiced in potable reuse world-wide. The project also develops a toolbox of unit process models that can be combined to simulate integrated treatment trains. Finally, an alternative treatment train is developed with the help of the toolbox and will be validated at pilot-, near-full-scale, or full-scale levels.

The following sections describe the technical approach for the proposed project, specifically related to three major components: (1) a collaborative workshop with public health experts, several leading reuse agencies, and leading researchers that culminates in a final set of public health criteria; (2) a comprehensive toolbox that allows users to assemble unit processes into reuse treatment trains and evaluate the quality of the final effluent; and (3) a combination of pilot-, near-full-scale, and full-scale validations of potable reuse treatment trains. For failsafe potable reuse, it will be particularly important to address how well the proposed treatment trains account for the benefits provided by environmental buffers that are currently integrated into the Potable Reuse paradigm, namely:

1. Loss of wastewater identity
2. Time for natural decomposition of residual chemical contaminants
3. Time to react to a constituent of concern that is detected in the advanced-treated purified water

#### **Subtask 4.1: Background Research and Criteria Development**

##### *Subtask 4.1A: Literature Review on Potable Reuse*

There is a substantial amount of literature related to the occurrence and treatment of pathogens and trace organic compounds (TOCs) in wastewater and potable reuse supplies. Two recently completed WRRF projects provide comprehensive summaries of this information and should be the starting point for the literature review. WRF-02-009 (Study of Innovative Treatments of Reclaimed Water), which is now in press, includes detailed evaluations of technologies and their ability to remove both pathogens and TOCs. The intent of that work was to find the optimal and lowest cost alternative to reverse osmosis (RO). The second project is WRF-06-019 (Monitoring for Microconstituents in an Advanced Wastewater Treatment Facility), which focuses on ultrafiltration (UF) and RO for TOC rejection. These projects provide an immense database of literature from which public health and engineering design criteria can be developed. Furthermore, the project will involve compiling currently available process evaluation parameters, process models, and treatment train models. Several Co-Principal Investigators (PIs) are currently finalizing a Water Environment Research Foundation (WERF) report (WERF-CEC4R08, Trace Organic Compound Indicator Removal during Conventional Wastewater Treatment), which is directly applicable to this project. The immediate value of this WERF project is the detailed secondary process models that have been developed. Similar to process models for nitrogen reduction, the WERF project allows for various secondary processes to be modeled for TOC reduction. The WERF project includes a detailed comparison of cost and performance of tertiary treatment compared to the cost and performance of secondary process modifications. The PI for WERF-CEC4R08 is also the lead for Task 4.2 in this project. Therefore, the models from the WERF project can be easily integrated into the toolbox to provide a starting point for advanced treatment.

The projects mentioned above will be supplemented with individual experience, publications by the PIs, and other recent publications by potable reuse experts. The project team also has an extensive collection of draft and final regulations, guidelines, and criteria for many U.S. states as well as other countries. In addition, each of the PIs maintains an extensive network of professional relationships throughout the U.S. and abroad that can be used to obtain project-specific information. These efforts and resources will be led by recognized experts in the respective field and organized as follows:

- Topic 1 – Health Criteria and Regulations
- Topic 2 – Process models, process evaluation criteria, and treatment train models
- Topic 3 – Alternative treatment trains

##### *Subtask 4.1B: Review of Available Public Health Criteria*

The review of available public health criteria will build on the effort in Topic 1 in Task 4.1A. The review will include a review of the following sources: 1) state and local drinking water standards; 2) unregulated compounds; 3) Safe Drinking Water Act (SDWA) Regulations; 4) Contaminant Candidate List 3 (CCL3); 5) World Health Organization (WHO) and European Union (EU) standards; 6) draft and approved versions of California's recycling criteria (Title 22, Division 4, Chapter 3, California Code of Regulations); 7) California Indirect Potable Reuse CEC Monitoring requirements; 8) California Department of Public Health (CDPH) Draft Groundwater Recharge Reuse Regulations; 9) California reuse regulations currently under development; 10) Australian Guidelines for Water Recycling; and 11) Monitoring Strategies for Chemicals of Emerging Concern in Recycled Water (Recommendations from a Science Advisory Panel, Final Report to the California State Water Resources Control Board, June 2010).

##### *Subtask 4.1C: Develop Criteria that are Protective of Public Health to Evaluate Treatment Technologies for Failsafe Potable Reuse*

Developing public health criteria for potable reuse is a challenging task due to the tremendous uncertainty involved. For this project, public health criteria will be developed by a highly qualified, independent panel of experts during a two-day workshop.

The two-day workshop will be held in Southern California at the headquarters of the Los Angeles Department of Water and Power. Before the workshop, the panel will review potable reuse fact sheets and summaries based on information gathered by the project team during previous tasks. On the first day of the workshop, the panel will hear selected presentations from experts in the field of potable reuse, including representatives from reuse agencies, regulatory agencies, and other prominent reuse experts. On the second day of the workshop, the panel will deliberate and hold a short public meeting to share its preliminary thoughts. If desired by the WateReuse Research Foundation and the Project Advisory Committee (PAC), the public meeting could be webcast for Foundation subscribers. At the conclusion of the workshop, the panel will prepare a report with proposed public health criteria for potable reuse.

*Subtask 4.1D: Develop a List of Additional Criteria to Evaluate and Compare Unit Processes and Treatment Trains*

In this task, additional criteria will be assimilated to evaluate the overall sustainability of the unit processes and treatment train alternatives. The toolbox model to be developed in Task 4.2 will be based on IT3, an existing model that has been developed and is being made available to the project. In its present form, IT3 includes decision trees and decision-making tools that give consideration to environmental factors (including greenhouse gas emissions), social factors, energy consumption, and chemical usage. Task 4.1D will be utilized to identify additional criteria to be included in the model to enable effective evaluation and comparison of alternative processes and treatment trains.

Criteria to be considered for Task 4.1D include the following: 1) effluent quality; 2) energy consumption; 3) chemical consumption and handling requirements; 4) production, handling, and disposal of residuals; 5) treatment consistency and reliability; 6) monitoring requirements; 7) compatibility with real-time monitoring technology; 8) maintenance requirements, operator staffing requirements, and training requirements; 9) physical space and footprint requirements; 10) characteristics that could replace the role of the environmental buffer, such as constituent removal, time to react to plant upsets, blending with other waters, elimination of wastewater identity, etc.; 11) TOrC reduction (removal + oxidation); 12) nutrient removal; 13) Title 22 requirements (or their equivalent); 14) bulk organic transformation; 15) DBP formation; 16) pathogen reduction (removal + inactivation); 17) energy footprint; 18) generation of greenhouse gas emissions; 19) capital, O&M, and life cycle costs; 20) and the impact on public perception.

*Subtask 4.1E: State of the Science and Criteria Report*

The project team will develop a report summarizing the state of the science and will be based on the following project components:

- Task 4.1A – Literature review
- Task 4.1B – Review of available public health criteria
- Task 4.1C – Public health criteria developed by expert panel during project workshop
- Task 4.1D – Review of additional design and sustainability criteria

The final report and the individual components will be developed in consideration of their applicability to various regulatory agencies, including but not limited to:

- The California Department of Public Health
- The California State Water Resources Control Board
- Other California agencies
- Agencies from other states, particularly Arizona, Florida, and Texas
- International agencies

**Subtask 4.2: Toolbox for Integrated Treatment Trains**

The toolbox developed during the project will be a computer model that delivers information on integrated water reuse treatment trains for potable reuse. The ideal “toolbox” must meet several key criteria:

- 1) It must include accurate and defensible information;
- 2) It must be extremely user friendly, easy to learn, and easy to use; and
- 3) It must be readily modified and updated.

The project team will develop a Microsoft Excel-based tool with click and drag icons representing unit processes that can be modified with reasonably limited, albeit sufficient, site-specific input criteria. An existing toolbox (IT3) that was developed will be modified to incorporate the public health and additional design criteria developed during Task 4.1.

**Subtask 4.2A: Develop a List of Unit Processes and Associated Variables**

The final version of the toolbox will include common technologies for advanced treatment in the form of a list of unit processes and variables associated with each process. The technical information on these technologies will be based on the experience of the project team members and supplemented with information gathered during the Task 4.1 literature review. The existing toolbox already includes the following information for common technologies: planning level cost estimates, energy and chemical use, and carbon/greenhouse gas emissions.

**Subtask 4.2B: Identify Existing Models**

Secondary treatment processes play a key role in the reduction of biological oxygen demand (BOD), nutrients, total organic carbon (TOC), TORCs, and other constituents, which may have direct impacts on advanced treatment processes that are “downstream” (follow) the secondary process. While the incorporation of secondary process models into the larger potable reuse toolbox is ideal, it requires substantial complexity. Existing models will be used to create input information related to general water quality and TORCs. These data will be supplemented with other conventional design criteria, such as flow and treatment goals, and will be fed directly into the potable reuse toolbox. For tertiary processes, the project will utilize the detailed literature (see Task 4.1) to develop a treatment performance sensitivity analysis that considers secondary effluent water quality (pH, alkalinity, BOD, TSS, turbidity, etc.). One important value to this approach is that this sensitivity analysis can be updated as new technologies enter the marketplace. Regarding sharing of proprietary information or intellectual property, the project proposes the use of commercially available models for the secondary processes and will provide full access to the Excel-based model (IT3) for tertiary and advanced potable reuse treatment processes.

**Subtask 4.2C: Develop and Refine Description of Individual Unit Process Models**

This effort will be focused on the generation of tertiary treatment performance, cost, and emissions analyses. These analyses will be embedded within IT3 and can be accessed and modified.

**Subtask 4.2D: Integrate Unit Process Models into a Unified Toolbox**

The proposed model is based upon a treatment technology toolbox that was previously developed (IT3). Within the budget allocated for this task, the project team will develop 8 to 12 different treatment trains for use within the model. These treatment trains will be proposed by the project team and revised based upon input from WRRF and the PAC. The model will be programmed to monitor treatment train effluent quality and other objectives and to alert the model user when objectives are not met by any of the treatment trains. Alerts will be based upon cost exceedances, water quality violations, public health concerns, carbon emissions, etc. Some additional criteria will be added as a result of Task 4.1D. The toolbox output will list technology-specific concerns regarding reliability, track record, and regulatory acceptance.

**Subtask 4.2E: Validate Toolbox Using Data from Existing Systems Practicing Indirect Potable Reuse**

The project team has gathered support from utility partners employing a wide range of unit processes and treatment trains. Periodic sampling and historical water quality data from these facilities will be used to validate the treatment performance model with actual data.

#### *Subtask 4.2F: Toolbox Report*

The toolbox report will be a user's manual that defines the input values, step-by-step screenshots to demonstration operation, and real life examples based upon the testing conducted as part of this project.

#### **Subtask 4.3: Treatment Train Development and Validation**

The objectives of Task 4.3 are to identify and validate the most promising treatment train alternative(s) for potable reuse based on the information and data compiled during the preceding tasks. The project team proposes to validate the relevant treatment trains with a combination of pilot-, near-full-scale, and full-scale testing. The technical approach for Task 4.3 is provided below.

##### *Subtask 4.3A: Develop Treatment Train*

After assimilating the model and full-scale potable reuse data, the project team will assemble one alternative (baseline) potable reuse treatment train for further testing. Current potable reuse treatment trains will serve as the foundation of this alternative. The project team will then supplement the baseline treatment train with unit processes that address the aforementioned deficiencies.

##### *Subtask 4.3B: Validate the Treatment Train*

The sampling plan for the Task 4.3B validation testing, including analyses and frequency, will be finalized once the public health and additional design criteria are developed in Task 4.1. The sampling frequency will range from daily to monthly depending on the analyte of interest, but the frequencies will be sufficient to fully characterize the efficacy of the treatment train. Testing will be performed for 12 months at the demonstration facility (see Task 9.3) to determine the treatment efficacy of these alternative treatment trains to achieve the potable reuse health requirements established in Task 4.1.

##### *Subtask 4.3C: Treatment Train Report*

This task will prepare a report summarizing the results from the validation of the potable reuse treatment trains. In this report, the project team will make final determinations related to the equivalency of current potable reuse treatment trains and the suitability of the proposed potable reuse treatment train(s) relative to the Task 4.1 criteria. This report will also identify critical issues requiring further attention, if any, prior to full-scale implementation of potable reuse.

#### **Subtask 4.4: In-Kind Equipment and Water Quality Tests**

These tasks describe the water quality testing that will be performed and also the in-kind pilot equipment that will be provided.

##### *Subtask 4.4A: Lab Analysis for Water Quality Testing*

An outside (third-party) water quality laboratory will be used to quantify many constituents of emerging concern. A commercial laboratory will analyze NDMA, general mineral analyses and other contaminants.

##### *Subtask 4.4B: In-Kind Pilot Equipment*

Pilot equipment is typically leased for a fee and startup/installation fees are also incurred. This project received 6-months of a GE Water UF pilot, 12 months of ITT Water and Technology Ozone/AOP pilot and BAC pilot units, and 12 months of APT Water's pilot equipment all at no cost. These donated unit processes are a significant contribution to this project and will allow for the completion of Task 4.3.

#### **Task 5: Final Design**

This project is developing information for proper design and operational concepts for failsafe potable reuse treatment trains. A failsafe potable reuse train will provide a robust process train that will enable potable reuse projects to eliminate the need for an environmental buffer with proper monitoring and operations. The project will be highlighted by an expert panel workshop that will develop specific guidelines to better define a failsafe potable reuse system. The project design and development consists of four core tasks, as described below:

***Subtask 5.1: Project Management and Coordination with Participating Agencies***

This task provides time for weekly progress meetings, bi-monthly meetings with the project partners (City of San Diego, Helix Municipal Water District and Padre Dam Municipal Water District) and WRRF as well as quarterly updates with CDPH. Meeting agendas will be prepared and meeting minutes provided to summarize discussion topics, key conclusions and action items. Coordination with outside agencies that are performing similar potable reuse research will also be performed in this task. Additionally, quarterly progress reports and invoicing will be completed as part of this overall project management task.

***Subtask 5.2: Expert Panel Workshop to Develop Guidelines for Failsafe Potable Reuse***

This task will identify an expert panel to participate in an international workshop that will develop the necessary guidelines to address hazard analysis, critical control points, redundancy requirements, and appropriate water quality monitoring techniques for implementing potable reuse without an environmental buffer. It is envisioned that the expert panel workshop will be held in San Diego County to better facilitate CDPH technical staff's attendance. The expert panel will be developed by generating a list of leading experts in the subjects of hazard analysis, on-line monitoring technologies, public health, critical control point assessments, membrane processes, adsorption, oxidation and disinfection processes. An agenda will be created in coordination with the panel chair to provide relevant presentation topics for consideration in developing guidelines for failsafe potable reuse. As an example, presentations are likely to include summaries of the expert panel report on overall treatment objectives from Task 4 (see above for further details) and the most promising on-line monitoring techniques along with their most appropriate applications and limitations. A literature review that summarizes relevant information will be provided to the panel prior to the workshop for their review. A two-day workshop will be held, and municipalities pursuing potable reuse will be invited to attend. The first day of the workshop will consist of presentations aimed at providing relevant information to the panelists as well as a potential straw-man for developing these new failsafe guidelines. The second day of the workshop will be dedicated to deliberations and discussions amongst the panel members. The expert panel will produce failsafe guidelines that will provide needed guidance for the demonstration testing that will be performed in this project.

***Subtask 5.3: Develop Comprehensive Test Plan for Potable Reuse***

This task will incorporate the failsafe guidelines in this project, the potable reuse guidelines (developed in Task 4), and any salient information or guidance for on-line monitoring technologies to determine the necessary testing to provide scientific answers to address the most pertinent questions. To ensure proper focus, an initial deliverable will be drafted that will summarize the test objectives to narrow the focus for the proposed test plan. The test objectives will be distributed for review and comment to the project partners, CDPH, and WRRF. After receiving comments, the test objectives will be finalized and included as an upfront summary to the comprehensive test plan. The test plan will include bench-scale work to better develop surrogate and indicator concepts, demonstration-scale testing to provide proof of concept information, and possibly some pilot-scale testing to demonstrate alternative disinfection and oxidation technology performance. The test plan will also be distributed for review and comment to the project partners, CDPH, and WRRF. Once comments are received and discussed amongst the project team, a final test plan will be distributed.

***Subtask 5.4: Final Report on Complete Strategy for Failsafe Potable Reuse***

Following the implementation of Task 5.3, a draft final report will be compiled to provide the complete picture for failsafe potable reuse. The report will summarize relevant guideline documents, provide insight on the most promising on-line monitoring techniques, provide design guidance for redundancy and reliability, and present a suitable surrogate and indicator framework for various treatment processes. The document will also include the literature review provided to the expert panel on hazard analysis and critical control points. A full analysis of the data generated will be presented along with system response strategies to various failure scenarios. The draft report will be provided to the project partners, CDPH, and WRRF for comment. A workshop will be held to facilitate the review process and develop a common understanding prior to receiving any detailed comments. Following the workshop, any comments provided by the project partners, CDPH, and WRRF will be discussed and a final report will be produced that incorporates the most constructive and salient comments received.

**Table 3-28 Row (c) Planning/Design/Engineering/Environmental Documentation  
Failsafe Potable Reuse at the Advanced Water Treatment Facility**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 4: Assessment and Evaluation</b>				
Subtask 4.1 Background Research and Criteria Development	August 2012 to January 2013	Completed	X	
Subtask 4.2 Toolbox for Integrated Treatment Trains	September 2012 to January 2014	90% Complete	X	
Subtask 4.3 Treatment Train Development and Validation	March 2013 to June 2014	In Process		X
Subtask 4.4 In-kind Equipment and Water Quality Tests	March 2013 to June 2014	In Process		X
<b>Task 5: Project Design</b>				
Subtask 5.1 Project Management and Coordination with Participating Agencies	September 2013 – September 2015	Not yet begun		X
Subtask 5.2 Expert Panel Workshop to Develop Guidelines for Failsafe Potable Reuse	September 2013 – January 2014	Not yet begun		X
Subtask 5.3 Develop Comprehensive Test Plan for Potable Reuse	January – March 2014	Not yet begun		X
Subtask 5.4 Final Report on Complete Strategy for Failsafe Potable Reuse	March – September 2015	Not yet begun		X

**Task 6: Environmental Documentation**

There are no CEQA, NEPA, or other environmental compliance requirements for this project.

**Task 7: Permitting**

No permits are required to implement this project. All testing will occur at the City of San Diego’s Advanced Water Treatment Facility, which already has any necessary permits.

**Row (d) Construction/ Implementation**

**Task 8: Construction Contracting**

Implementation of *Failsafe Potable Reuse at the Advanced Water Purification Demonstration Facility* does not require construction contracting. This project includes outreach and testing at an existing pilot-scale demonstration facility, and does not involve any direct construction. As such, construction contracting is not included in this work plan.

**Task 9: Construction/ Implementation**

The implementation of the test plan designed in Task 5 will take place at the City of San Diego’s existing Advanced Water Treatment Facility. The total testing time is slated for 52-weeks of implementation to develop the necessary information for evaluating failsafe potable reuse.

***Subtask 9.1: Perform Demonstration-Scale Testing***

This task will operate the City of San Diego’s advanced water purification demonstration facility for 52 weeks to develop long-term data to evaluate the failsafe concepts developed from the workshop that were incorporated into the test plan developed in Task 5.3. The demonstration facility testing will generate water quality data, on-line monitoring information, microbial removal data, process performance results, and a better understanding of the demonstration facility’s ability to respond to a challenging water quality or process failure event. The demonstration testing may also include pilot-scale testing for some alternative disinfection technologies that cannot be tested at the demonstration scale due to on-site

limitations such as water and power availability. Chemicals anticipated to be used for demonstration-scale testing include: ammonia hydroxide, sodium hypochlorite, citric acid, sodium hydroxide, antiscalant/CIP chemicals, and hydrogen peroxide. The water quality parameters that will be tested include, but are not limited to: constituents of emerging concern (CECs), nitrosodimethylamine (NDMA), total organic carbon (TOC), trihalomethane (THM), coliphage, coliform, and protozoa.

The demonstration testing will cover a wide range of treatment alternatives, monitoring techniques, system response, and system reliability concepts that fit within the failsafe and potable reuse treatment guidelines. The demonstration testing will focus on reliable, robust, and resilient organics oxidation and removal processes, pathogen inactivation and removal processes, and nutrient removal processes. Surrogate monitoring will be used to evaluate process performance in real time.

**Subtask 9.2: Bench-scale Experiments on Indicators and Surrogates**

Bench-scale testing will be performed to better define a surrogate and indicator framework for advanced-treated purified water. It is envisioned that the bench-scale testing will be performed on tertiary-treated recycled water and on the reverse osmosis permeate. The bench-scale testing will look at various disinfection and oxidation processes as well as membrane filtration and organics removal processes (i.e. adsorption, reverse osmosis). The goal is to develop correlations for easily monitored surrogates (such as UV absorbance, turbidity, and chlorine residual) for critical indicators (such as pathogens and endocrine disrupting compounds). Surrogates that serve as potential viable performance monitoring approaches at the bench-scale will then be used to monitor at the demonstration scale along with the relevant indicators.

**Subtask 9.3: Develop Meaningful Calibrations for Emerging Technologies**

The project team will work with manufacturers of real-time water quality monitoring equipment to develop proper calibrations and reliable information from the most promising technologies.

**Subtask 9.4: Challenge Testing for Indicators with Surrogate Monitoring**

The demonstration facility testing will involve microbial challenges, evaluations of intentional system failures, demonstration of on-line monitoring equipment’s response, and redundancy treatment response.

**Table 3-29: Row (d) Construction/ Implementation  
Failsafe Potable Reuse at the Advanced Water Purification Facility**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 9: Construction</b>				
Subtask 9.1: Perform Demonstration-Scale Testing	March 2014 – March 2015	Not yet begun		X
Subtask 9.2: Bench-scale Experiments on Indicators and Surrogates	March 2014 – September 2014	Not yet begun		X
Subtask 9.3: Develop Meaningful Correlations Calibrations for Emerging Technologies	March 2014 – March 2015	Not yet begun		X
Subtask 9.4: Challenge Testing for Indicators with Surrogate Monitoring	September 2014 – March 2015	Not yet begun		X

**Row (e) Environmental Compliance/ Mitigation/ Enhancement**

**Task 10: Environmental Compliance/ Mitigation/ Enhancement**

The project would not require any environmental compliance, mitigation, or enhancement.

**Row (f) Construction Administration**

**Task 11: Construction Administration**

This project does not require any direct construction administration.

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## ***Project 5: Sustaining Healthy Tributaries to the Upper San Diego River***

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### **I. Introduction**

#### **Project Sponsor**

The San Diego River Park Foundation (SDCRPF) is the project sponsor for *Sustaining Healthy Tributaries to the Upper San Diego River*.

#### **Project Need**

Tributaries of the Upper San Diego River are generally in good health; however, disturbance (fire) and activities on privately owned lands are a potential threat to this condition. Boulder Creek is used as a natural conveyance of water from Lake Cuyamaca to El Capitan Reservoir, the region's largest local water supply reservoir. By protecting Boulder Creek and other tributaries of the San Diego River that drain into El Capitan Reservoir, potential future costs to restore or repair the watershed will be reduced or made unnecessary. As the El Capitan Reservoir is listed an impaired (303d-listed) water body, activities that can be taken to improve the water quality of this water reservoir could potentially avoid the need for water treatment.

Boulder Creek has many important natural features and supports several beneficial uses. Specifically, Boulder Creek supports wild Rainbow Trout, is an important tributary to the El Capitan Reservoir, and conveys water from Lake Cuyamaca to the reservoir to help maintain reservoir levels. Despite these important features of Boulder Creek, there is a lack of data regarding this water body. Specifically, there is no baseline against which to evaluate stream health to ensure that the beneficial uses are protected and maintained in the future, nor is there baseline data regarding Boulder Creek that can be applied to other water bodies to assess their health and ability to potentially support beneficial uses.

#### **Project Purpose**

The purpose of this project is to protect and restore Boulder Creek, collect data from Boulder Creek to establish an appropriate baseline for creek health in the watershed, establish a community-supported monitoring program for the watershed, and educate land owners on maintaining or improving stream health in order to protect stream habitat as well as the El Capitan Reservoir.

#### **Project Abstract**

The Upper San Diego River Watershed contains water bodies that provide source water for the City of San Diego's El Capitan Reservoir, the largest local water supply source in San Diego County, which is impaired by water quality concerns and is on the 303(d) list of impaired water bodies. The streams and creeks that drain into El Capitan Reservoir are relatively healthy, but are under continued threat of degradation from both natural and man-made sources. This project seeks to develop a means of engaging local community members in assessing and monitoring the health of this important watershed and using the information collected to identify emerging threats and changing conditions.

This project will restore and maintain a portion of Boulder Creek, an important tributary to the El Capitan Reservoir in the San Diego River Watershed that captures rain, snow melt, and spring water and drains into El Capitan Reservoir. Areas of the Boulder Creek catchment, including Cuyamaca Peak, average more than 40 inches of rain a year. Boulder Creek is of unique significance because it is used to transfer water between Helix Water District's Lake Cuyamaca and the City of San Diego's El Capitan Reservoir where water is stored until treated for potable use. As part of this project, the community will be engaged in restoring approximately 4.4 acres of degraded riparian and associated buffer habitat on Boulder Creek. The project will also include monitoring of Boulder Creek and surrounding creeks to increase knowledge of the creeks and provide baseline information that will allow for early actions to be taken in the event that the creek begins to degrade. With a relatively small investment now, the creek and watershed can remain healthy, improving the health of the environment, maintaining carrying capacity in the reservoir, and reducing potential water treatment costs.

Boulder Creek is one of two known creeks in the San Diego River Watershed that supports wild rainbow trout. The presence of trout indicates a high quality stream with cold water. These unique conditions offer

an exciting potential to use Boulder Creek and nearby creeks as baselines for monitoring the overall health of the 440 square mile San Diego River Watershed. Identifying a suitable creek to use as a baseline for “healthy” conditions and creating a robust monitoring program is a primary goal of the overall watershed water quality monitoring program for the San Diego River Watershed.

Preliminary studies have shown that Boulder Creek is threatened by rural development, legacy mines, erosion and sedimentation from wildfires, and invasive plants and animals. Some hydromodifications have occurred on Boulder Creek, most of which is in public ownership. Recently, the San Diego River Park Foundation purchased a privately owned 3,000-foot section of the Creek. This project will also include work to restore this section, which has been damaged by private development and wildfire.

Through integration with partners and to bring a more holistic approach to assessing baseline conditions for Boulder Creek, this project includes field surveys of other creeks that drain into the El Capitan Reservoir. Monitoring will include real-time monitoring stations, biological assessments, and invasive animal and plant surveys. Education elements will provide information to private land owners in the area on how to reduce pollutant loading and activities that result in erosion and sedimentation. Another important component is outreach to three Native American Tribes in the area to provide training to empower their members to survey their tribal lands.

### Project Objectives

The *Sustaining Healthy Tributaries to the Upper San Diego River* project seeks to accomplish the following objectives:

- To restore 4.4 acres of riparian habitat and associated buffer habitat along Boulder Creek
- To develop and begin implementing an integrated and robust monitoring and assessment program for the Upper San Diego River Watershed
- To engage the community in becoming stewards of the project area so that water quality within the natural streams and the downstream El Capitan Reservoir is better protected and to reduce the potential need for future improvements or corrective actions

This project will contribute to the updated SDIRWM Plan Objectives, as summarized in Table 3-30 and detailed below.

**Table 3-30: Contribution to DRAFT IRWM Plan Update Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Sustaining Healthy Tributaries to the Upper San Diego River and Protecting Local Water Supplies Project	•	•	•	•	○		•	•	•	○	

- = indirectly related
- = directly related

**Objective A: Encourage the development of integrated solutions to address water management issues and conflicts.** This project is an integrated effort among several partners to implement a project that provides maximum benefits for habitat, protects source water for an important local water supply source, improves water quality, and involves stakeholder outreach and data collection and management.

**Objective B: Maximize stakeholder/community involvement and stewardship of water resources, emphasizing education and outreach.** This project will engage volunteers in stewardship activities, and will also include extensive water management outreach to area residents, including three tribal nations.

**Objective C: Effectively obtain, manage, and assess water resource data and information.** This project will include collection of real-time water quality data, which will be integrated into an existing public website that has been developed to provide public access to water resources data.

**Objective D: Further scientific and technical foundation of water management.** This project will include the development of water quality assessments to determine beneficial use and other data

applicable to a baseline creek (Boulder Creek). This data can be used to further the scientific and technical understanding of baseline creek data for the San Diego River Watershed and the Region.

**Objective E: Develop and maintain a diverse mix of water resources.** This project will help to maintain local water supplies by implementing source water protection guidelines for El Capitan Reservoir, which is an important part of the Region's water supply infrastructure and is currently impaired by water quality concerns.

**Objective G. Enhance natural hydrologic processes and encourage integrated flood management.** This project will help to maintain and restore burned areas of Boulder Creek, which is an important natural water conveyance system for water transfers between Lake Cuyamaca and El Capitan Reservoir.

**Objective H: Effectively reduce sources of pollutants and environmental stressors to protect and enhance human health, safety, and the environment.** This project will monitor water quality impacts in the source waters for El Capitan Reservoir and actively help to manage those source waters to improve watershed health, actively address environmental stressors such as sedimentation, and protect the water quality of El Capitan Reservoir, which is an important part of the Region's water supply.

**Objective I: Protect, restore, and maintain habitat and open space.** This project will include efforts to actively restore functioning riparian habitat and associated buffer habitat, and monitor for quagga mussels and other nuisance species, including feral pigs.

**Objective J: Optimize water-based recreational opportunities.** This project will include public education about fishing and other water-based recreation opportunities in the project area. In addition, the project will help to restore Boulder Creek, which is known to provide habitat for local fish such as trout.

### Project Partners

Project partners in *Sustaining Healthy Tributaries to the Upper San Diego River* include:

- San Diego River Park Foundation (SDRPF) - project lead and primary project sponsor
- San Diego Fly Fishers – Project partner that will assist with developing assessment and monitoring program
- San Diego State University (SDSU) – Project partner that will develop and install real-time monitoring equipment
- Kumeyaay Digueno Land Conservancy (consisting of 9 member tribes) – Project partner that will assist with Native American outreach and training and assist with cultural monitoring activities
- Helix Water District – Project partner that will participate in Working Group on hydromodifications

### Project Integration

The project partners submitted individual Project Concepts for the Strategic Integration Workshop conducted by the IRWM Program. Following the Strategic Integration Workshop, the project partners worked to bring together different project elements including SDSU's San Diego River Watershed real-time monitoring efforts and the Kumeyaay Diegueno Land Conservancy's interest in training Native Americans to assess and monitor the health of waterways within their tribal lands. Other project partners were contacted to discuss their interest in developing a more comprehensive approach to caring for a generally healthy upper watershed and developing knowledge which could be transferred to other areas in the Region. Further, a previous IRWM-funded project (the *El Capitan Reservoir Watershed Acquisition and Restoration Project* funded through Proposition 50) also helped to acquire open space areas within the Upper San Diego River Watershed to protect local water supplies and the receiving body of El Capitan Reservoir.

### Completed Work

This project (see below for more information) builds upon several completed work items. Those work items are described below. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR.

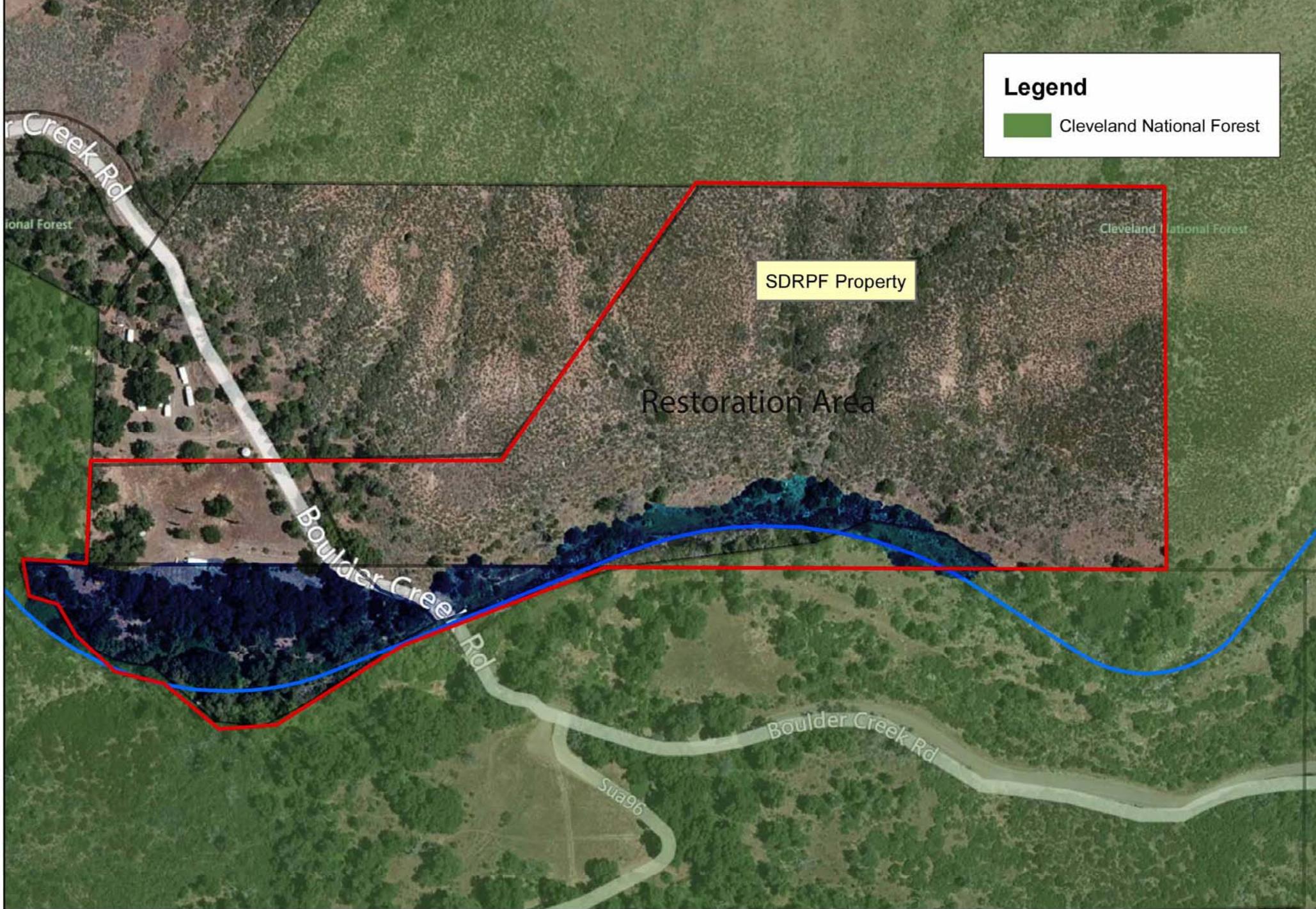
- San Diego River Watershed Workgroup, *San Diego River Watershed Management Plan*, Prepared by Anchor Environmental, Everest International Consultants, KYU&A, Merkel and Associates, TRAC, and Michael Welch. March 2005: Completed.
  - This plan, which is currently complete, contains information regarding the San Diego River Watershed, including watershed issues of concern and the steps necessary to resolve those issues. Final Watershed Management Plan,
- San Diego River Conservancy, *Five Year Strategic and Infrastructure Plan 2006-2011*: Completed.
  - This plan, which is currently complete, contains information regarding the San Diego River Conservancy's strategic plan for the time period of 2006-2011. This plan has relevant information regarding project criteria, land conservation priorities, and other information regarding strategic long-term planning for the San Diego River Watershed.
- San Diego River Conservancy, *Strategic Plan Update (2012-2017)*: Completed.
  - This plan update, which is currently complete, is an update to the San Diego River Conservancy's 2006-2011 Strategic and Infrastructure Plan. This update provides additional information regarding priorities for the San Diego River Watershed.
- San Diego River Coalition *Annual Work Program, 2012*: Completed.
  - The San Diego River Coalition's 2012 Work Plan includes a Headwaters Protection Program, which includes protection of identified lands near El Capitan Reservoir (such as Boulder Creek).

#### Project Timing and Phasing

This project is not a portion or phase of a larger multi-phased project.

#### Project Map

Figure 3-7 is a site map showing the project's geographical location and surrounding work boundaries.



**Legend**

 Cleveland National Forest

SDRPF Property

Restoration Area

Restoration Area  
Sustaining Healthy Tributaries to the Upper San Diego River and  
Protecting Local Water Supplies  
11/22/2012



## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available. *Sustaining Healthy Tributaries to the Upper San Diego River* will contribute \$15,630 to this administrative effort.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

As part of this task, SDRPF will execute a memorandum of understanding (MOU) or multiple MOUs with all project partners, including the Helix Water District, Kumeyaay Digueno Land Conservancy, SDSU, and the San Diego Fly Fishers. The SDRPF will also prepare MOU(s) with other agencies and organizations as necessary to fully implement the project, which may include the City of San Diego, the National Forest Service, and the San Diego River Conservancy. The terms of the MOU(s) will make the SDRPF responsible for project administration. This task will also involve preparing the following deliverables:

- Invoices and required backup documentation for the Water Authority and DWR.
- Contracts needed to complete the work included in the subsequent tasks of this work plan.
- Complete MOU(s) with partners and other agencies on work program, expenses, and matching funds.

#### **Task 2: Labor Compliance Program**

SDRPF will contract with a third party labor compliance administrator to put any required Labor Compliance Program in place and monitor labor compliance-related aspects of the project throughout the grant period. Golden State LC has provided a verbal estimate of the anticipated cost. The labor compliance program has not yet been initiated, but is anticipated to be completed by the end of 2013.

#### **Task 3: Reporting**

As part of their role as project administrator, the SDRPF will submit quarterly reports throughout the course of the project, as well as a final report upon project completion. This task will also involve the preparation of a draft and final project assessment and evaluation plan (PAEP). In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available.

**Table 3-31: Row (a) Direct Project Administration  
Sustaining Healthy Tributaries to the Upper San Diego River**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 1: Project Administration</b>				
Preparation of invoices and backup documentation	Quarterly after contract execution	Not yet begun		X
Memorandum of Understandings with project partners	To be completed by September 2014	Not yet begun		X
<b>Task 2: Labor Compliance Program</b>				
Third Party Labor Compliance Contract	Completed by 12/31/2013	Not yet begun		X
<b>Task 3: Reporting</b>				
Submittal of Quarterly Reports	Quarterly after contract execution	Not yet begun		X
Submittal of Final Report	January 2017	Not yet begun		X
Draft and Final PAEP	September 2013- June 2014	Not yet begun		X

**Row (b) Land Purchase/Easement**

No easement acquisitions and/or right-of-ways will be required for project. Restoration activities will occur on land that is owned by the SDRPF. One property acquisition was completed February 2013 and the other was completed in 2012.

**Row (c) Planning/Design/Engineering/Environmental Documentation**

**Task 4: Assessment and Evaluation**

All planning and assessment activities for this effort have been completed (see Completed Works above). No additional planning is included in this work plan.

**Task 5: Final Design**

This project includes habitat restoration, monitoring, and outreach activities, and therefore does not require formal project design.

**Task 6: Environmental Documentation**

No new environmental documentation will be required for this project. The CEQA documentation and compliance for this project will be covered under the U.S. Army Corps of Engineers (USACE) Regional General Permit (RGP) No. 41 discussed below. As such, environmental compliance and documentation for this project would be covered under the Environmental Impact Report for the RGP.

**Task 7: Permitting**

SDRPF anticipates that this project will be permitted for invasive removal and restoration activities under USACE's RGP No. 41-Invasive/Exotic Plant Removal, and will not require additional permitting. The purpose of RGP No. 41 is to provide a mechanism for expedited approval of invasive non-native vegetation removal projects for the general purpose of habitat recovery. Projects whose purpose is both habitat recovery and flood control would be eligible to use the RGP. USACE, in cooperation with the Nature Conservancy, has prepared a technical document on methods for control and management of giant reed (*Arundo donax*). A Section 401 Water Quality Certification has been obtained by the State Water Resources Control Board.

This task also includes activities associated with regulatory agency coordination to ensure coverage under RGP No. 41. A contingency is included if the Regional General Permit takes longer than

anticipated or if additional permitting is required. If this work is required, it is anticipated that a contractor would be used for this work.

**Table 3-32: Row (c) Planning/Design/Engineering/Environmental Documentation  
Sustaining Healthy Tributaries to the Upper San Diego River**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 7: Permitting</b>				
Coordinate with regulatory agencies and obtain required permitting	September 2013-December 2014	Not yet begun		X

**Row (d) Construction/Implementation**

**Task 8: Construction Contracting**

Construction oversight would include labor by a project coordinator and a project manager from SDRPF, and is included in the total construction costs in Task 9.

**Task 9: Construction**

Implementation of this project is divided into 8 subtasks, each described in further detail below. The project will require assessing the feasibility of addressing erosion, scoring, sedimentation, and other hydromodifications in Boulder Creek, developing and implementing a field monitoring program for the San Diego River Watershed, installation of a monitoring station, conducting field assessments and data collection, website updates to better inform stakeholders on creek health and best management practices (BMPs), outreach and education efforts, and habitat restoration along the creek. This task will commence after September 2013.

***Subtask 9.1 Complete Two Feasibility Studies for Removal of Hydromodifications:***

This task will include hosting a working group of landowners, public agencies and other interested parties to develop feasibility studies for the removal or modification of hydromodifications within the project area with the goal of enhancing the water quality of the affected water body. Any needed agreements will be secured from the interested party, and then a contractor will be selected to perform the study(s). The study(s) will include a cost/benefit analysis of removing or modifying the hydromodifications.

***Subtask 9.2 Develop and Implement Field Monitoring Program:***

This subtask will organize interested agencies and others to develop a comprehensive stream monitoring program in the upper San Diego River Watershed. Initially, an inventory of existing monitoring activities will be conducted. A program will then be developed that has a goal of assessing the overall health of the streams and the capacity to serve as an early warning system for future stream-health problems. Bioassessments, volunteer-based monitoring, real-time monitoring, flow, and other data sets will be combined into this program. Volunteers will be trained to conduct field monitoring based upon the developed program. Supplies and data collection equipment will be acquired to support the field monitoring including the processing of 10 bioassessments by a laboratory. Collected data will be widely circulated and made publicly available.

***Subtask 9.3 Conduct Field Assessments of Tributaries:***

In this subtask three main tributaries of the upper San Diego River (Boulder Creek, Cedar Creek, and Conejos Creek) will be assessed. Using GPS units and cameras, field data will be collected on invasive plants, hydromodifications, erosion problems, invasive feral pigs, invasive aquatic mussels, trash, and cultural resources, among others. As part of this task, community members will be trained to participate in the assessment. At least three (3) training sessions will be held for members of the public. In addition, Kumeyaay Digueno Land Conservancy (KDLC) will join with the SDRPF to organize and host a minimum of three (3) training sessions for tribal members of the Viejas, Cosmit, and Inaja Indian Reservations. KDLC will also assist with appropriate sensitivity to cultural resources identified on the assessments. The

first year's assessment will be used to develop a baseline condition assessment, while the subsequent two years will be used to develop a trend analysis based upon the baseline. Data will be shared with both the public and relevant land managers. A report will be developed each year with a final report as the deliverable of this subtask.

***Subtask 9.4 Establish One Real-Time Monitoring Station:***

In partnership with SDSU, a real-time monitoring station will be developed, installed, and monitored for two years. Also in partnership with SDSU, volunteers will be trained to maintain the monitoring station. This station will become part of a network of similar monitoring stations in the lower part of the San Diego River Watershed. A contract between SDSU and the SDRPF will be developed for this subtask.

***Subtask 9.5 Implement Web-based Data Management System:***

This subtask involves working with a contractor to enhance an existing web-based data management system so that the data collected in the monitoring and assessment programs of this project can be shared with the public. A scope of work will be developed as part of the Field Monitoring Program (Subtask 9.2) and a contractor selected to perform this work.

***Subtask 9.6 Restore 4.4 Acres of Riparian Habitat:***

This subtask involves the restoration of approximately 4.4 acres of riparian and buffer habitat along Boulder Creek. The site will be prepared for planting of trees and plants, and erosion control measures installed as needed. Seeds will be collected and plants grown on site. A native plant nursery will be contracted with to collect seeds and grow plants to support the project. Years two and three of the project will include efforts to maintain these plants, plant understory plants, remove invasive plants, and water as needed. Volunteers will also be trained to do restoration activities and to care for the plants. Photo-documentation of the restoration site will be done on a quarterly basis to document success.

***Subtask 9.7 Establish Public Information Web Portal:***

This subtask involves improving an existing web site to provide information about the project, volunteering, and the importance of the upper San Diego River and its tributaries. The web site will be used to promote volunteer opportunities and provide training materials. A contractor will be selected to perform this work.

***Subtask 9.8 Implement Education Plan:***

This subtask will involve organizing a working group of educators and naturalists to design methods that promote understanding of the data collected in this project and the value of maintaining good water quality in our local streams. An education plan will be developed about the project and will include information about local fish, including rainbow trout. Materials will be created to provide information at the restoration site as well as for display at other locations. Online surveys will be conducted to measure the impact of this task.

**Row (e) Environmental Compliance/ Mitigation/ Enhancement**

**Task 10: Environmental Compliance / Mitigation / Enhancement**

This project will not require environmental compliance, mitigation, or enhancement.

**Row (f) Construction Administration**

**Task 11: Construction Administration (Management)**

No construction management is necessary for this project. It is assumed that any necessary oversight of volunteers and project partners will be conducted by the SDRPF. Work associated with such oversight activities is included under Task 9.

**Table 3-33: Row (d) Construction/Implementation  
Sustaining Healthy Tributaries to the Upper San Diego River**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 9: Construction</b>				
<b>Subtask 9.1 Complete Two Feasibility Studies for Removal of Hydromodifications</b>	<b>March 2015 – December 2016</b>			
Work Group Sign-In Sheets	July 2016	Not yet begun		X
Hydromodification Removal Study #1	March - December 2015	Not yet begun		X
Hydromodification Removal Study #2	March - December 2016	Not yet begun		X
<b>Subtask 9.2 Develop and Implement Field Monitoring Program</b>	<b>March 2014 – December 2016</b>			
Report of Existing Monitoring Efforts	March - December 2014	Not yet begun		X
Monitoring Plan	July 2015	Not yet begun		X
Volunteer Sign-In Sheets	December 2016	Not yet begun		X
Final Data Report	December 2016	Not yet begun		X
<b>Subtask 9.3 Conduct Field Assessments of Tributaries</b>	<b>March 2014 – December 2016</b>			
Training Sign-In Sheets	July 2016	Not yet begun		X
Baseline Assessment	March - December 2014	Not yet begun		X
Year 2 Report	December 2015	Not yet begun		X
Final Report	December 2016	Not yet begun		X
<b>Subtask 9.4 Establish One Real-Time Monitoring Station</b>	<b>October 2014 – December 2015</b>			
Contract with SDSU Foundation for Station Design and Installation	October - December 2014	Not yet begun		X
Photo-documentation of Installed Station	December 2015	Not yet begun		X
<b>Subtask 9.5 Implement Web-based Data Management System</b>	<b>May 2014 – July 2016</b>			
Scope of Work for System	May - July 2014	Not yet begun		X
Documentation of Operating System	July 2016	Not yet begun		X
<b>Subtask 9.6 Restore 4.4 Acres of Riparian Habitat</b>	<b>October 2013 – December 2016</b>			
Final Restoration Map	October - December 2013	Not yet begun		X
Final Restoration Plan	December 2013	Not yet begun		X
Volunteer Sign-In Sheets	December 2016	Not yet begun		X
Success Report with Quarterly Photo-documentation	December 2016	Not yet begun		X
<b>Subtask 9.7 Establish Public Information Web Portal</b>	<b>October 2015 – December 2016</b>			
Contract for Web Portal Design	October - December 2015	Not yet begun		X
Documentation of Operating Web Portal	December 2016	Not yet begun		X
<b>Subtask 9.8 Implement Education Plan</b>	<b>May 2015 – December 2016</b>			
Education Plan and Materials	May - July 2015	Not yet begun		X
Working Group Sign-In Sheets	July 2015	Not yet begun		X
Report of User Surveys	December 2016	Not yet begun		X

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## ***Project 6: Chollas Creek Integration Project - Phase II***

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### **I. Purpose and Need**

#### **Project Sponsor**

Jacobs Center for Neighborhood Innovation (JCNI) is the sponsor of the *Chollas Creek Integration Project - Phase II*.

#### **Project Need**

Stormwater and urban runoff into the urbanized segments of the south branch of Chollas Creek present a serious water quality issue affecting numerous disadvantaged communities located adjacent to this urban stream within southeastern San Diego. Concentrated pollution, coupled with flooding hazards, results from concrete channelization, industry and organic waste, erosion of banks, and the unchecked growth of invasive plant species, especially *Arundo*, throughout the creek. Through the comprehensive *Chollas Creek Enhancement Program* (adopted by the City of San Diego in 2002), community members have demonstrated that the creek and wetlands are highly valued as a natural/recreational resource. Restoration of the creek requires modification of creek hydraulics at points of greatest urban density, removal of invasive species, and research and shared learning within the community to change attitudes and behaviors contributing to pollution and to foster informed stewardship of the watershed.

As a pioneering example of full creek restoration and enhancement via pedestrian trails within a higher density redevelopment area, Northwest Village Chollas Creek received Proposition 84-Round 1 funding to alter the hydraulics and flow line of 900 linear feet of creek. Funding under Proposition 84-Round 2 will contribute toward completion of the structural and habitat restoration of this 2-acre site.

#### **Project Purpose**

The purpose of the *Chollas Creek Integration Project - Phase II* is to improve water quality and prevent flooding through (1) engineered modifications to the channel via installation of headwalls and drop structures that will modify creek flow and prevent erosion, (2) contaminate uptake and natural filtration through invasives removal and restoration with native species, and (3) engagement of community volunteers in water quality monitoring and hands-on watershed education.

#### **Project Abstract**

The *Chollas Creek Integration Project - Phase II* aims to improve water and habitat quality in a Chollas Creek segment at Northwest Village, and engage members of the surrounding DAC in water quality monitoring along Chollas Creek. The project will reduce flood damage and improve water quality at Northwest Village Chollas Creek through creek realignment, headwall installation, and drop structures; improve habitat through invasives removal and native riparian revegetation; and conduct pre/post water quality monitoring.

**A. Northwest Village Creek Restoration:** Construction will accomplish flood damage reduction and water quality improvement through 1) creek re-alignment 2) inlet installation 3) drop structure installation 4) construction of inlets 5) non-native removal/restoration. Specifically, two 3-foot drop structures (rip-rap) will be developed along the northwest and southwest segments of this creek section to slow the creek flow at these points. Plants removed during construction will be replaced with native riparian species to restore habitat disturbed during this phase. The project design is 90% complete with CEQA compliance approval pending in mid-2013.

**B. Habitat Improvement Through Invasive Removal:** Invasives removal and restoration will improve water quality through erosion control and pollution uptake, and will contribute to improved habitat values for wildlife. Recreational and public access benefits will also be achieved. This Phase II project will support a comprehensive invasives removal effort at Northwest Village Creek (Euclid Avenue and Market Street), as well as 47th Street and Castana. Building upon *Chollas Creek Integration Project - Phase I*, biological site assessment data (delineation of vegetation communities/wetland resources and identification of sensitive plant and animal species) will inform the Phase II invasives removal efforts, reflecting community removal priorities where the greatest water quality, recreation, wildlife conservation,

and stakeholder benefits can be achieved.

**C. Water Pollution Source Tracking, Citizen Monitoring, Pollution/Conservation Education, and Community Engagement:** Phase II will build upon *Chollas Creek Integration Project - Phase I*s engagement of institutional stakeholders in the determination of water quality, natural resource, and environmental justice opportunities/constraints. Phase II will expand stakeholder outreach to include residents in water quality monitoring, and conduct targeted educational messaging. Thirty (30) area youth will be trained and employed as water quality monitors. Water quality monitoring will utilize existing City of San Diego stormwater data for pollution source tracking, and will expand upon the San Diego Coastkeeper’s Citizen Science Monitoring and Pollution/Conservation Education programs. The project will also partner with Groundwork’s Green Team Community Service Project for engagement of student volunteers, and a coalition of institutional stakeholders in the determination of water quality, natural resource, and environmental justice opportunities/constraints.

**Project Partners**

JCNI is the primary implementing agency (fiscal sponsor, construction, and environmental permitting) with Groundworks San Diego-Chollas Creek (Groundworks) guiding invasive plants removal and San Diego Coastkeeper conducting water quality monitoring and community science education regarding water quality improvement and watershed stewardship.

**Project Timing and Phasing**

The proposed flood mitigation, water quality improvement, and invasives removal activities are Phase II of a 4-phase project and builds on funding provided for *Chollas Creek Integration Project – Phase I* under the Proposition 84-Round 1 grant cycle.

Project phases are discrete components of effort that include improving creek hydraulics on the north section of the Northwest Village creek segment and an Opportunity Assessment of the entire creek (Phase I), flood prevention and invasives removal at one site (Phase II), development of creek trails (Phase III), and construction of a footbridge and retaining wall to reinforce the trails system (Phase IV). Each phase can be implemented on a stand-alone basis, although construction activities would ideally be performed as an integrated process, followed by trails development (Phase III).

**Project Map**

Figure 3-8 is a site map showing the project’s geographical location and surrounding work boundaries.

**Project Objectives**

The *Chollas Creek Integration Project - Phase II* seeks to accomplish the following objectives:

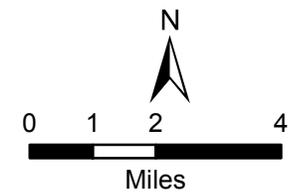
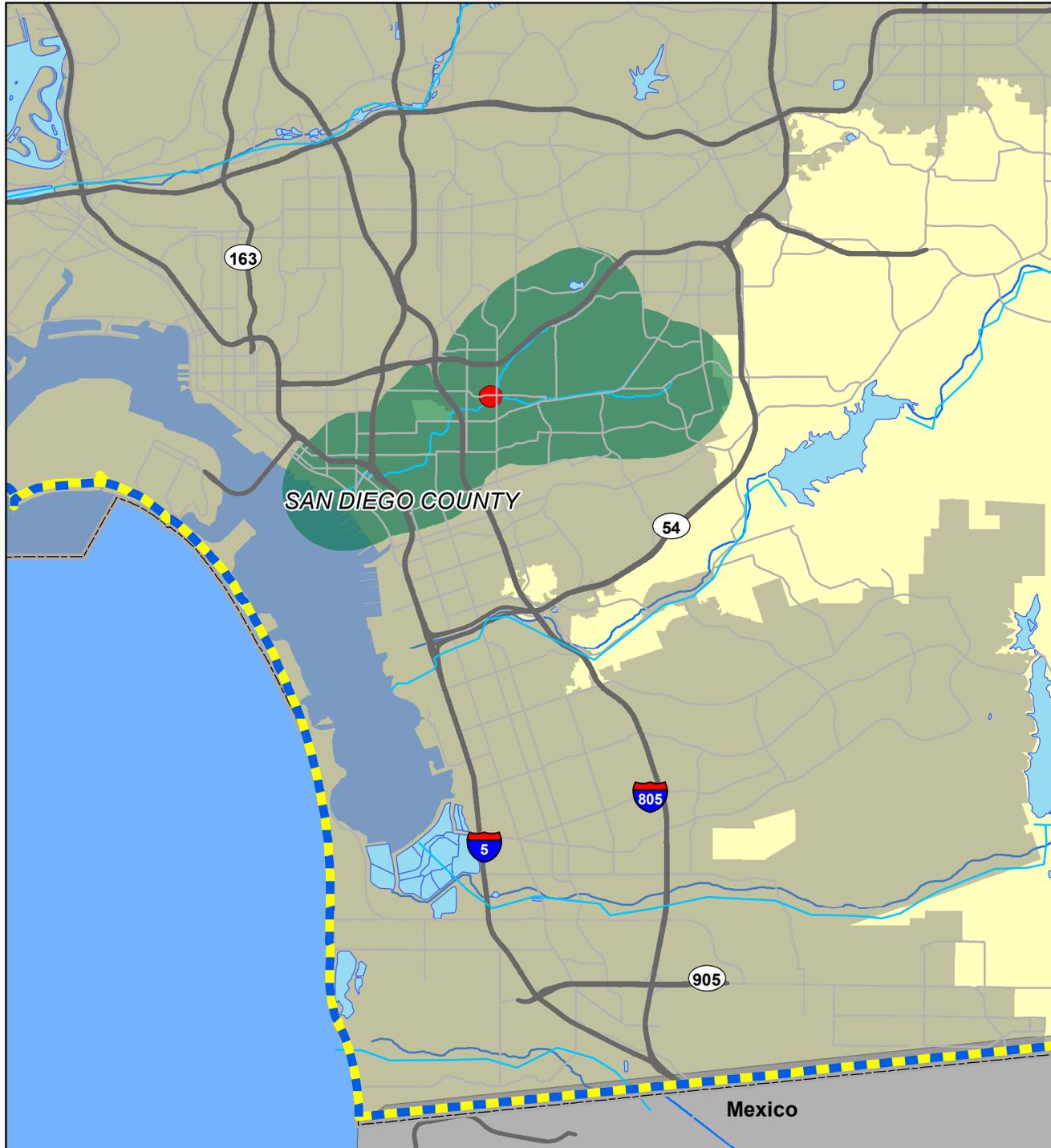
- Reduce the negative effects on waterways and watershed health caused by hydromodification and flooding.
- Improve channel hydraulics to reduce the potential for flood damage
- Effectively reduce sources of pollutants and environmental stressors.
- Protect, restore and maintain habitat and open space.

The table below provides an overview of the draft San Diego IRWM Plan Update objectives that are expected to be directly (●) or in directly (○) achieved through implementation of this project. The San Diego IRWM Prop 84 Implementation Grant Proposal includes an overview of the region’s IRWM Plan objectives that are expected to be achieved through the project.

# San Diego IRWM Chollas Creek Project Area

## Legend

- Jacobs Center Restoration Site
- Water Quality Monitoring Area
- Funding Area and Tri-County FACC Boundary
- San Diego IRWM Region
- Upper Santa Margarita Region
- South Orange County Region
- Freeway
- City Boundaries
- County Boundaries



**Table 3-34: Contribution to DRAFT IRWM Plan Update Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Chollas Creek Integration Project – Phase II	•	•	•				•	•	•		

○ = indirectly related  
● = directly related

This project contributes to the draft IRWM Plan Update objectives in the following ways:

**Objective A: Integrated solutions to address water management issues and conflicts:** This project was developed in part through the Strategic Integration Workshop, described above. It also meets San Diego IRWM Program’s Partnerships and Hydrology definitions of integration, also described above.

**Objective B: Maximize stakeholder/community involvement and stewardship of water resources, emphasizing education and outreach:** Thousands of project area residents will be engaged through public outreach, community leaders will be hired/trained to lead the social values research, resident youth will be employed to conduct research and serve as water quality monitors, educational materials will be disseminated, and creek communities will experience the benefits of improved creek habitats. Data will be shared with the City of San Diego’s Think Blue program for the customizing of pollution prevention/water conservation public outreach efforts, including media, direct mail, and school programs. CoastKeeper will publish and maintain data on their website. Groundwork will utilize results in its annual school outreach program (Green Team, Student Stream Team), which reaches 300 children annually.

**Objective C: Effectively obtain, manage, and assess water resource data and information:** Water quality monitoring will provide 300 more Chollas Creek water quality samples (in addition to current baseline monitoring by San Diego Coastkeeper and the City of San Diego). These samples will focus specifically on the area where invasive species removal/restoration will take place, in order to support a robust assessment of impacts on water quality. Data will be shared with Think Blue as well as displayed on San Diego Coastkeeper’s web data portal.

**Objective G: Enhance natural hydrologic processes to reduce the effects of hydromodification and encourage integrated flood management:** Construction will accomplish flood damage reduction and water quality improvement through 1) creek re-alignment, 2) culvert widening/headwall installation, 3) drop structure installation, 4) retaining wall installation, and 5) non-native removal/restoration.

**Objective H: Effectively reduce sources of pollutants and environmental stressors to protect and enhance human health, safety, and the environment:** Removal of invasive species and stabilization of the Chollas Creek channel will improve water quality within the creek. Vegetation removed during construction will be replanted with native riparian species to restore habitat disturbed during this phase and improve water quality through pollution uptake. Water quality monitoring will focus specifically on the area where invasive species removal/restoration will take place.

**Objective I: Protect, restore, and maintain habitat and open space:** Phase II will accomplish invasives removal, planting of native plant species, and buffers to protect wildlife and vegetation within the creek to create four acres of publicly accessible green space for disadvantaged communities. When combined with previously restored sections of Chollas Creek within the target area, a total of approximately 15 acres of open space will have been created since 2008.

**Project Integration**

The *Chollas Creek Integration Project - Phase II* links to the following projects and programs:

- *Chollas Creek Integration Project - Phase I* which received funding under Proposition 84-Round 1 to complete an Opportunities Assessment and construct Phase I of the Northwest Village creek project;
- City of San Diego Think Blue program;
- Jackie Robinson YMCA Sacred Places restoration project;
- Groundwork Green Team Community Service project through youth training/employment;
- San Diego Coastkeeper’s Citizen Science Monitoring;

- San Diego Coastkeeper's *San Diego Regional Water Quality Assessment and Outreach Project* which received Proposition 84-Round 1 funding to conduct water quality monitoring countywide, including three locations in the Pueblo Watershed
- I Love A Clean San Diego Creek-to-Bay and Coastal Clean-up for community restoration volunteerism; and
- National Park Service/Groundwork San Diego, River and Trails Partnership.

These linkages provide the basis for a growing regional collaboration to restore and enhance Chollas Creek wetlands and tributaries. Whereas most efforts to address creek problems to date have been site-specific or project by project, an integrated approach among public and private stakeholders, including DAC residents, is required to achieve significant, large-scale outcomes for a healthier watershed. Data sharing among partners is providing the foundation for ongoing learning about the distinct challenges involving this disturbed stream, which is a major conveyor of stormwater runoff into San Diego Bay and a green belt for wildlife habitat, recreational trails, and urban greening opportunities.

### Completed Work

The following work has been completed or is expected to be completed prior to the grant award date. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR:

- City of San Diego. 2012. *Draft Mitigated Negative Declaration*. Project No. 230777. November 2012
- Design plans for creek construction and habitat restoration (100% design to be completed in June 2013)
- REC Consultants. 2012. *Northwest Village Creek Biological Technical Letter Report*. May 2012
- Rick Engineering. 2011. *Water Quality Technical Report for Northwest Village Creek*. January 2011 (with revisions through June 2012)
- Rick Engineering. 2011. *Drainage Report for Northwest Village Creek*. January 2011 (with revisions through June 2012)
- Southern California Soil & Testing. 2012. *Geotechnical Investigation, Northwest Village Creek, Planned Commercial Building, 504 and 602 Euclid Avenue, San Diego CA*. January 2012.

## **II. Project Work**

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Proposition 84-Round 2 Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available. The San Diego IRWM Region will contribute \$15,000 (or 3% of this grant request) for grant administration relevant to the *Chollas Creek Integration Project - Phase II*.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

JCNI will have lead responsibility for project administration, including grants management, convening team meetings with partner organizations, submitting invoices, and maintaining financial and MOUs/contractual documentation. Groundworks will administer tasks relating to coordination with San Diego Coastkeeper for student volunteers' recruitment, training, and on-site activities for water quality monitoring. Documentation will be provided to JCNI for inclusion in quarterly reporting, invoicing, and ongoing project monitoring.

### Task 2: Labor Compliance Program

Compliance with State of California Prevailing Wage (Davis Bacon Act) and Labor Compliance Program (LCP) requirements will be assured by JCNI as fiscal sponsor through contracted services of a qualified independent consultant, hiring and subcontractor selection practices, and supportive record-keeping. This compliance with labor laws extends to supervision of paid student volunteers.

### Task 3: Reporting

This task will involve quarterly grants administration reports, evidence of deliverables and task progress or completion, and project financial reports with detailed narrative describing project status. JCNI will provide all of the reports incorporating information from cooperative partner agencies. In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available.

**Table 3-35: Row (a) Direct Project Administration  
Chollas Creek Integration Project – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 1: Project Administration</b>				
Project Management-Manage Project, design, permits, funding and partnerships	Upon grant award	Not yet begun		X
<b>Task 2: Labor Compliance Program</b>				
Prevailing Wage Compliance	Prior to construction	Not yet begun		X
Supervise Student Water Monitoring & Training	Upon grant award	Not Yet begun		X
<b>Task 3: Reporting</b>				
Submittal of Quarterly Progress Report	Quarterly after contract execution	Not yet begun		X
Project Completion Report with Supporting Documentation	Project Completion	Not yet begun		X

### Row (b) Land Purchase/Easement

No easement acquisitions and/or right-of-ways will be required for the project. Land containing the Northwest Village Chollas Creek project site is owned by JCNI (applicant and primary implementer).

### Row (c) Planning/Design/Engineering/Environmental Documentation

#### Task 4: Assessment and Evaluation

As part of the Northwest Village Creek Restoration Project, JCNI completed the following technical studies in 2012:

- **Drainage Report for Northwest Village Creek** – This report was originally prepared by Rick Engineering in 2011 and updated in June 2012. This Drainage Report presents pre-project (existing), interim, and post-project condition hydrologic and hydraulic analyses for the Northwest Village Creek project. This report also includes hydraulic analyses of Chollas Creek from Market Street to Euclid Avenue to determine hydraulic grade line (HGL) and velocity information within the channel restoration area as well as to size required riprap slope protection within the channel.
- **Water Quality Technical Report for Northwest Village Creek** – This report was originally prepared by Rick Engineering in 2011 and updated in June 2012. This Water Quality Technical Report summarizes storm water protection requirements for the Northwest Village Creek project. This report describes the permanent storm water Best Management Practices (BMPs) that will be

incorporated into the project in order to mitigate the impacts of pollutants in storm water runoff from the proposed project.

- **Geotechnical Investigation for Northwest Village Creek** – This study was prepared by Southern California Soil & Testing in 2012. A total of 7 exploratory test borings were drilled using a truck mounted drill rig equipped with a hollow stem auger. The test borings extended between about 5 feet and 30 feet below the existing grade. Selected samples from the borings were tested to evaluate pertinent soil classification and engineering properties and enable development of geotechnical conclusions and recommendations.

As part of the *Chollas Creek Integration Project – Phase II*, water quality monitoring consisting of pre- and post-project water quality testing will be initiated and documented by San Diego Coastkeeper and Groundworks. Samples will be collected by trained student volunteers (Green Team) and submitted for laboratory analysis and reporting. Groundworks will initiate volunteers training and supervise water monitoring. Note that although the Green Team students are considered ‘volunteers,’ they are paid a small stipend for participating in the water quality monitoring effort.

#### **Task 5: Final Design**

The Northwest Village Creek Restoration project (refer to Figure 3-8-1) will accomplish flood damage reduction and water quality improvement through 1) creek re-alignment, 2) culvert widening/headwall installation, 3) drop structure installation, 4) construction of inlets, and 5) non-native removal/restoration. A series of small retaining walls will be constructed to reinforce the northwest bank, which has experienced significant erosion. Specifically, two 3-foot drop structures (rip-rap) will be developed along the northwest and southwest segments of this creek section to slow the creek flow at these points. Plants removed during construction will be replaced with native riparian species to restore habitat disturbed during this phase.

Project design phases undertaken by JCNi in coordination with the City of San Diego will be completed before September 2013, as this task was originally initiated in 2011 for the Northwest Village Chollas Creek site.

#### **Task 6: Environmental Documentation**

As part of the City of San Diego’s permitting process, the environmental review concerning CEQA compliance for Northwest Village Chollas Creek will be completed before September 2013. A draft Mitigated Negative Declaration (MND) has been developed by the City of San Diego; the final MND will be certified by May 2013.

The draft MND documents that the proposed Northwest Village Chollas Creek could have a significant environmental effect on air quality, biological resources, cultural and paleontological resources, geology and soils, hazardous materials, noise, transportation, and utilities. However, the draft MND provides adequate mitigation measures to effectively reduce these potential impacts to a less than significant level in accordance with CEQA.

#### **Task 7: Permitting**

For the Northwest Village Chollas Creek site, JCNi is in the final stage of obtaining permitting approval from the City of San Diego and will submit to state and federal agencies (listed below) in February 2013 for permitting review and authorization. Because the restoration project will include grading and fill within the creek channel, a Streambed Alteration Agreement from California Fish & Wildlife and a Clean Water Act Section 404 Permit from U.S. Army Corps of Engineers are required.

# Northwest Village Creek

## Phase Plan



**Table 3-36: Row (c) Planning/Design/Engineering/Environmental Documentation  
Chollas Creek Integration Project – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 4: Assessment and Evaluation</b>				
Drainage Report for Northwest Village Creek	Revisions: March – June 2012	Completed	X	
Water Quality Technical Report for Northwest Village Creek	Revisions: March – June 2012	Completed	X	
Geotechnical Investigation for Northwest Village Creek	December 2011 – January 2012	Completed	X	
Training Students for Monitoring	March - June 2014	Not yet begun		X
Student Water Quality Monitoring Stipends	July 2014 – September 2015	Not yet begun		X
<b>Task 5: Project Design</b>				
100% Design plans for creek construction and habitat restoration	March 2013-June 2013	Not Yet Begun	X	
<b>Task 6: Environmental Documentation</b>				
Mitigated Negative Declaration	June 2012 – May 2013	Draft Completed	X	
<b>Task 7: Permitting</b>				
City of San Diego, Site Development Permit	November 2012 – October 2013	In the process		X
California Fish & Wildlife, Streambed Alteration Agreement	February – October 2013	Permit request underway		X
U.S. Army Corps of Engineers, Section 404 Permit	February – October 2013	Permit request underway		X

**Row (d) Construction/Implementation**

**Task 8: Construction Contracting**

JCNI will be responsible for performing construction contracting activities:

- Write, review and approve project specifications
- Prepare bid packages
- Advertise the project bid opportunity and due date for proposals to various targeted and open media sources to assure outreach to disadvantaged and minority/women owned businesses
- Conduct job site meeting to respond to bidders' questions and clarify work scope
- Review competitive bids and select/award qualified contractors

**Task 9: Construction/Implementation**

Construction will encompass structural improvements to the creek to improve hydraulics, non-native plants removal and replanting with native riparian vegetation with follow-on monitoring, and pre-/post-water quality testing.

***Subtask 9.1 Mobilization and Site Preparation:***

This task will involve clearing of non-native plants, construction of a fence around the project area, and installation of site erosion control measures.

**Subtask 9.2 Project Construction:**

This task includes grading and earthwork; installing drop catch basins, storm drains, headwalls, rip-rap segments, irrigation system, and bioswales in the Phase II segment of Northwest Village Chollas Creek; and re-vegetation of targeted areas to prevent soil erosion.

**Subtask 9.3 Performance Testing and Demobilization:**

This task will involve soils testing, revegetation monitoring/management during establishment, and water quality testing both before and after construction. It will also include installation of project signage and reporting of water quality results to other agencies (e.g., City of San Diego).

**Table 3-37: Row (d) Construction/Implementation  
Chollas Creek Integration Project – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 8: Construction Contracting</b>				
Preparation of Bid Packages, outreach and advertisements, pre-bid meeting, and selection of contractor	October 2013 – February 2014	Not yet begun		X
<b>Task 9: Construction</b>				
<b>Subtask 9.1 Mobilization and Site Preparation</b>				
Clearing and grading, including habitat protection and erosion control	March - May 2014	Not yet begun		X
<b>Subtask 9.2 Project Construction</b>				
Construction of storm drain, catch basins, inlets, rip rap, and bioswales	June 2014 – February 2015	Not yet begun		X
Revegetation	March - May 2015	Not yet begun		X
<b>Subtask 9.3 Performance Testing and Demobilization</b>				
Monitoring and management of revegetation areas, including soils testing	June 2015 – May 2016	Not Yet begun		X
Pre- and Post-Construction Water Quality Reports, including reporting to other agencies	March 2014 – September 2015	Not Yet begun		X

**Row (e) Environmental Compliance/Mitigation/Enhancement**

**Task 10: Environmental Compliance/Mitigation/Enhancement**

CEQA compliance will be obtained in mid-2013, as described in Task 6 above. No additional environmental compliance or mitigation is anticipated.

**Row (f) Construction Administration**

**Task 11: Construction Administration**

Administration/Management of construction field work will be performed by JCNI for the overall project, with responsibility for oversight of subcontractors/partners, including water quality monitoring.

Student volunteers' recruitment, training and deployment will be managed by Groundworks (cooperating partner) and San Diego Coastkeeper in Task 4 above.

**Table 3-38: Row (f) Construction Administration  
Chollas Creek Integration Project – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 11: Construction Contracting</b>				
Management of Construction Contractors	March 2014 – June 2015	Not Yet begun		X

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## ***Project 7: Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II***

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### **I. Introduction**

#### **Project Sponsor**

The County of San Diego is the sponsor for *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II*.

#### **Project Need**

The Santa Margarita River (SMR) Watershed provides the greatest remaining expanse of largely undisturbed riparian corridor in coastal southern California. The lower 27 miles of the watershed, comprised of the main river channel and its estuary, is dominated by federal and state land ownership. Consequently, this watershed serves as valuable habitat, providing a home for 1,000 known species, including seven federal or state listed endangered or threatened species, and more than 60 other species listed by the state and other groups as having special concern. Of increasing concern, however, is that the lower watershed is vulnerable to impacts accompanying development and large-scale land use changes upstream. The upper watershed, drained by Temecula and Murrieta Creeks, includes some of the fastest urbanizing areas in the state. This development pressure increases the potential for additional point and nonpoint pollutant loading to the SMR Watershed.

Nitrogen and phosphorous loading from the SMR Watershed can result in low dissolved oxygen (DO) and increased algal blooms in the estuary and stream segments, several of which have been 303(d)-listed for nitrogen, phosphorus, or eutrophication. California's *2010 Integrated Report (Clean Water Act Section 303(d) / 305(b) Report)*<sup>16</sup> lists the following segments of SMR as impaired for nutrients:

- The SMR Estuary (28 acres) is listed as impaired by eutrophication.
- The Upper SMR (18 miles) from its start at the confluence of Temecula and Murrieta Creeks down to De Luz Creek is listed as impaired by phosphorus.
- The Lower SMR (19 miles) from De Luz Creek to the Estuary is listed as impaired by phosphorus and total nitrogen as N.

A nutrient TMDL for Rainbow Creek, a tributary of the SMR, was completed and adopted on February 9, 2005<sup>17</sup> to address elevated nutrient concentrations that have caused excessive algal growth in portions of the creek.

Addressing nutrient loading, low DO, and algal blooms requires use of appropriate water quality objectives (WQOs) based on the level of nutrients a waterbody can sustainably assimilate. This level varies greatly due to site-specific factors such as hydrology, shading, and temperature, which modulate biological response to nutrients. Current N and P WQOs in the *Water Quality Control Plan for the San Diego Basin*<sup>18</sup> are problematic, in part, because they do not consider site-specific factors. The NNE framework, an alternative regulatory approach advocated by the State Water Resources Control Board (SWRCB) staff and U.S. Environmental Protection Agency (USEPA), is currently under development. The *Implementing Nutrient Management in the Santa Margarita River Watershed - Phase II* project will provide data and modeling results that can be used to address data gaps inherent in the NNE framework. The project will result in proposed nutrient water quality goals for the SMR River and selected tributaries that are protective of beneficial uses and can support efforts directed at refining nutrient WQOs for the watershed.

Depending upon the results of the studies, it is possible that a broader range of discharges to the SMR River may be naturally sustained, such as recycled water, if the nutrient levels are protective of the beneficial uses.

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<sup>16</sup> SWRCB, 2010, [http://www.waterboards.ca.gov/water\\_issues/programs/tmdl/integrated2010.shtml](http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)

<sup>17</sup> SDRWQCB, 2009, [http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/tmdls/rainbowcreek.shtml](http://www.waterboards.ca.gov/sandiego/water_issues/programs/tmdls/rainbowcreek.shtml)

<sup>18</sup> SDRWQCB, 1994, [http://www.waterboards.ca.gov/sandiego/water\\_issues/programs/basin\\_plan/](http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/)

## Project Purpose

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project aims to establish nutrient water quality goals for the SMR Estuary (Phase I) and to provide additional site-specific studies and propose nutrient water quality goals in the SMR River (Phase II) that may lead to development of nutrient site-specific objectives (SSOs) by the SDRWQCB in the main stem of the river that are protective of beneficial uses.

## Project Abstract

Nitrogen and phosphorous loading from the SMR Watershed can result in low DO and increased algal blooms in the estuary and stream segments, several of which have been 303(d)-listed for nitrogen, phosphorus, or eutrophication. Total Maximum Daily Loads (TMDLs) are not currently in place in most of the SMR Watershed segments which are listed for nutrient impairment. However, TMDLs are likely to be instituted in the near future. As there is little scientific knowledge about the appropriate level of nutrients that the SMR can sustainably assimilate, the TMDLs would be based on a generalized approach if no actions are taken.

This project aims to establish the science and seek stakeholder consensus to develop nutrient water quality goals that are protective of beneficial uses and could be employed in the development of alternative nutrient water quality objectives (WQOs) for the SMR Watershed in response to the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) Triennial Update. This is the second phase of work, which consists of continued stakeholder facilitation and continued monitoring, modeling, and data analyses to determine nutrient water quality goals. The project leverages an investment of over \$2 million in data collection and other resources contributed by watershed stakeholders and partners. The project aims to:

- (1) Maximize community involvement in the SMR watershed through ongoing stakeholder group facilitation (established in Phase I)
- (2) Continue work with the group to obtain feedback and critical review of technical work products to achieve consensus on the nutrient water quality goals
- (3) Continue core monitoring and special studies to address data gaps required to develop the nutrient water quality goals for the river
- (4) Further refine proposed nutrient water quality goals developed as part of Phase I for the SMR Estuary, if deemed necessary by the Stakeholder Group
- (5) Develop nutrient water quality goals for the SMR River as needed based on the Nutrient Numeric Endpoints (NNE) approach and local data that are protective of beneficial uses

The project benefits the SMR watershed and the region by providing scientifically-based nutrient water quality goals that will ultimately conserve water and control eutrophication. Stakeholders believe that since the estuary through which the SMR flows is open to the ocean during the winter (the wet season), nutrients in the river only have a short residence time before they enter the ocean. This effort will counteract hydromodifications and lead to improved protection and restoration of habitat and open space, optimize water-based recreational opportunities, and enhance the maintenance of water resources. Within the region, the project will further the technical foundation of water management by demonstrating a science-based approach to establishing nutrient water quality goals that can be developed jointly with the regulatory agencies. If warranted by the results, the scientific studies will provide the underpinnings necessary to support Nutrient Site-Specific Objectives (SSOs) that require a Basin Plan amendment. This effort will serve as a template for similar efforts within the region.

## Project Partners

The County of San Diego, in partnership with the Riverside County Flood Control and Water Conservation District (RCFCWCD), is the project sponsor in this joint project between the San Diego IRWM Region and the Upper Santa Margarita Watershed (USMW) IRWM Region, as partners in the Tri-County Funding Area Coordinating Committee (Tri-County FACC).

Project partners include: the Counties of San Diego and Riverside; the Cities of Temecula, Murrieta, Wildomar, and Menifee; Riverside County Flood Control and Water Conservation District (RCFCWCD); Rancho California Water District (RCWD); US Marine Corps (USMC) Camp Pendleton; U.S. Bureau of Reclamation; San Diego Regional Water Quality Control Board (SDRWQCB); Caltrans; Fallbrook Public Utilities District; Southern California Coastal Water Research Project (SCCWRP); Mission Resources Conservation District; San Diego County Farm Bureau, Sierra Club, Elsinore Murrieta Anza Resource Conservation District (EMARCD); and Trout Unlimited.

### Project Timing and Phasing

This project is a portion or phase of a larger multi-phased project. The project consists of three phases described below and summarized in Table 3-39:

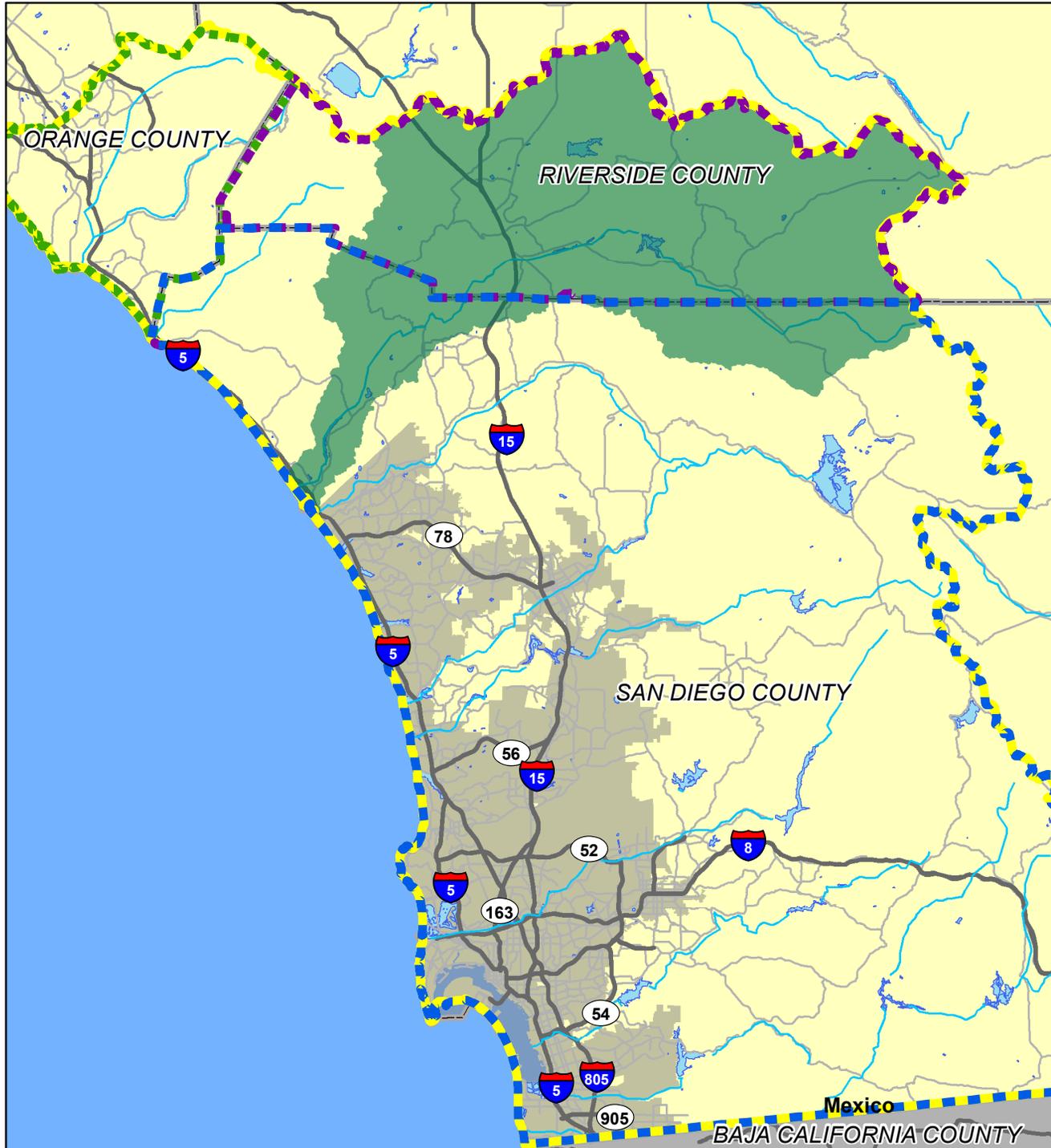
- (1) During Phase I (funded through Proposition 84–Round 1 and currently in progress), the SMR watershed stakeholder group was formed to facilitate discussions, guide project activities, review technical work products, and achieve consensus. As part of Phase I, technical support was provided for the selection of numeric targets, stakeholder consensus, and completion of a Nutrient Water Quality Goals Report for the SMR Estuary that could potentially be used by the San Diego RWQCB in the development of nutrient WQOs for the SMR Estuary (estuarine modeling work is being paid for by USMC Camp Pendleton). The group has identified key study questions, outlined the conceptual approach, evaluated existing data, identified data gaps, and determined specific technical activities and information required. Based on this, the group has developed a Project Monitoring Plan and will provide a Monitoring and Special Studies Report. Data collected during Phase I is being used to further refine study designs to be implemented in Phases II and III.
- (2) Phase II (the phase currently proposed for funding) will involve conducting riverine monitoring and special studies to address data gaps identified by stakeholders and will develop nutrient water quality goals for the SMR River and selected tributaries based on the NNE approach using local data. If additional data gaps for the SMR Estuary are identified by the stakeholder group, then these data gaps may also be addressed by conducting special studies as a part of Phase II. Phase II of the project can operate on a standalone basis because the collected data and information generated from modeling efforts during Phase II can be used alone or in combination with any existing data (collected during Phase I and from other studies) to aid in the development of nutrient water quality goals for the SMR Watershed that are protective of beneficial uses.
- (3) Phase III, which is a project which will be pursued in the future and is not included as part of this project, will consist of monitoring and special studies to address data gaps identified by the stakeholders. It is anticipated that additional tributaries will be monitored and further modeling studies conducted to further refine nutrient water quality goals in these tributaries, as needed. Additionally, work will be conducted to support the implementation of nutrient management activities in the watershed where warranted.

**Table 3-39: Phased Activities for *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II***

Activity	Phase I			Phase II			Phase III		
Form and Facilitate SMR Stakeholder Advisory Group	✓	✓	✓	✓	✓	✓	✓	✓	✓
Develop and Submit Project Monitoring Plan	✓			✓			✓		
Conduct Field and Special Studies	✓	✓	✓	✓	✓	✓	✓	✓	✓
Submit Monitoring and Special Studies Report			✓			✓			✓
Develop Nutrient Water Quality Goals for the SMR Estuary	✓	✓	✓	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>			
Develop Nutrient Water Quality Goals for the Lower SMR				✓	✓	✓	✓ <sup>1</sup>	✓ <sup>1</sup>	✓ <sup>1</sup>
Conduct Work to Support the Implementation of Nutrient Management Activities in the SMR Watershed							✓	✓	✓
Develop Nutrient Water Quality Goals for Selected Tributaries and the Upper SMR							✓	✓	✓

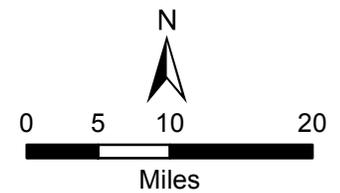
<sup>1</sup> If the stakeholder group identifies data gaps or requests further refinement of nutrient water quality goals

# San Diego IRWM SMR Project Area



## Legend

- Santa Margarita Watershed
- Funding Area and Tri-County FACC Boundary
- San Diego IRWM Region
- Upper Santa Margarita Region
- South Orange County Region
- Freeway
- City Boundaries
- County Boundaries



**Project Map**

Figure 3-9 is a site map showing the project’s geographical location and surrounding work boundaries.

**Project Objectives**

*Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II* seeks to achieve the following objectives:

- Continue to facilitate the SMR watershed stakeholder group that will provide feedback, critical review of technical work products, and achieve consensus on the proposed nutrient water quality goals
- Conduct monitoring and/or special studies to address gaps in data required to develop the nutrient water quality goals for the SMR River
- Develop proposed nutrient water quality goals or nutrient numeric targets for the SMR River that are protective of beneficial uses based on the NNE approach and local data
- Encourage the implementation of BMPs to reduce nutrient runoff from wet and dry weather sources by proposing nutrient water quality goals in the SMR watershed that are protective of the beneficial uses

The table below provides an overview of the San Diego IRWM Plan objectives that are expected to be directly (●) achieved through implementation of this project.

**Table3-40: Contribution to IRWM Plan Objectives**

Proposal Projects	Contribution to IRWM Plan Objectives										
	A	B	C	D	E	F	G	H	I	J	K
Implementing Nutrient Management in the SMR River Watershed – Phase II	●	●	●	●							

● = directly related

This project contributes to the IRWM Plan objectives in the following ways:

**Objective A: Integrated solutions to address water management issues and conflicts:** This project meets the Partnerships, Beneficial Uses, and Geography definitions of integration used by the San Diego IRWM Program, as described above.

**Objective B: Maximize stakeholder and community involvement and stewardship.** Stakeholder involvement is central to the goals of this project. The effort would maximize stakeholder involvement in all aspects of the project, fostering a sense of stewardship and consensus to further watershed management goals. The stakeholder group will continue to guide project objectives, identify data gaps, review technical outcomes, and recommend nutrient water quality goals for the SMR River that are protective of beneficial uses and that include protecting current habitats.

**Objective C: Effectively obtain, manage, and assess water resources data and information.** The project will utilize and expand the existing watershed-wide hydrology and water quality database, leveraged from existing partnerships, to further obtain, manage, and assess water resource data and information.

**Objective D: Further the scientific and technical foundation of water management.** Consistent with RWQCB Basin Plan Triennial Review priorities to evaluate surface water nutrient WQOs (tier 1 priority) and consider seasonal variation of WQOs (tier 2 priority), this project will scientifically support the development of proposed numeric targets for the SMR River using new and existing water quality data. This work is the logical next step to the work conducted under Phase I. Once established, the proposed numeric targets can be used to support development of SSOs, Total Maximum Daily Loads (TMDLs), or other acceptable alternate approaches to compliance for the SMR Estuary and Watershed. Furthermore, the project will demonstrate an innovative approach to establishing nutrient water quality goals that are protective of beneficial uses by employing open source models, publishing results in peer-reviewed scientific literature, and making presentations to stakeholders, thus improving the technical foundation of water management.

## Project Integration

*Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II* has synergies or linkages with a number of other policy, planning, or implementation activities within the San Diego and USMW IRWM regions:

- SMR River conjunctive use project (received Prop 50 funding through San Diego IRWM)
- San Diego Lagoon TMDL Project (received Prop 50 funding through SCCWRP);
- Technical Support for Estuarine Nutrient Numeric Endpoint (SWRCB funded project to SCCWRP)
- Water Augmentation Study (proposed by U.S. Bureau of Reclamation for USMW IRWM funding);
- Murrieta Creek Phase II (proposed by RCFCWCD for USMW IRWM funding)
- Murrieta Creek Phases III and IV (proposed by RCFCWCD for USMW IRWM funding)
- San Mateo Creek Fish Habitat Restoration (proposed by EMARCD partnered with Trout Unlimited for USMW IRWM funding)
- Reclaim and Recycled Anza Farming Irrigation Runoff Water and Other Nearby Contaminated Water (proposed by Anza/Aguanga DAC Group for USMW IRWM funding)
- Agricultural Waiver Project (proposed by RCWD for USMW IRWM funding)
- Sustainable Agriculture (proposed by RCWD for USMW IRWM funding)
- River Salt and Nutrient Groundwater Management Plan (received Prop 84 funding)
- Implementation of Wildomar Master Drainage Plan (proposed by RCFCWCD for USMW IRWM funding)
- Retrofit Public Property with Water Quality Measures (proposed by RCFCWCD for USMW IRWM funding)
- Stream Restoration (SMR Watershed) for Steelhead Trout (proposed by Trout Unlimited for USMW IRWM funding)
- Agricultural Lands Stewardship (proposed by EMARCD for USMW IRWM funding)

Efforts contributed by watershed stakeholders and other partners since 2007 include:

1. Previous and ongoing monitoring by United States Marine Corps (USMC) Camp Pendleton in the lower SMR River and the SMR Estuary,
2. Development of an SMR Estuary Model by Camp Pendleton,
3. Development of the Salt and Nutrient Management Plans by USMC Camp Pendleton, Fallbrook Public Utility District, and Rancho California Water District for underlying groundwater basins,
4. SMR Estuary data collected by MS4 Co-Permittees in response to the SDRWQCB Lagoon Monitoring Order (and Bight '08 Eutrophication Assessment),
5. Watershed modeling support from USEPA Region 9 overseen by the SDRWQCB to aid in the development of estuarine NNEs, and
6. Stakeholder meetings and field studies supported by Phase I.

It will also leverage the existing regional stream bioassessment dataset collected by the Southern California Monitoring Coalition (SMC) Regional Stream Assessment Program (of which Riverside and San Diego Counties are members).

## Completed Work

A substantial amount of work has been completed or is expected to be completed prior to the grant award date for *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II*. The following reports provide hydrology, field measurements, and analytical laboratory data for the SMR Estuary. Please note that in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package, the documents referenced in this section have been provided in an electronic format only (on the supporting CD), and are not included within the printed hard copies that have been mailed to DWR:

- CDM Federal Programs Corporation. June 2009. Santa Margarita River Lagoon Monitoring Project: Data Usability and Assessment Review, Field Measured Data.
- CDM Federal Programs Corporation. June 2009. Santa Margarita River Lagoon Monitoring Project: Data Usability and Assessment Review, Laboratory Data.

- U.S. Navy Environmental Sciences Branch of the Space and Naval Warfare Systems Center Pacific (SSC-PAC). 2012. Santa Margarita Lagoon Water Quality Monitoring Data.

Water quality, bioassessment, and hydrology data collected in the lower SMR River are available from:

- U.S. Bureau of Reclamation (USBR). 2010. Hydrological and Biological Support to Lower Santa Margarita River Watershed Monitoring Program Water Years 2008-2009.

## II. Project Work

### (GA) Grant Administration

The San Diego County Water Authority will be responsible for administration and processing of the Proposition 84-Round 2 Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR. All data submitted by project partners as described in Attachment 6 will be compiled by the grant administrator for the San Diego IRWM data management system to be made publicly available. The San Diego IRWM Region will contribute \$29,400 (or 3% of this grant request) for grant administration relevant to *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II*.

### Row (a) Direct Project Administration

#### **Task 1: Project Administration**

This task will involve administering the grant contract, tracking budgets, preparing invoices and quarterly reports, preparing project assessment and evaluation plans (PAEPs), and preparing final reports as required by DWR for IRWM contracting purposes. It is assumed that this work will be completed in-house by a Land Use Environmental Planner III from the County of San Diego. Funds for County of San Diego staff will come from the County of San Diego's General Fund. In addition, all of the data to be collected as described in Attachment 6 will be submitted to the Water Authority's grant administrator to be submitted to DWR, compiled in the San Diego IRWM Program's Data Management System, and made publicly available.

#### **Task 2: Labor Compliance Program**

This project will not involve construction activities or any other activities that would necessitate a Labor Compliance Program.

#### **Task 3: Reporting**

Reporting for *Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II* has been included in Task 1: Project Administration.

**Table 3-41: Row (a) Direct Project Administration  
*Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II***

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 1: Project Administration</b>				
Track budgets, prepare invoices, compile backup documentation, and prepare quarterly reports	Quarterly after contract execution	Not yet begun		X
Prepare and administer PAEP	After contract execution	Not yet begun		X
Prepare project completion report	At conclusion of project	Not yet begun		X

### Row (b) Land Purchase/Easement

No easement acquisitions and/or right-of-ways will be required for project.

## Row (c) Planning/Design/Engineering/Environmental Documentation

### **Task 4: Assessment and Evaluation**

The following assessments and/or evaluations will be completed as part of this project:

#### ***Subtask 4.1: Continue to Facilitate Stakeholder Advisory Group***

The stakeholder group will continue to guide project activities and reviews and provide feedback on technical and policy elements of the project. Stakeholders will identify key questions and a conceptual approach, and determine specific technical activities and information required to carry out that approach. The group will continue to evaluate existing data and identify any current data gaps. It is anticipated that the Stakeholder Group or subgroups will meet 15 times during the grant period of four years.

The group will develop a monitoring program to support the development of nutrient water quality goals in the SMR River and in several tributaries, such as the Murrieta and Temecula Creeks, and any follow up work for the estuary necessary to meet project objectives. The resulting deliverable will be *The Project Monitoring Plan – Phase II*, which will describe the core monitoring and special studies to be undertaken to achieve project objectives.

Data collected during the Stakeholder Advisory Group facilitation process will include technical evaluations and feedback from the stakeholders that will be used to identify data gaps. In addition, stakeholders will provide input on the modeling effort to develop nutrient water quality goals for SMR Watershed that are protective of beneficial uses.

This task includes funding for a facilitator, a scientist from SCCWRP and a staff member from the SDRWQCB to attend 15 six-hour combined Stakeholder Advisory Group/Technical or other advisory group meeting, scheduled approximately bimonthly initially and then as needed from contract execution date through August 31, 2017 (15 meetings). The purpose of the meetings will be to take input from the stakeholders regarding the project and provide updates, grant reports, and other information to stakeholders.

#### ***Subtask 4.2: Conduct Field and Special Studies***

This task will be completed by May 1, 2017. The studies conducted for this task will address site-specific factors controlling algal response. Core monitoring will include approximately 20 sites sampled 2-5 times per year for two years, depending on flow duration. Data generated will include algal bioassessment, water quality data, and site-specific physical and hydrological data. Monitoring and special studies will address data gaps identified by the stakeholder group (as part of Subtask 4.1) necessary to achieve project objectives. The studies may include hydrology measurements as well as water quality sampling. Elements of the SWAMP *Standard Operating Procedures for Collecting Stream Algae Samples and Associated Physical Habitat and Chemical Data for Ambient Bioassessments in California* (May 2010) protocol will be followed (including water chemistry, algal biomass, cover, biovolume, and PHAB protocols).

The special studies may include 1) wet weather studies to evaluate potential impacts to beneficial uses during wet weather, 2) a characterization of the “natural background” conditions of nutrient concentrations and algal growth that will provide information needed to select appropriate algal thresholds and to determine “background” indicator variability (the margin of error), 3) characterization of important nutrient sinks (e.g., denitrification), sources (e.g., groundwater), and rates of nutrient transformation processes, 4) assessment of groundwater exchange with surface waters, 5) investigation of effects of river channel bottom type on rates of algal accrual, and 6) long-term monitoring of algal biomass and dissolved oxygen in the estuary. The specific studies will be prioritized during work plan development with stakeholders.

The resulting deliverable on June 1, 2017 will be *The Monitoring and Special Studies Report* which will provide a synthesis of baseline conditions in the River and a summary of findings of each of the special studies.

**Subtask 4.3: Develop Nutrient Water Quality Goals for Santa Margarita River**

The monitoring and special studies data collected under subtask 4.2 will be used to conduct riverine modeling. Models will be calibrated and validated, then used to identify, in concert with stakeholders, nutrient water quality goals required to protect riverine and downstream (i.e. estuarine) beneficial uses. The approach for developing nutrient water quality goals for the SMR River leverages two major activities:

- 1) field data collection in the watershed to characterize stream reaches using the NNE process, and
- 2) ongoing research and dynamic modeling to develop the freshwater NNE framework, based on algal biomass as an endpoint.

From November 2007 to September 2009, Stetson Engineers, Inc. conducted monitoring throughout the lower portion of the SMR River watershed. As part of this monitoring program, samples were taken at various monitoring locations and analyzed for nutrients. Although this monitoring program did capture some wet weather conditions, capturing wet weather conditions was not the intent of the study, and the majority of the wet season sampling was conducted during dry weather conditions. The report *Hydrological and Biological Support to Lower Santa Margarita River Watershed Monitoring Program Water Years 2008 – 2009* (Stetson Report) details the results of this monitoring program for nutrients in the lower SMR River. The waterbodies were also evaluated for the presence and duration of flow in the various watershed tributaries.

Estuarine modeling work is being paid for by USMC Camp Pendleton and a watershed model is being developed using USEPA funds by the SDRWQCB's contractor, and will be used to develop the nutrient water quality goals for the estuary that will in turn be used in developing the riverine water quality goals. SCCWRP, under a grant with USEPA, is in the process of evaluating the freshwater NNE spreadsheet developed by Tetra-Tech that will further inform and be compared to the dynamic hydrodynamic model developed for this task.

Additional core monitoring to fill data gaps identified by stakeholders is conducted as a portion of the field studies for the *Implementing Nutrient Management in the Santa Margarita River Watershed-Phase 1*. These data will be included in the hydrodynamic model to simulate watershed conditions during dry weather in the lower SMR River.

This project will build on these existing efforts and use monitoring and special studies data collected under Task 4.2 to conduct riverine modeling. Models will be calibrated and validated, then used to identify, in concert with stakeholders, nutrient water quality goals required to protect riverine and downstream (i.e. estuarine) beneficial uses. Project funds will support technical support for selection of numeric targets, stakeholder coordination, and funding for the Regional Board staff to attend meetings.

The resulting deliverable will be *Technical Studies Supporting Proposed Nutrient Water Quality Goals for Santa Margarita River Report*. This report will provide a summary of findings from the modeling work to derive nutrient water quality goals for the SMR River.

**Task 5: Project Design**

No design deliverables are included as part of this work plan.

**Task 6: Environmental Documentation**

This project qualifies as a planning study according to Section 15262 of the California Environmental Quality Act (CEQA) Guidelines, because it will identify programs and projects for possible future actions but does not have a legally binding effect on the participating agencies. As such, this project was issued a CEQA Categorical Exemption in October 2012. This project does not require NEPA-related analysis.

**Task 7: Permitting**

This project will not involve construction and was issued a CEQA Categorical Exemption. Therefore, permitting is not applicable to this project.

**Table 3-42: Row (c) Planning/Design/Engineering/Environmental Documentation  
Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II**

Activity or Deliverable	Schedule	Status	Completion of Task	
			Before Sept 2013	After Sept 2013
<b>Task 4: Assessment and Evaluation</b>				
<b>Subtask 4A: Continue to Facilitate Stakeholder Advisory Group</b>				
Continue to Facilitate Stakeholder Advisory Group	March 2013 – August 2017	In Progress	X	X
County of San Diego Support of Stakeholder Meetings	March 2013 – August 2017	In Progress	X	X
<b>Subtask 4B: Conduct Field and Special Studies</b>				
Monitoring and Special Studies Report Phase II	September 2013 - June 2017	Not Started		X
Hydrological and Biological Support to Lower Santa Margarita River Watershed Monitoring Program - Years 2008 – 2009	June – December 2010	Completed	X	
<b>Subtask 4C: Develop Nutrient Water Quality Goals for SMR</b>				
Technical Studies Supporting Proposed Nutrient Water Quality Goals for Santa Margarita River Report	January - June 2017	Not Started		X
USEPA Grant – SCCWRP NNE Spreadsheet Evaluation (match)	January 2013 - June 2014	In Progress	X	X
USMC Camp Pendleton Lagoon Modeling (match)	January 2013 - March 2014	In Progress	X	X

**Row (d) Construction/Implementation**

**Task 8: Construction Contracting**

This project will not require construction contracting.

**Task 9: Construction**

This project will not involve construction activities.

**Row (e) Environmental Compliance/Mitigation/Enhancement**

**Task 10: Environmental Compliance/Mitigation/Enhancement**

This project was issued a CEQA Categorical Exemption, which renders it compliant with CEQA. All tasks carried out for this project (studies) will be conducted in a manner that ensures environmental compliance with all other environmental statutes.

**Row (f) Construction Administration**

**Task 11: Construction Administration**

This project will not involve construction administration.

## Appendix 3-1: Interregional Project Letter of Support

This appendix contains a letter of support from the San Diego County Water Authority on behalf of the San Diego RWMG. This letter states the nature of the relationship between the San Diego RWMG and Upper Santa Margarita RWMG, as well as how funds will be applied for and divided between the two RWMGs working on *Project 7: Implementing Nutrient Management in the Santa Margarita River Watershed – Phase II*.



March 25, 2013

California Department of Water Resources  
IRWM Grant Program

Re: Administration of Proposition 84, Round 2, Grant Funding for Project "Implementing Nutrient Management in the Santa Margarita River – Phase II"

To whom it may concern:

The "Implementing Nutrient Management in the Santa Margarita River, Phase II" is an interregional project of both the San Diego Regional Water Management Group (RWMG) and the Upper Santa Margarita RWMG. The project will substantially benefit both regions by developing scientifically based water quality goals for the Santa Margarita River that will lead to more effective water management.

Since the project benefits accrue to both regions, the project is proposed and discussed throughout the Proposition 84, Round 2, IRWM Implementation Grant applications developed by both planning regions. However, to simplify project administration, the two regions have agreed to administer the project under the San Diego RWMG. As such, the project budget and grant request detail is included only in the San Diego RWMG application.

As you may be aware, the San Diego Funding Area maintains an agreement among the RWMGs within the funding area to equitably allocate the funding area's Proposition 84 funds. Consequently, the San Diego RWMG and Upper Santa Margarita RWMG are committed to this interregional project through the provision of matching funds and grant share funds. The total project cost is approximately \$1.51 million. Of this amount, the Upper Santa Margarita RWMG has committed \$181,875 from the grant funds allocated to it through the agreement mentioned above and \$62,500 in matching funds.

California Department of Water Resources  
IRWM Grant Program  
March 25, 2013  
Page 2

Please contact me if you have any questions at 858-522-6735 or [mstadler@sdewa.org](mailto:mstadler@sdewa.org).

Sincerely,



Mark Stadler  
San Diego County Water Authority  
San Diego IRWM Program Manager

cc: Denise Landstedt, Rancho California Water District  
Marilyn Thoms, County of Orange  
Cathy Pieroni, City of San Diego  
Sheri McPherson, County of Orange  
Eduardo Pech, DWR Southern Region Office



## Appendix 3-2: Supporting Documentation for Project 2: Turf Replacement and Agricultural Irrigation Efficiency Program

Included in this Appendix are the following documents in support of Project 2: Turf Replacement and Agricultural Irrigation Efficiency Program. Please note that more information is available on the Water Authority's website (<http://turfreplacement.watersmartsd.org/>) and the City's website (<http://www.sandiego.gov/water/conservation/residentialoutdoor/index.shtml>), and that some of the documents in this appendix are only a sampling for the information available on these websites.

1. *Customer guidelines and requirements for participation*
2. *Internal protocols for administering the programs.*
3. *Customer on-line training program and customer resource lists.*
4. *Marketing material and related collateral.*
5. *Application forms.*

Supporting documents for other projects in this proposal are provided in electronic format on the accompanying CD, in accordance with guidance from DWR found on Page 11 of the Proposal Solicitation Package.

City of San Diego Public Utilities  
COMMERCIAL-MULTI FAMILY OUTDOOR WATER  
CONSERVATION REBATE PROGRAM



**Sustainable Landscape-Turf Replacement  
Rebate Guidelines**  
Rebate--\$1.50/SF (up to 6,000 SF & \$9,000)

Reduce outdoor water use, keep landscapes attractive and healthy and save money on the water bill by replacing thirsty turfgrass with a sustainable and water wise ornamental landscape. City of San Diego Public Utilities Department commercial and multifamily (greater than four units) customers can receive a rebate for replacing turfgrass with sustainable and water wise landscape. Customers using recycled water for irrigation are currently not eligible to apply for this rebate. Funding for a limited number of rebates is available through a State of California grant and will be distributed on a first come, first served basis until exhausted. This program is subject to change without prior notification. Read below for program requirements and application process. Rebate check will be sent to the customer of record 6-8 weeks after application and post-installation site visit are successfully completed. If you have questions after reading these guidelines, please call 619-533-4126 or e-mail [waterconservationrebates@sandiego.gov](mailto:waterconservationrebates@sandiego.gov).

*Applicant's water account must be in good standing and program requirements must be met to be eligible for rebates. Customer must agree to and sign the application agreement before rebate is administered. Changes made related to rebate program must comply with all laws, codes, policies, covenants, conditions, and restrictions applicable to property. Please consult with a tax advisor for questions about potential tax implications associated with rebates.*



### Rebate Process

1. **Get an application...** Go to the City's [Water Conservation Website](#) to download the Commercial Outdoor Rebate Program Application. Submit application to Water Conservation Program.
2. **Get a survey and pre-site inspection and approval to begin project...** After the application is received you will be contacted to schedule a free water conservation survey and pre-site inspection. A Water Conservation representative will evaluate the proposed project area and if qualifications are met you will be given a project start date, at which time the 120 day conversion period begins.
3. **Submit plans within 45 days ....** Scaled design plans are due to the Water Conservation Program within 45 days of the start date. See below for more information on plan submittals.

4. **Complete the project and schedule a post-installation visit within 120 days...** Call 619-570-1999 to schedule a post-installation site visit once project is complete. Project must be completed and a site visit requested before the 120 day conversion period is over. A Water Conservation representative will verify square footage and that program requirements are met. At this visit please provide representative with original itemized sales receipts which must include vendor and/or company name, contractor license # (if applicable), purchase date, itemized list of products purchased. Note: As of July 1, 2012 labor is not a reimbursable item
5. **Receive a rebate...** Once application is deemed complete and post-installation site visit is successfully completed please allow 6-8 weeks for the rebate to arrive in the mail.

## Program Requirements

- Receive \$1.50/SF (up to 6,000 SF) after replacing existing high water using turfgrass with water wise ornamental landscape (using plants that are considered to be moderate, low, or very low in water use requirements). Minimum project conversion area is 1000 SF.
- Existing turf in project area must be living and an in-ground irrigation system must be operational at the time of the pre-site inspection. At maturity, plant density of the converted area must cover at least 50% of the project area. Tree canopy coverage (existing and new trees) will not be counted in the 50% plant coverage calculation.
- Project must replace high water use turf with plants that have moderate, low, or very-low watering requirements as defined in the 2010 Edition UC Davis Arboretum All-Stars brochure, the [Water Use Classification of Landscape Species Reference \(WUCOLS\)](#) or other accepted reference of plant water use).
- A scaled design plan must be completed by a landscape designer, landscape architect, certified landscape irrigation auditor or landscape contractor, and must include:
  - ✓ A legend with plant names (common and scientific) and plant symbols, or plant symbols identified by callouts on the plan.
  - ✓ Planting plan with symbols drawn to scale to represent 75% of mature size
  - ✓ Mulch type and permeable hardscape details
  - ✓ Estimated Total Water Use (ETWU) (See bottom of page 3)
  - ✓ Maximum Applied Watering Allowance (MAWA) – Max. 70% of ET (See bottom of page 3)
  - ✓ Irrigation plan with hydrozones and head, in-line tubing or multi-outlet emitter placement and equipment list (if no irrigation is planned – show hydrozones only)
  - ✓ North arrow and scale
  - ✓ Plant list (may be a separate sheet) must include number of plants, size (in square feet) at maturity and WUCOLS page reference (or other accepted reference of plant water use page reference).  
(See worksheet: <http://www.sandiego.gov/water/pdf/conservation/turfreplacementlist.pdf> )
- Converted areas must be permeable to air and water (hardscapes must be permeable - ie. gravel, loose flagstone, decomposed granite). Permeable weed barriers are required under hardscapes.
- If project will be irrigated, conversion of existing overhead spray irrigation system to micro-irrigation or low application rate rotating nozzles is highly recommended. The newly converted area must be on a separate irrigation valve from remaining turf. System must be capped if improved area will not have irrigation.
- Mulch must be spread to minimum depth of three inches where new plant material is installed unless a spreading groundcover is indicated.



Pre- and post-site inspections are required as well as submittal of original receipts, invoices, and total project costs. Projects must be completed within 120 days from the date Water Conservation Program representative approves start of project at survey/pre-site inspection.

- Project site must be maintained for a minimum of five years, or for the duration of ownership of the property (whichever is shortest.) Failure to meet this requirement may require customer to refund all or a portion of the rebate. Project site shall be available for future inspection and monitoring (up to five years) by Public Utilities.
- Photos of the project may be taken by Public Utilities staff to illustrate transitions from thirsty landscapes to attractive, water wise landscapes. Addresses to project sites participating in the rebate program will be available to the public. Customer names will not be made public or associated with the address.

### What does not qualify for a rebate?

- High water using plants (as classified by WUCOLs)
- Artificial turf
- Vegetable gardens
- Exposed soil surfaces (exceptions made to accommodate specific garden design motifs)
- Impermeable surfaces such as bricks and flagstone mortared into place, or concrete. (Pervious surfaces that are part of the project area are eligible for rebate so long as total project area includes living plant coverage area at maturity of at least 50%)
- Planting of invasive species that have potential to spread aggressively, especially in areas interfacing wild lands, canyons, open space, or parks. For list of invasive species go to the [California Integrated Pest Control website](#) or the [San Diego County Invasive Ornamental Plant Guide](#).
- Labor costs
- Sales tax



### What is a sustainable landscape?

Sustainable landscapes are intended to be in balance with the local climate and environment and designed to require few added resources, thereby reducing waste and minimizing air, water and soil pollution. The Sustainable Landscape-Turf Replacement Rebate Program is intended to encourage the replacement of high water using turf grass with ornamental plant material that thrives with little to moderate amounts of water during the extended dry periods that characterize San Diego's climate. The scaled use of turf, with a focus on the use of water wise plant material, abundant mulch, efficient irrigation and reduced runoff are all components of sustainable landscaping. The objective of this rebate program is to encourage a reduction in water use through the conversion of grass to water wise plant material, while maintaining a high level of living landscape to benefit the environment.

The following handbook is a valuable guide and provides the MAWA and ETWU calculations on pages 30 and 31.

<http://www.sdcwa.org/landscape-guide-flipbook/>

## Benefits of converting turf to sustainable and water wise landscape.

Turf grass is often the optimal choice for sports and recreational areas, but turf - especially cool season varieties such as tall fescue, Kentucky bluegrass, red fescue, or perennial ryegrass - require frequent watering and maintenance. The Sustainable Landscape -Turf Replacement Rebate Program focuses on the replacement of thirsty turf grass material with ornamental water wise plants that use a moderate to very low amount of water. Additional steps such as converting overhead sprinklers to low flow micro-irrigation and installing a Smart Controller can further reduce water and energy use and help control irrigation runoff.

## How much water does a sustainable landscape save?

Typically, cool season turf grass uses between 14 and 40 gallons of water per square foot annually, depending on site conditions. Once established, low to moderate water using plants can require less than half of the water required by cool season turf grass.

## Costs that are covered by the sustainable landscape rebate.

The rebate is \$1.50/SF of turf grass that is replaced with ornamental water wise landscape--up to a maximum of 6,000 SF and \$9,000 per customer. Labor costs and sales tax are not eligible for rebate. Rebate amount will not exceed total project costs.





City of San Diego  
RESIDENTIAL OUTDOOR WATER CONSERVATION  
REBATE PROGRAM

Sustainable Landscape-Turf  
Replacement Rebate Guidelines  
Rebate--\$1.25 or \$1.50/Square Foot up to \$3,000

Did you know that more than 50% of the water consumed by most households is used to maintain landscapes and lawns? You can help reduce your outdoor water use, keep your landscape more attractive and healthy--and save money on your water bill--by replacing your thirsty turf grass with a sustainable and water wise ornamental landscape. City of San Diego Public Utilities Department customers residing in a single-family home, duplex, townhome, or condominium that is served by an individual water meter can receive a rebate for turf replacement. Funding for a limited number of rebates is available through a State of California grant and will be distributed on a first come, first served basis until exhausted. This program is subject to change without prior notification. Read below for program requirements and application process. Rebate check will be sent to the customer of record 6-8 weeks after application and post-installation site visit are successfully completed. If you have questions after reading these guidelines, please call 619-533-4126 or e-mail [waterconservationrebates@sandiego.gov](mailto:waterconservationrebates@sandiego.gov).

*Applicant's water account must be in good standing and program requirements must be met to be eligible for rebates. Customer must agree to and sign the application agreement before rebate is administered. Changes made related to rebate program must comply with all applicable laws, codes, policies, covenants, conditions, and restrictions. Please consult with a tax advisor if you have questions regarding any potential tax implications of your rebate.*



### Rebate Process

1. **Get an application...** Visit the City's [Water Conservation Website](#) to download the Residential Outdoor Rebate Program Application. Submit completed application to Water Conservation Program.
2. **Get a pre-site inspection and approval to begin project...** After the application is received a City scheduler will contact you to schedule a free water conservation survey and pre-site inspection. A Water Conservation Program representative will evaluate the proposed project area and if qualifications are met you will be given a project start date, at which time the 120 day conversion period begins.

3. **Submit plant list or design plans within 45 days of start date ....** Submit plant list within 45 days of project start date if you are applying for the \$1.25/SF rebate. Submit scaled design plans within 45 days of project start date if you are applying for the \$1.50/SF rebate. See below for more information on plant list and design plan submittals.
4. **Complete the project and schedule a post-installation visit within 120 days...** Call 619-570-1999 to schedule a post-installation site visit once project is completed (site visit must be scheduled before the 120 day conversion period is over). A Water Conservation representative will verify square footage and that program requirements are met. At this visit please provide representative with original itemized sales receipts and invoices from landscape professionals which must include vendor and/or company name, purchase date, date of services, itemized list of products purchased, description of services rendered.
5. **Receive a rebate...** Once application is deemed complete and post-installation site visit is successfully completed please allow 6-8 weeks for the rebate check to arrive in the mail.

### Program Requirements:

- Project must replace high water use turf with plants that have moderate, low, or very-low watering requirements as defined in the 2010 Edition UC Davis Arboretum All-Stars brochure, the [Water Use Classification of Landscape Species Reference \(WUCOLS\)](#) or other accepted reference of plant water use.
- At maturity, plant density of the converted area must cover at least 50% of the project area. Tree canopy coverage (existing and new trees) will not be counted in the 50% plant coverage calculation.
- Rebate amount cannot exceed total project cost, up to a maximum of \$3,000 per property.
- Minimum project conversion area is 400 SF (front yard lawns with less than 400 SF are eligible if 100% of turf is replaced).
- Existing turf in project area must be living and an in-ground irrigation system must be operational at the time of the survey/pre-site inspection.
- Converted areas must be permeable to air and water (ie. gravel, loose flagstone, decomposed granite). Permeable weed barriers are required under pervious hardscapes.
- If project will be irrigated, conversion of existing overhead spray irrigation system to micro-irrigation or low application rate rotating nozzles is highly recommended. The newly converted area must be on a separate irrigation valve from remaining turf. System must be capped if improved area will not have irrigation.
- Mulch must be spread to minimum depth of three inches where new plant material is installed unless a spreading groundcover is indicated.
- Pre- and post-site inspections are required as well as submittal of original receipts, invoices, and total project costs. Projects must be completed within 120 days from the date Water Conservation Program representative approves start of project at survey/pre-site inspection.



- Project site must be maintained for a minimum of five years, or for the duration of ownership of the property (whichever is shortest). Failure to meet this requirement may require customer to refund all or a portion of the rebate.
- Project site shall be available for future inspection and monitoring (up to five years) by Public Utilities. Photos of the project may be taken by Public Utilities staff to illustrate transitions from thirsty landscapes to attractive, water wise landscapes. Addresses to project sites participating in the rebate program will be available to the public. Customer names will not be made public or associated with the address.

### REBATE LEVELS:

- Receive \$1.25/SF (up to 2,400 SF). A plant list must be submitted within 45 days of project start date. Plant list can be found in PDF format on the Sustainable Landscape-Turf Replacement webpage on the [Water Conservation website](#). Plant list must include plants that will be planted, number of plants, size at maturity and WUCOLS page reference (or other accepted reference of plant water use page reference).

### OR

- Receive \$1.50/SF (up to 2,000 SF) after submitting a scaled garden design and irrigation plan. Do-it-yourself garden design plans are not eligible for rebate. A scaled garden design and irrigation plan must be completed by a landscape designer, landscape architect, certified landscape irrigation auditor or landscape contractor, and must include:
  - Plant names (common and scientific) with plant symbols showing coverage at 75-100% maturity and WUCOLS page reference (or other acceptable reference) to verify moderate to low water use
  - Mulch type and permeable hardscape details
  - Estimated Total Water Use (ETWU)
  - Maximum Applied Watering Allowance (MAWA) – Maximum 70% of ET
  - Irrigation plan with hydrozones and head or emitter placement and equipment list (if no irrigation is planned – show hydrozones only)
  - North arrow and scale
  - Plant list must include plants that will be planted, number of plants, size at maturity and WUCOLS page reference (or other accepted reference of plant water use page reference)



### What does not qualify for a rebate?

- High water using plants (as classified by WUCOLS)
- Artificial turf
- Vegetable gardens
- Back yard turf conversion
- Exposed soil surfaces (exceptions made to accommodate specific garden design motifs)
- Impermeable surfaces such as bricks and flagstone mortared into place, or concrete. (Pervious surfaces that are part of the project area are eligible for rebate so long as total project area includes living plant coverage area of at least 50% at maturity)
- Water features or fountains (San Diego Municipal Code Land Development Code Appendix E calculates water features at same water coefficient as high water use plants)

- Planting of invasive species that have potential to spread aggressively, especially in areas interfacing wild lands, canyons, open space, or parks. For list of invasive species go to the [California Invasive Plant Council website](#) or the [San Diego County Invasive Ornamental Plant Guide](#).

### What is a sustainable landscape?

Sustainable landscapes are intended to be in balance with the local climate and environment, and are designed to require few added resources thereby reducing waste and minimizing air, water and soil pollution. The Sustainable Landscape-Turf Replacement Rebate Program is intended to encourage the replacement of high water using turf grass with ornamental plant material that thrives with little to moderate amounts of water during the extended dry periods that characterize San Diego's climate. The scaled use of turf, with a focus on the use of water wise plant material, abundant mulch, efficient irrigation and reduced runoff are components of sustainable landscaping. The objective of this rebate program is to encourage a reduction in water use through the conversion of grass to water wise plant material, while maintaining a high level of living landscape to benefit the environment.

### Benefits of converting turf to sustainable and water wise landscape.

Turf grass is often the optimal choice for sports and recreational areas, but turf - especially those that consist of cool season grasses such as tall fescue, Kentucky bluegrass, red fescue, or perennial ryegrass, require frequent watering and maintenance. The Sustainable Landscape-Turf Replacement Rebate Program focuses on the replacement of thirsty turf grass material with ornamental water wise plants that use a moderate to very low amount of water. Additional steps such as converting overhead sprinklers to low flow micro-irrigation and installing a Smart Controller can further reduce water and energy use and help control irrigation runoff.



### How much water does a sustainable landscape save?

Typically, cool season turf grass uses between 14 and 40 gallons of water per square foot annually, depending on site conditions. Once established, low to moderate water using plants can require less than half of the water required by cool season turf grass.

### Costs that are covered by the sustainable landscape rebate.

The rebate is \$1.25/SF for lawn area that is replaced with ornamental water wise landscape. The rebate increases to \$1.50/SF if a landscape design professional is used to prepare a scaled design plan showing details such as total water use requirements as a percentage of evapo-transpiration (ET) for the planned landscape, common and scientific plant names, plant coverage at maturity, and irrigation design (hydrozones). Maximum rebate for both rebate levels is \$3,000 per customer. Do-it-yourself labor costs are not eligible for rebate. Do-it-yourself garden design plans are not eligible for rebate. Tax is not included. Total rebate amount will not exceed the cost of the material and installation.





# Water

A Branch of [Public Utilities](#)

WATER  
HOME

GENERAL  
INFO

LAKES AND  
RECREATION

WATER & SEWER  
BILL/RATES

WATER  
CONSERVATION

RECYCLED  
WATER

WATER  
QUALITY

CAPITAL  
IMPROVEMENTS

WATER  
REUSE

[Water Home](#) • [Water Conservation Program](#) • [Rebates & Incentives](#)

## Water Conservation

- [Water Conservation Home](#)
- [Waste No Water Information and Resources](#)
- [Plumbing Retrofit Upon Re-Sale Ordinance](#)
- [Water Survey Programs](#)
- [Rebates & Incentives](#)
- [Kids Water Conservation Corner](#)
- [Contests](#)

## Rebates & Incentives

A water-efficient landscape and irrigation system can reduce outdoor water use and minimize the amount of polluted dry weather runoff that enters the storm drain system. The City of San Diego is working to help customers conserve water by offering rebates for smart controllers, micro-irrigation, and turf replacement. Rebates are offered through a State of California grant and the City's Storm Water Department are available on a first come, first served basis until funding is exhausted. Click on the links below to learn more about the City's residential outdoor water conservation rebate programs and services and specific qualifying requirements.

We Won! San Diego Coastkeeper honored the City's Public Utilities Department with the 2012 Coastal Champion Award in the category of "Water-Wise" for our Residential Outdoor Water Conservation Rebate Program for helping over 300 customers conserve a projected 61.8 million gallons of water over a ten-year period by offering rebates for smart controllers, micro-irrigation, turf replacement and rain barrels. Tap into our rebates today and thanks for the recognition!

### Residential Outdoor Water Conservation Rebates

**Sustainable Landscape-Turf Replacement Rebates** - Currently, City of San Diego customers can choose to participate in one of two turf replacement rebate programs (but may participate in only one program). Note: City Customers are also eligible to apply for other rebates listed on this page in addition to the turf replacement rebate:

- [San Diego County Water Authority Turf Replacement Rebate Program](#) - Customers can receive a turf replacement rebate of up to **\$1.50 per square foot** of front yard turf removed and replaced with water wise plant material (max. rebate is \$3,000). Please visit this website to review program guidelines and begin the application process. Customers must install **micro-irrigation, rotating nozzles** or cap the existing irrigation system in the turf replacement project area. At least 400 square feet of turf must be removed.
- [City of San Diego Outdoor Rebate Program](#) - Customers can receive a turf replacement rebate of up to **\$1.25 per square foot** of turf removed and replaced with water wise plant material (max. rebate is \$3,000). Please visit this website to review program guidelines and begin the application process. Customers are not required to make changes to their irrigation system in the turf replacement project area. Projects that remove **all** turf from the front yard are eligible, even if less than 400 square feet.
  - [Residential Outdoor Water Conservation Rebate Application Form](#) (PDF)
  - [Plant Coverage Spreadsheet](#) (PDF)

**Smart Controller Rebates** - Get up to \$400 for upgrading an existing non-weather based irrigation controller to a Smart Controller (also known as a weather based irrigation controller or WBIC).

- [Residential Outdoor Water Conservation Rebate Application Form](#) (PDF)

**Micro-Irrigation** - Get \$0.20 per square foot (up to 2400 SF and \$480 per customer) for converting an overhead spray sprinkler system to low application rate micro-irrigation (i.e., micro-spray, drip, in-line emitters, etc.)

- [Residential Outdoor Water Conservation Rebate Application Form](#) (PDF)

**Rainwater Harvesting (Rain Barrel) Rebates NEW** - Get \$1.00 for every gallon of rainwater storage capacity (up to 400 gallons and \$400.00) (Program Starts **March 1, 2013**).

**SoCalWaterSmart** - SoCalWaterSmart provides rebates for nozzles, weather based irrigation controllers, and high efficiency clothes washers.

**Free On-Site Water Conservation Surveys** - The City of San Diego offers residential customers free on-site indoor and landscape water conservation surveys that provide customized information on how to save water and money.

**Mulch from Miramar Greenery** - Applying mulch to your garden will reduce the need to water. City of San Diego residents may self-load up to two cubic yards of compost or mulch for free with proof of residency. One cubic yard is equal to the size of six 32-gallon trash cans. Mulch and compost can be loaded by Miramar Greenery staff. Wood chips can be purchased for a modest fee at the Miramar Landfill fee booth located at the landfill's entrance. Please call the Miramar Landfill at (858) 492-6100 to confirm availability on a particular day.

### Commercial-Multifamily Outdoor Water Conservation Rebates

**Smart Controller Rebates** - Get \$25 per irrigation station (up to 68 stations and \$1,700 per site) for upgrading an existing irrigation controller to a Smart Controller (also known as a weather based irrigation controller or WBIC) found on the [SWAT list of Climate Based tested devices](#).

- [Commercial-Multifamily Outdoor Water Conservation Rebate Application Form](#) (PDF)
- [Commercial-Multifamily Smart Controller Resource list](#) (PDF)

**Micro-Irrigation Rebates** - Get \$0.20 per square foot (up to 6,000 SF and \$1,200 per site) for converting an overhead spray sprinkler system to low application rate micro-irrigation (i.e., micro-spray, drip, in-line emitters, etc.)

- [Commercial Multifamily Outdoor Water Conservation Rebate Application Form](#) (PDF)

**Sustainable Landscape - Turf Replacement Rebates** - Get \$1.50 per square foot (up to 6,000 SF and \$9,000) for replacing turf grass with water wise landscaping.

**SoCalWaterSmart** - Regional commercial rebates available for indoor and outdoor water saving devices. Funding is limited and available on a first-come, first-served basis until funding is exhausted. A reservation number is required before you purchase a water-efficient device in order to qualify for a rebate.

Irrigation Controllers	Toilets	Food Steamers	Dry Vacuum Pumps
Rotating Nozzles	In-stem Flow Regulators	Ice machines	Laminar Flow Restrictors
Large Rotary Nozzles	Urinals	Conductivity controllers	

**Mulch from Miramar Greenery** - Applying mulch to your garden will reduce the need to water. City of San Diego residents may self-load up to two cubic yards of compost or mulch for free with proof of residency. One cubic yard is equal to the size of six 32-gallon trash cans. Mulch and compost can be loaded by Miramar Greenery staff. Wood chips can be purchased for a modest fee at the Miramar Landfill fee booth located at the landfill's entrance. Please call the Miramar Landfill at (858) 492-6100 to confirm availability on a particular day.

**On-Site Commercial Landscape Survey** - Take advantage of a commercial landscape survey, offered free of charge to multi-family, commercial, industrial and institutional customers in the City of San Diego. Properties will receive an audit of the irrigation system, practical advice, water-saving recommendations and a water-use budget.

[Water Home](#) | [General Information](#) | [Lakes and Recreation](#) | [Water & Sewer Bill/Rates](#) | [Water Conservation](#) | [Recycled Water](#) | [Water Quality](#) | [Capital Improvements](#) | [Water Reuse](#) |

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How to Apply

Design Ideas

Resources

How to...

FAQ's

# San Diego County Water Authority Turf Replacement Program



## Now accepting applications for incentives!

Welcome to the San Diego County Water Authority's WaterSmart Turf Replacement Program. We created this website to help our valued customers replace water-thirsty lawns with beautiful WaterSmart landscapes that are in harmony with our region.

Using water efficiently is a way of life in San Diego County and an important responsibility that comes with living in the beautiful Mediterranean climate that we enjoy. Working together, we can help ensure a reliable water supply while keeping the region prosperous and naturally beautiful for generations to come.

**WaterSmart Landscapes** provide a number of important benefits. **They include:**

### **Saving Water**

WaterSmart landscapes can use about 70% less water than traditional landscaping.

### **Beautifying Landscapes**

WaterSmart landscapes can transform regular yards into neighborhood showpieces.

### **Reducing Maintenance**

State-of-the-art irrigation systems and plants appropriate for the local climate can trim the amount of time spent on yard maintenance.

### **Minimizing Runoff**

WaterSmart landscapes reduce the amount of polluted water that flows into creeks and ultimately ends up in the ocean.

### **Conserving Energy**

WaterSmart landscapes demand less water be treated and transported across the state, saving huge amounts of energy.

### **Acknowledgements**

**This program is made possible by financial support from:**

- The Bureau of Reclamation through a Water Conservation Field Services Grant

## WaterSmart Landscapes

WaterSmart Landscapes combine water-efficient design, state-of-the-art irrigation, climate-appropriate plant selection, and best maintenance practices to create a beautiful and sustainable environment, ideally suited for San Diego County's mild, Mediterranean climate.



- The California Department of Water Resources' Integrated Regional Water Management Program financed under the California Water Security, Clean Drinking Water, Coastal and Beach Protection Fund of 2002

The Water Authority is particularly grateful to the Long Beach Water Department for special assistance developing content and other material for the website.



**PROCESSING OUTDOOR REBATE APPLICATIONS**

*When a rebate application is received from a customer here are the steps to take:*

1. Log onto the Master Rebate Tracking List at:  
 N:\CustomerSupportDivision\WaterResourcesMgmt\Prop 50 Rebates\Master Rebate Tracking List.xlsx. Click on the Residential or Commercial tab depending on type of application.
  
2. Assign next application number and fill out all the Residential/Commercial Applicant Information. **[NOTE – IF THE CUSTOMER IS ASKING FOR SUSTAINABLE LANDSCAPE THE CONTROL NUMBER WILL BE UNDER THE RED LINE AND WILL BE ON THE WAIT LIST, IF THE CUSTOMER IS ONLY ASKING FOR SMART CONTROLLER OR MICRO IRRIGATION IT GOES ABOVE THE RED LINE AND WILL NOT HAVE TO BE WAIT LISTED.]** From the application determine what the customer is applying for (Smart Controller, Micro Irrigation, Sustainable Landscape) and fill out the following information (if available on the application):

**Residential Smart Controller Rebate**

Date SC App Rcvd	Min. 2000 SF / 6 valves?	Make	Model	Potential Rebate Amount up to \$400
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**Commercial Smart Controller Rebate**

Date SC App Rcvd	Min. 2000 SF	Make	Model	Potential Rebate Amount (\$25 per station up to 68 stations/\$1700 per site)	Date SC Rebate Chk issued	SC Rebate Amount Issued
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Date application received is the date stamped on the envelope, or date you received the application if no date on the envelope, square footage and valves if listed on application, make and model if listed on the application, and if they included a receipt how much they paid for the controller up to \$400 for residential and \$1700 for commercial. For Residential if the SF on SC is less than 2000 SF, pay up to \$200.

**Residential Micro-Irrigation**

<b>Date MI App Rcvd</b>	<b>Proposed SF</b>	<b>Potential Rebate Amount (\$0.20/SF) up to \$480 (2400SF)</b>
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**Commercial Micro-Irrigation**

<b>Date MI App Rcvd</b>	<b>Proposed SF (up to 6000 SF)</b>	<b>Potential Rebate Amount (\$0.20/SF) up to \$1200</b>	<b>Actual SF (up to 6000 SF)</b>	<b>Actual Rebate Amount (\$0.20/SF) up to \$1200</b>	<b>Date MI Rebate Chk issued</b>	<b>MI Rebate Amount Issued</b>
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Date application received is the date stamped on the envelope, or date you received the application if no date on the envelope, and square footage if listed on application up to 2400 SF Residential / 6000 SF Commercial. If more than 2400/6000 SF then just put 2400/6000.

**Residential Sustainable Landscape - Turf Replacement**

<b>Date SL TR App Rcvd</b>	<b>Proposed SF</b>	<b>Potential Rebate Amount: w/plan(\$1.50/SF up to 2000SF +\$500 towards design); w/o plan (\$1.25/SF up to 2400SF) - Max \$3000</b>
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**Commercial Sustainable Landscape – Turf Replacement**

<b>Date SL TR App Rcvd</b>	<b>Proposed SF (up to 6000 SF)</b>	<b>Potential Rebate Amount: \$1.50/SF up to 6000 SF and \$9,000 Per Customer</b>	<b>Actual SF</b>	<b>Actual Rebate Amount: \$1.50/SF up to 6000 SF and \$9,000 Per Customer</b>
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Date application received is the date stamped on the envelope, or date you received the application if no date on the envelope and square footage if listed on application (up to 2000 SF Residential / 6000 SF Commercial). For Residential check to see if the customer marked \$1.25 or \$1.50. Then multiply SF by 1.25 or 1.50 accordingly, up to a maximum of \$3000. If the SF is 2400 or above just put \$3000. For Commercial it is always \$1.50. If the SF is above 6000 just put 6000.

3. Fill out the Internal Tracking Form and the Start Date Form with as much information as you can get off of the application. The Start Date Form is for SL/TR program only. If the customer is not applying for that program you don't need to fill out the Start Date Form. These forms are found in the Residential Info and Commercial Info folders on Maureen's desk in the File Folder Rack. Electronic copies are on the 'N' Drive.
4. Create a file folder for the application. On the tab of the file folder right the application number and the person's last name or if commercial the business name. IE: R13-XXX Doe, or C13-XXX Doe Corporation. Extra file folders can be obtained from Carmela.
5. Log onto N:\CustomerSupportDivision\WaterResourcesMgmt\Prop 50 Rebates and go to the Residential or Commercial tab and create a folder for your application. Folders names are App (Number) (Last Name), i.e.: App R13-1000 Smith. Check to see if the Irrigation Auditor's have already done a pre-site for this address and see if they have filed pictures in the N drive as well. The pictures will be listed by address or last name. If so, move that whole file (just click and drag) into the Application Folder.
6. Scan the application and tracking forms into your computer and file them in the Application Folder on the 'N' Drive, calling them Application, Tracking Forms, etc.
7. Give to Vinnie to schedule a pre-site (if none done.)

Daily - check the Mailbox named WaterConservationReb on Maureen's computer. This mailbox can be found on the lower left hand column of Outlook. Delete the mass city emails and respond to any customer emails. Keep the emails in the WaterConservationReb folder. You may want to first forward the emails to yourself and answer them from your email account so if they email back it will go to you directly. Maureen's log on is mahall and her password is TapsDC12.

*When a folder is received back from Kevin, Chad or Hector, after the pre-site here are the steps to take:*

Log onto the Master Rebate Tracking List at:

N:\CustomerSupportDivision\WaterResourcesMgmt\Prop 50 Rebates\Master Rebate Tracking List.xlsx. Click on the Residential or Commercial tab depending on type of application, and fill out the following information depending on the type of rebate(s) applied for:

**Residential Smart Controller Rebate**

<b>Min. 2000 SF / 6 valves?</b>	<b>Make</b>	<b>Model</b>	<b>Potential Rebate Amount up to \$400</b>
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**Commercial Smart Controller Rebate**

<b>Date SC App Rcvd</b>	<b>Min. 2000 SF</b>	<b>Make</b>	<b>Model</b>	<b>Potential Rebate Amount (\$25 per station up to 68 stations/\$1700 per site)</b>
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The pre-site information will have the exact SF and exact number of valves; you can change whatever you had put in there previously. It may also list the make and model, and may include the invoice/receipt for the rebate amount. If it does, add it to the spreadsheet as well. For Residential if the SF on SC is less than 2000 SF, pay up to \$200.

Add this information to the Tracking Form as well.

**Residential Micro-Irrigation**

<b>Date MI App Rcvd</b>	<b>Proposed SF</b>	<b>Potential Rebate Amount (\$0.20/SF) up to \$480 (2400SF)</b>
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**Commercial Micro-Irrigation**

<b>Date MI App Rcvd</b>	<b>Proposed SF (up to 6000 SF)</b>	<b>Potential Rebate Amount (\$0.20/SF) up to \$1200</b>
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The pre-site information will have the exact SF; you can change whatever you had put in there previously. If it is changed then change the potential rebate amount as well by multiplying the SF by .20. Remember, there is a maximum of 2400 SF and \$480 for Residential and 6000 SF and \$1200 for Commercial.

Add this information to the tracking form as well.

**Residential Sustainable Landscape - Turf Replacement**

<b>Date SL TR App Rcvd</b>	<b>Proposed SF</b>	<b>Potential Rebate Amount: w/plan(\$1.50/SF up to 2000SF +\$500 towards design); w/o plan (\$1.25/SF up to 2400SF) - Max \$3000</b>
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**Commercial Sustainable Landscape – Turf Replacement**

<b>Date SL TR App Rcvd</b>	<b>Proposed SF (up to 6000 SF)</b>	<b>Potential Rebate Amount: \$1.50/SF up to 6000 SF and \$9,000 Per Customer</b>
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The pre-site information will have the exact SF; you can change whatever you had put in there previously. If it is changed then change the potential rebate amount as well by multiplying the SF by 1.25 or 1.50 accordingly for Residential and \$1.50 for Commercial. Remember, there is a maximum of 2400 SF and \$3000 for Residential and 6000 SF and \$9000 for Commercial.

Add this to the tracking form as well.

You will also determine the following:

<b>Project Start Date Assigned</b>	<b>45 days from pre-site</b>	<b>Reminder date (1 week ahead of 45 days)</b>	<b>120 days from pre-site</b>	<b>Reminder date (14 days ahead of 120 day)</b>
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**FILL OUT ONLY IF THE APPLICATION IS NOT ON THE WAIT LIST.** The project start date is generally the pre-site date, unless the customer asks for a different date, which Kevin or Chad or Hector will record on the tracking form.

45 days from pre-site is determined by taking the “Reminder and Due Date Calendar” and counting 6 weeks and 3 days from the pre-site date. If the 45<sup>th</sup> day falls on a Saturday, Sunday or Holiday record the following work day as the 45<sup>th</sup> day. Record this on the calendar as R13-XXX – 45 Day, and in the appropriate box on the spreadsheet.

Reminder date is the date 1 week ahead of the 45<sup>th</sup> day. Record this on the calendar as R13-XXX - 45 Day Reminder.

120 days is determined by taking the “Reminder and Due Date Calendar” and counting 17 weeks and 1 day from the pre-site date. Remember the Saturday/Sunday/Holiday note from above. Record this on the calendar as R13-XXX – Final.

Reminder date is 2 weeks ahead of the final day. Record this on the calendar as R13-XXX – Final Reminder.

Add this information to the Tracking Form as well.

File the folder in the top drawer of Vinnie’s office.

When plant list/plans are received from a customer look up the application number on the Master Rebate Tracking List and pull the folder. Paperclip the Plant List/plans to the folder and put the folder/plant list on Zeek’s desk for review. Note “Plant List Received DATE” on the Notes / Comments section of the spreadsheet.

Answer any questions from customers as you can. Questions you can’t answer can be referred to Joey, Kevin, Chad, or Hector. Record any notes, questions, concerns etc under the Notes / Comments section of the spreadsheet.

When customers call for a post-site pull the folder and give it to Vinnie telling her to schedule a post-site inspection. Vinnie will schedule it with whoever did the pre-site. Note this under the Notes / Comments section of the spreadsheet.

After the post-site inspection the Irrigation Auditor will give the folder to you to process.

*When a folder is received back from Kevin, Chad or Hector, after the pos-site here are the steps to take:*

Log onto the Master Rebate Tracking List at:

N:\CustomerSupportDivision\WaterResourcesMgmt\Prop 50 Rebates\Master Rebate Tracking List.xlsx. Click on the Residential or Commercial tab depending on type of application, and fill out the following information depending on the type of rebate(s) applied for:

**Residential Smart Controller Rebate**

Min. 2000 SF / 6 valves?	Make	Model	Potential Rebate Amount up to \$400	SC Rebate Amount Issued- IO 11002138
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**Commercial Smart Controller Rebate**

Min. 2000 SF	Make	Model	Potential Rebate Amount (\$25 per station up to 68 stations/\$1700 per site)	Date SC Rebate Chk issued	SC Rebate Amount Issued
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The post-site information will have the exact SF and exact number of valves; you can change whatever you had put in there previously. It may also list the make and model, and may include the invoice/receipt for the rebate amount. If it does, add it to the spreadsheet as well. If the receipt is not attached call the customer for the receipt. Remember cost cannot exceed \$400 for Residential and \$25 per Station and \$1700 for Commercial. For Residential if SF is below 2000 SF the rebate amount cannot exceed \$200. If the application came in BEFORE July 1, 2012 labor costs will be rebated, after July 1, 2012 pay on controller cost only.

Add this to the Tracking Form as well.

**Residential Micro-Irrigation**

Actual SF	Actual Rebate Amount (\$0.20/SF) up to \$480 (2400SF)	Post-Site Date	MI Rebate Amount Issued- IO 11002138
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**Commercial Micro-Irrigation**

<b>Actual SF (up to 6000 SF)</b>	<b>Actual Rebate Amount (\$0.20/SF) up to \$1200</b>	<b>Date MI Rebate Chk issued</b>	<b>MI Rebate Amount Issued</b>
----------------------------------	--	----------------------------------	--------------------------------

The post-site information will have the exact SF; you can change whatever you had put in there previously. If it is changed then change the potential rebate amount as well by multiplying the SF by .20. Remember, there is a maximum of 2400 SF and \$480 for Residential and 6000 SF and \$1200 for Commercial. If the receipts are included add up all the costs and pay that amount up to \$480/\$1200. If the application came in BEFORE July 1, 2012 labor costs will be rebated, after July 1, 2012 pay on material cost only. If the receipts are not included call the customer for the receipts.

Add this to the Tracking Form as well.

**Residential Sustainable Landscape - Turf Replacement**

<b>Actual SF</b>	<b>Actual Rebate Amount: w/plan(\$1.50/SF up to 2000SF + \$500 towards design); w/o plan (\$1.25/SF up to 2400SF) - Max \$3000</b>	<b>Post-Site Date</b>	<b>Actual SL TR Rebate Amount - IO 11002139</b>
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**Commercial Sustainable Landscape – Turf Replacement**

<b>Actual SF</b>	<b>Actual Rebate Amount: \$1.50/SF up to 6000 SF and \$9,000 Per Customer</b>	<b>Post-Site Date</b>	<b>Actual SL TR Rebate Amount</b>
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The post-site information will have the exact SF; you can change whatever you had put in there previously. If it is changed then change the potential rebate amount as well by multiplying the SF by 1.25 or 1.50 accordingly for Residential and \$1.50 for Commercial. If the receipts are included add up all the costs and pay that amount up to \$3000/\$9000. If the application came in BEFORE July 1, 2012 labor costs will be rebated, after July 1, 2012 pay on material cost only. If the receipts are not included call the customer for the receipts.

If there are a large number of receipts there is a receipt breakdown spreadsheet you can use. It is located at N:\CustomerSupportDivision\WaterResourcesMgmt\Prop 50 Rebates\Receipt

Breakdown Template.xlsx. Immediately do a “save as” and save it in the proper application folder as RXX-XXX Receipt Breakdown.

Add all this to the Tracking Form as well.

In the Notes/Comments section **IN BOLD RED CAPITOL LETTERS** record **OK TO PAY \$X (\$X FOR SC, \$X FOR MI, \$X FOR SLTR.)** Also record how much receipts were for, or if receipts do not add up to square footage, how much could have been paid for square footage. Highlight whole line green.

With a green sharpie write OK TO PAY \$X (\$X FOR SC, \$X FOR MI, \$X FOR SLTR) and the date on the tracking sheet, application, and folder cover. Give to Carmela to scan and pay.

## Sustainable Landscape-Turf Replacement Rebate Program Resource List

This incomplete list of places and websites to visit to help you complete your project is for your reference only. The City of San Diego does not offer any endorsement or warranty regarding these vendors.

**Remember to contact Dig Alert before you dig! Simply dial 811!**  
**(visit the Dig Alert website for additional information: <http://www.digalert.org/index.asp>)**

### Demonstration Gardens-great places to look for design & planting ideas:

#### Water Conservation Garden at Cuyamaca College

12122 Cuyamaca College Drive West, El Cajon, CA 92019  
619-660-0614  
[www.thegarden.org](http://www.thegarden.org)

#### City of San Diego's Balboa Park Desert Garden

East of Park Blvd. and Zoo Place intersection, in Balboa Park

#### San Diego Botanic Garden

230 Quail Gardens Drive, Encinitas, CA 92024  
760-436-3036  
[www.sdbgarden.org](http://www.sdbgarden.org)

#### Buena Creek Gardens

418 Buena Creek Gardens, San Marcos, CA 92069  
760-744-2810  
[www.buenacreekgardens.org](http://www.buenacreekgardens.org)

#### Wild Animal Park's Nativescapes Garden

15500 San Pasqual Valley Rd, Escondido, CA 92027  
[www.sandiegozoo.org/CF/plants/gardendetail.cfm?ID=20](http://www.sandiegozoo.org/CF/plants/gardendetail.cfm?ID=20)

### Local Nurseries Featuring Water-Wise Plant Selection:

#### Mission Hills Nursery

1525 Fort Stockton Dr., San Diego, CA 92103

#### Miramar Wholesale Nursery

5400 Governor Dr., San Diego, CA 92112

#### Walter Anderson Nursery

3246 Enterprise St., San Diego, CA 92107  
12755 Danielson Ct., Poway, CA, 92064



**City Farmers Nursery**

4832 Home Ave., San Diego, CA 92105

**Recon Nursery (wholesale only)**

1755 Saturn Blvd., San Diego, CA 92154

**Anderson's La Costa Nursery**

400 La Costa Ave, Encinitas, CA 92024

**Cedros Gardens**

330 Cedros Ave., Solana Beach, CA 92075

**Tree of Life Nursery (specializing in CA native plants)**

33201 Ortega Highway, San Juan Capistrano, CA 92675

[www.californianativeplants.com](http://www.californianativeplants.com) (great resources on how to kill your lawn)

**El Plantio Nursery-Landscaping, Inc.**

1322 San Pasqual Valley Rd, Escondido, CA 92027

**Las Pilitas Nursery**

8331 Nelson Way, Escondido, CA 92026

**Kniffings Discount Nursery**

14940 Oak Creek Rd., El Cajon, CA 92021

**Cuyamaca College Nursery**

900 Rancho San Diego Pkwy, El Cajon, CA 92019

**Rancho Jojoba Nursery/Kuma Bonsai**

11935 Hwy 67, Lakeside, CA 92040

**Websites offering information on Drought Tolerant Gardens:**

**Metropolitan Water District's Conservation Website:** [www.bewaterwise.com](http://www.bewaterwise.com)

**City of San Diego Public Utilities Department- Water Conservation Program website:**  
[www.sandiego.gov/water/conservation](http://www.sandiego.gov/water/conservation)

**San Diego County Water Authority:** [www.sdcwa.org](http://www.sdcwa.org)

**Southern Nevada Water Authority:** [www.snwa.com](http://www.snwa.com)



WUCOLS Database -Estimating Watering Needs: [www.owue.water.ca.gov/docs/wucols00.pdf](http://www.owue.water.ca.gov/docs/wucols00.pdf)

The WUCOLS database attempts to answer this question: "In order to be maintained in good condition, in the region you are considering, and under the standard conditions outlined, does the species need HIGH, MODERATE, LOW or VERY LOW amounts of irrigation water?"

Rancho Santa Ana Botanical Garden: [www.rsabg.org](http://www.rsabg.org)

San Marcos Growers: Irrigation practices website:  
<http://www.smgrowers.com/resources/Irrigation.asp>

*Links to on-line articles on how to get rid of turf:*

[www.findarticles.com/p/articles/mi\\_m1216/is\\_3\\_223/ai\\_n35638326/](http://www.findarticles.com/p/articles/mi_m1216/is_3_223/ai_n35638326/)

<http://www.finegardening.com/how-to/articles/4-ways-to-remove-sod.aspx>

In addition, local retail outlets including but not limited to Home Depot, Lowe's, Dixieline, and Ace Hardware Stores carry varieties of water wise plants.





[How to Apply](#)

[Design Ideas](#)

[Resources](#)

[How to...](#)

[FAQ's](#)

San Diego County Water Authority

## Turf Replacement Program

### Turf Replacement Study Guide

Use this study guide as a tool for preparing for the online test.

- [Your WaterSmart Landscape project is very important](#)
- [Resources to help you plan your WaterSmart landscape](#)
- [Budgeting for Success](#)
- [Design your WaterSmart Landscape](#)
- [Choosing the right irrigation system](#)
- [Choosing the right plants](#)
- [Design: Hardscape](#)
- [Kill your lawn dead, dead, dead](#)
- [Plant installation](#)
- [Soil preparation](#)
- [Maintenance and care of your new garden](#)

[Your WaterSmart Landscape project is very important](#)



[Login](#) or [register](#) to post comments



## City of San Diego Customers! Residential Outdoor Water Conservation Rebates

Are you interested in:  Reducing your outdoor water use?  Maintaining a healthy landscape? This is a **limited** opportunity for City of San Diego Public Utility customers residing in a single-family home, duplex, townhome or condo.

- Smart Controller Rebates: up to \$400
- Micro-irrigation Rebates: \$0.20/sq. ft. up to \$480
- Sustainable Landscape – Turf Replacement Rebates: \$1.25 or \$1.50/sq. ft. up to \$3,000 (front yards only)



See Program Guidelines & Application for Detailed Requirements at:  
[www.sandiego.gov/water/conservation](http://www.sandiego.gov/water/conservation) or call (619) 533-4126



This program is made possible by the City of San Diego Public Utilities & Storm Water Departments and an Integrated Regional Water Management grant from the State Department of Water Resources. Rebates are available on a first come, first served basis. Program requirements are subject to change.

This information is available in alternative formats upon request.

Printed on Recycled Paper

## City of San Diego Customers! Commercial – Multifamily Outdoor Water Conservation Rebates

Are you interested in:  Reducing your outdoor water use?  Maintaining a healthy landscape? This is a **limited** opportunity for City of San Diego Public Utility commercial and multifamily customers.

- Smart Controller Rebates: up to \$1,700/\$25 per station
- Micro-irrigation Rebates: \$0.20/sq. ft. up to \$1,200
- Sustainable Landscape – Turf Replacement Rebates: \$1.50/sq. ft. up to \$9,000



See Program Guidelines & Application for Detailed Requirements at:  
[www.sandiego.gov/water/conservation](http://www.sandiego.gov/water/conservation) or call (619) 533-4126



This program is made possible by the City of San Diego Public Utilities & Storm Water Departments and an Integrated Regional Water Management grant from the State Department of Water Resources. Rebates are available on a first come, first served basis. Program requirements are subject to change.

This information is available in alternative formats upon request.

Printed on Recycled Paper

Office Use Only:  
Form Date: 1-10-12

Application#: \_\_\_\_\_  
Date: \_\_\_\_\_

City of San Diego Public Utilities Department  
RESIDENTIAL OUTDOOR WATER CONSERVATION REBATE APPLICATION

Smart Controller, Micro-Irrigation,  
Sustainable Landscape-Turf Replacement

- Customers may submit more than one application form, or apply for multiple rebates on one application form.
- Prior to completing this application please review the rebate guideline for each rebate type. Go to: [www.sandiego.gov/water/conservation](http://www.sandiego.gov/water/conservation) for more information on the rebate programs.
- Rebates are available to existing residential customers (including individually metered single family homes, duplexes, condominiums, and townhomes) within the service area of the City of San Diego Public Utilities Department. Renters may be eligible for rebates with written consent of property owner. Renter's name must be on water bill.
- Rebate checks will be sent to the customer of record 6-8 weeks after application is deemed complete and post-installation site visits are successfully completed.
- The City of San Diego is not responsible for any taxes, fees, or tariffs that may be imposed as a result of rebate-related device purchase(s) or work performed.
- **Funding for rebates is limited and available on a first come, first served basis. Program requirements are subject to change without prior notification.**



APPLICANT & SITE INFORMATION

Application must be signed. Mail this form with a copy of water bill.

Applicant name: \_\_\_\_\_  
(customer to receive rebate) Last Name First Name

Property address: \_\_\_\_\_  
Street Address Zip Code

Mailing address: \_\_\_\_\_  
Street Address, Apt.#, P.O Box Zip Code

Telephone number: \_\_\_\_\_  
Home Cell/Work

Account number: \_\_\_\_\_  
Located on your water bill) E-mail

If applicant is renting the property, property owner must provide signature:

Property owner name: \_\_\_\_\_  
(if different from Applicant name) Last Name First Name

Property owner signature: \_\_\_\_\_

**CHECK BOX FOR REBATE(S) YOU WISH TO APPLY FOR AND PROVIDE REQUESTED INFORMATION:**

**Smart Controller Rebate:** Up to \$400 per address (see list of SWAT list of approved devices on Resource and SWAT list PDF).

Estimated total square feet under automated irrigation (must be at least 500 SF): \_\_\_\_\_

Number of irrigation valves/stations: \_\_\_\_\_

Existing irrigated landscape, operable valves and existing irrigation controller will be verified at the pre-site inspection. Original receipts must be submitted to qualify for rebate.

**Micro-Irrigation Rebate:** \$0.20 per SF of area converted from overhead spray irrigation to micro-irrigation. Maximum rebate amount is \$480 per address.

Estimated SF of area converted \_\_\_\_\_ x 0.20 = \$ \_\_\_\_\_ (Minimum conversion is 200 SF)

Existing planted area with operable overhead irrigation will be verified at the pre-site inspection. Original receipts must be submitted to qualify for rebate.

**Sustainable Landscape-Turf Replacement Rebate:**

**Which rebate level would you like:**

\$1.25 per SF of turfgrass replaced by water wise landscape (up to 2,400 SF and \$3,000, plant list only required).

\$1.50 per SF of turfgrass replaced by water wise landscape (up to 2,000 SF and \$3,000, design plans, irrigation plans, plant list, MAWA and ETWU calculations required).

Estimated total SF of **FRONT YARD** turf to be replaced with water wise landscape: \_\_\_\_\_  
(Minimum 400 SF)

Existing living turf area with operable, overhead irrigation system will be verified at the pre-site inspection. Original receipts must be submitted to qualify for rebate.



## Customer Agreement

*I, the undersigned, understand that this is a limited, first come, first-served program, that rebates are given only for projects which have applications that are approved, and that the City of San Diego Public Utilities Department can deny any application that does not meet program requirements (which can change without notification). I have voluntarily determined to participate in the City of San Diego's Outdoor Conservation Rebate Program and understand that no rebate will exceed the cost of the item purchased or exceed the stated maximum total dollar amount per customer rebate. I understand that my Public Utilities account must be in good standing to receive a rebate check. I agree that all work performed will comply with applicable state and local laws, ordinances, and regulations. If this application is approved, I agree that Public Utilities Water Conservation staff can conduct a water conservation survey/pre-site inspection and a post-installation site visit at my property, and verify that the project has been completed according to program requirements.*

*I understand that installation of devices and material are my responsibility, as is determination of the adequacy and compatibility of the existing irrigation system. Smart Controllers, Micro-Irrigation, and Sustainable Landscape-Turf Replacement projects must be installed within the Public Utilities service area. I understand that with the post-installation visit, Public Utilities makes no determination with respect to choice, quality or suitability of workmanship, materials or equipment. I acknowledge that installation of irrigation equipment or landscape materials may not result in lower water bills, and that rebates do not apply to sales tax charge.*

*I understand that project site shall be available for future inspection and monitoring (up to five years) by Public Utilities. Photos of the project may be taken by Public Utilities staff to illustrate transitions from thirsty landscapes to attractive, water wise landscapes. Addresses to project sites participating in the rebate program will be available to the public. Customer names will not be made public nor associated with the site address.*

*I understand that Public Utilities is not responsible for items lost or destroyed in the mail/transit.*

*If this application is approved by Public Utilities and the work proceeds, I agree to defend, indemnify, and hold harmless Public Utilities, its agents and employees against any and all loss, liability, expense, claims, suits and damages, including attorney's fees, arising out of or resulting from the installation of irrigation equipment and landscape equipment. I have read, understand, and agree to the terms and conditions of the rebate(s) for which I am applying.*

*Please consult with a tax advisor if you have questions regarding any potential tax implications of your rebate.*

**Customer Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**How did you hear about the rebates?** \_\_\_\_\_

Application must be signed by water account holder. Mail this form with a copy of your water bill. Please keep copies of all submittals.

Mail to: City of San Diego Public Utilities Department Attn: Outdoor Water Conservation Rebates, 600 B Street, Suite 400, San Diego, CA 92101.

For important information about rebate programs please read the guidelines for each specific rebate type ([www.sandiego.gov/water/conservation](http://www.sandiego.gov/water/conservation)). If you have questions e-mail [waterconservationrebates@sandiego.gov](mailto:waterconservationrebates@sandiego.gov). or call 619-533-4126 Monday – Friday 8:00 AM-5:00 PM





City of San Diego  
RESIDENTIAL OUTDOOR WATER CONSERVATION  
REBATE PROGRAM

Sustainable Landscape-Turf  
Replacement Rebate Guidelines  
Rebate--\$1.25 or \$1.50/Square Foot up to \$3,000

Did you know that more than 50% of the water consumed by most households is used to maintain landscapes and lawns? You can help reduce your outdoor water use, keep your landscape more attractive and healthy--and save money on your water bill--by replacing your thirsty turf grass with a sustainable and water wise ornamental landscape. City of San Diego Public Utilities Department customers residing in a single-family home, duplex, townhome, or condominium that is served by an individual water meter can receive a rebate for turf replacement. Funding for a limited number of rebates is available through a State of California grant and will be distributed on a first come, first served basis until exhausted. This program is subject to change without prior notification. Read below for program requirements and application process. Rebate check will be sent to the customer of record 6-8 weeks after application and post-installation site visit are successfully completed. If you have questions after reading these guidelines, please call 619-533-4126 or e-mail [waterconservationrebates@sandiego.gov](mailto:waterconservationrebates@sandiego.gov).

*Applicant's water account must be in good standing and program requirements must be met to be eligible for rebates. Customer must agree to and sign the application agreement before rebate is administered. Changes made related to rebate program must comply with all applicable laws, codes, policies, covenants, conditions, and restrictions. Please consult with a tax advisor if you have questions regarding any potential tax implications of your rebate.*



### Rebate Process

1. **Get an application...** Visit the City's [Water Conservation Website](#) to download the Residential Outdoor Rebate Program Application. Submit completed application to Water Conservation Program.
2. **Get a pre-site inspection and approval to begin project...** After the application is received a City scheduler will contact you to schedule a free water conservation survey and pre-site inspection. A Water Conservation Program representative will evaluate the proposed project area and if qualifications are met you will be given a project start date, at which time the 120 day conversion period begins.

3. **Submit plant list or design plans within 45 days of start date ....** Submit plant list within 45 days of project start date if you are applying for the \$1.25/SF rebate. Submit scaled design plans within 45 days of project start date if you are applying for the \$1.50/SF rebate. See below for more information on plant list and design plan submittals.
4. **Complete the project and schedule a post-installation visit within 120 days...** Call 619-570-1999 to schedule a post-installation site visit once project is completed (site visit must be scheduled before the 120 day conversion period is over). A Water Conservation representative will verify square footage and that program requirements are met. At this visit please provide representative with original itemized sales receipts and invoices from landscape professionals which must include vendor and/or company name, purchase date, date of services, itemized list of products purchased, description of services rendered.
5. **Receive a rebate...** Once application is deemed complete and post-installation site visit is successfully completed please allow 6-8 weeks for the rebate check to arrive in the mail.

### Program Requirements:

- Project must replace high water use turf with plants that have moderate, low, or very-low watering requirements as defined in the 2010 Edition UC Davis Arboretum All-Stars brochure, the [Water Use Classification of Landscape Species Reference \(WUCOLS\)](#) or other accepted reference of plant water use.
- At maturity, plant density of the converted area must cover at least 50% of the project area. Tree canopy coverage (existing and new trees) will not be counted in the 50% plant coverage calculation.
- Rebate amount cannot exceed total project cost, up to a maximum of \$3,000 per property.
- Minimum project conversion area is 400 SF (front yard lawns with less than 400 SF are eligible if 100% of turf is replaced).
- Existing turf in project area must be living and an in-ground irrigation system must be operational at the time of the survey/pre-site inspection.
- Converted areas must be permeable to air and water (ie. gravel, loose flagstone, decomposed granite). Permeable weed barriers are required under pervious hardscapes.
- If project will be irrigated, conversion of existing overhead spray irrigation system to micro-irrigation or low application rate rotating nozzles is highly recommended. The newly converted area must be on a separate irrigation valve from remaining turf. System must be capped if improved area will not have irrigation.
- Mulch must be spread to minimum depth of three inches where new plant material is installed unless a spreading groundcover is indicated.
- Pre- and post-site inspections are required as well as submittal of original receipts, invoices, and total project costs. Projects must be completed within 120 days from the date Water Conservation Program representative approves start of project at survey/pre-site inspection.



- Project site must be maintained for a minimum of five years, or for the duration of ownership of the property (whichever is shortest). Failure to meet this requirement may require customer to refund all or a portion of the rebate.
- Project site shall be available for future inspection and monitoring (up to five years) by Public Utilities. Photos of the project may be taken by Public Utilities staff to illustrate transitions from thirsty landscapes to attractive, water wise landscapes. Addresses to project sites participating in the rebate program will be available to the public. Customer names will not be made public or associated with the address.

### REBATE LEVELS:

- Receive \$1.25/SF (up to 2,400 SF). A plant list must be submitted within 45 days of project start date. Plant list can be found in PDF format on the Sustainable Landscape-Turf Replacement webpage on the [Water Conservation website](#). Plant list must include plants that will be planted, number of plants, size at maturity and WUCOLS page reference (or other accepted reference of plant water use page reference).

### OR

- Receive \$1.50/SF (up to 2,000 SF) after submitting a scaled garden design and irrigation plan. Do-it-yourself garden design plans are not eligible for rebate. A scaled garden design and irrigation plan must be completed by a landscape designer, landscape architect, certified landscape irrigation auditor or landscape contractor, and must include:
  - Plant names (common and scientific) with plant symbols showing coverage at 75-100% maturity and WUCOLS page reference (or other acceptable reference) to verify moderate to low water use
  - Mulch type and permeable hardscape details
  - Estimated Total Water Use (ETWU)
  - Maximum Applied Watering Allowance (MAWA) – Maximum 70% of ET
  - Irrigation plan with hydrozones and head or emitter placement and equipment list (if no irrigation is planned – show hydrozones only)
  - North arrow and scale
  - Plant list must include plants that will be planted, number of plants, size at maturity and WUCOLS page reference (or other accepted reference of plant water use page reference)



### What does not qualify for a rebate?

- High water using plants (as classified by WUCOLS)
- Artificial turf
- Vegetable gardens
- Back yard turf conversion
- Exposed soil surfaces (exceptions made to accommodate specific garden design motifs)
- Impermeable surfaces such as bricks and flagstone mortared into place, or concrete. (Pervious surfaces that are part of the project area are eligible for rebate so long as total project area includes living plant coverage area of at least 50% at maturity)
- Water features or fountains (San Diego Municipal Code Land Development Code Appendix E calculates water features at same water coefficient as high water use plants)

- Planting of invasive species that have potential to spread aggressively, especially in areas interfacing wild lands, canyons, open space, or parks. For list of invasive species go to the [California Invasive Plant Council website](#) or the [San Diego County Invasive Ornamental Plant Guide](#).

### What is a sustainable landscape?

Sustainable landscapes are intended to be in balance with the local climate and environment, and are designed to require few added resources thereby reducing waste and minimizing air, water and soil pollution. The Sustainable Landscape-Turf Replacement Rebate Program is intended to encourage the replacement of high water using turf grass with ornamental plant material that thrives with little to moderate amounts of water during the extended dry periods that characterize San Diego's climate. The scaled use of turf, with a focus on the use of water wise plant material, abundant mulch, efficient irrigation and reduced runoff are components of sustainable landscaping. The objective of this rebate program is to encourage a reduction in water use through the conversion of grass to water wise plant material, while maintaining a high level of living landscape to benefit the environment.

### Benefits of converting turf to sustainable and water wise landscape.

Turf grass is often the optimal choice for sports and recreational areas, but turf - especially those that consist of cool season grasses such as tall fescue, Kentucky bluegrass, red fescue, or perennial ryegrass, require frequent watering and maintenance. The Sustainable Landscape-Turf Replacement Rebate Program focuses on the replacement of thirsty turf grass material with ornamental water wise plants that use a moderate to very low amount of water. Additional steps such as converting overhead sprinklers to low flow micro-irrigation and installing a Smart Controller can further reduce water and energy use and help control irrigation runoff.



### How much water does a sustainable landscape save?

Typically, cool season turf grass uses between 14 and 40 gallons of water per square foot annually, depending on site conditions. Once established, low to moderate water using plants can require less than half of the water required by cool season turf grass.

### Costs that are covered by the sustainable landscape rebate.

The rebate is \$1.25/SF for lawn area that is replaced with ornamental water wise landscape. The rebate increases to \$1.50/SF if a landscape design professional is used to prepare a scaled design plan showing details such as total water use requirements as a percentage of evapo-transpiration (ET) for the planned landscape, common and scientific plant names, plant coverage at maturity, and irrigation design (hydrozones). Maximum rebate for both rebate levels is \$3,000 per customer. Do-it-yourself labor costs are not eligible for rebate. Do-it-yourself garden design plans are not eligible for rebate. Tax is not included. Total rebate amount will not exceed the cost of the material and installation.

