

San Diego Integrated Regional Water Management Implementation Grant Proposal

Submitted by San Diego County Water Authority

on behalf of the Regional Water Management Group and the Regional Advisory Committee



Implementation Grant, Round 1

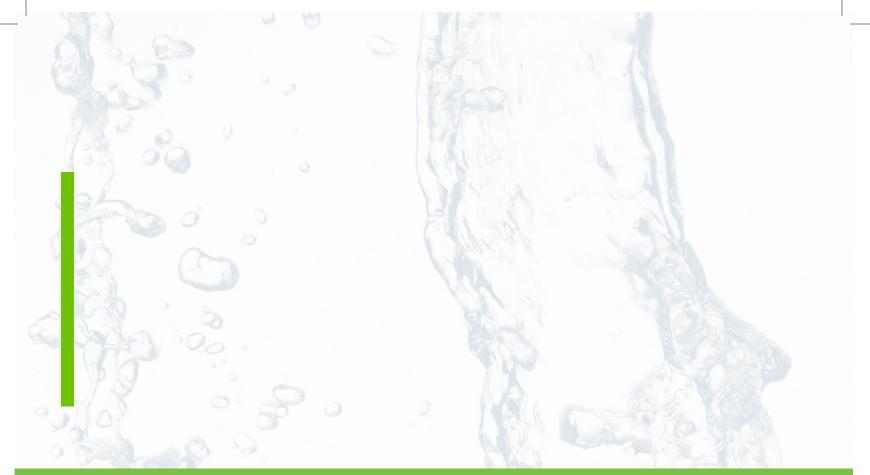






San Diego County Water Authority







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Submitted by San Diego County Water Authority On behalf of the Regional Water Management Group and the Regional Advisory Committee

This San Diego IRWM Implementation Grant Proposal is being submitted to the California Department of Water Resources (DWR) for consideration of implementation grant funding through the IRWM Grant Program. The following checklist presents the required elements of a grant application funded by the IRWM Grant Program. The checklist consists of four sections or "tabs" as outlined in the IRWM Grant Program Guidelines (DWR 2010). The San Diego IRWM Implementation Grant Proposal has been submitted electronically through the BMS and four hard copies have been delivered to DWR.

The San Diego IRWM Implementation Grant Proposal, comprised of this checklist and 15 attachments, will verify individual project eligibility, completeness, and readiness-to-proceed to implementation. The projects selected for this proposal were screened through the region's adopted prioritization process and 11 priority projects were identified. These 11 projects are grouped into programs indicating benefit type: water supply/recycled water (4 projects), water quality/stormwater (5 projects), natural resources and watersheds (1 project), and other (1 project). Implementation of these 11 projects will contribute to the attainment of the regional goals and objectives established in the 2007 San Diego IRWM Plan.

Should additional funding be made available from DWR through Proposition 84-Round 1, the San Diego IRWM region is confident that we can identify and provide detailed information on new projects not included herein or expanded scope of existing proposed projects for that funding.

	APPLICANT INFORMATION TAB		
AP	APPLICANT INFORMATION		
~	Organization Name	San Diego County Water Authority	
~	Tax ID	95-600276	
✓	Proposal Name	San Diego IRWM Implementation Grant Proposal	
√	Proposal Objective	The San Diego IRWM Region is committed to implementing the goals and objectives established in the San Diego IRWM Plan, including (1) optimizing water supply reliability, (2) protecting and enhancing water quality, (3) providing stewardship of natural resources, and (4) coordinating and integrating water resources management. The project prioritization process used to select from the IRWM project list emphasized integration, benefits to DACs, and engaging partners. Through this process, stakeholders identified 11 projects for funding.	
		The objective of this proposal is to present a suite of projects that:	
		 Furthers the mission, vision, goals, and objectives established in the IRWM Plan; 	
		 Provides multiple benefits through integration of water management strategies; and 	
		 Assists in meeting the region's critical water supply, water quality, and natural resources needs. 	
		This proposal is a compilation of projects that will diversify water supply, improve water quality, restore native habitat, and coordinate data management. The water supply program will diversify water supplies	

Grant Application Checklist



		 through conservation and recycling projects and support adequate supplies to small water systems. The water quality program will reduce pollutants in stormwater runoff, receiving water bodies, and reservoirs. The natural resources program will improve surface water quality, ecosystem health, and flooding. The regional data management program will facilitate data management and coordination 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 programs integrates projects to address regional needs. Further, projects within each program contain synergies and linkages with other projects, resulting in a truly integrated suite of projects assists the region in meeting
BI	DGET	its critical water management needs in a real and measurable fashion.
 ✓	Other Contribution	\$3,057,873
✓		
	Local Contribution	\$5,988,454
~	Federal Contribution	\$0
~	In-kind Contribution	\$0
~	Amount Requested	\$7,900,000
✓	Total Project Cost	\$16,946,327
GE	OGRAPHIC INFORMATIC	N .
✓	Latitude	DD 32 MM 59 SS 33
✓	Longitude	DD -116 MM 55 SS 39
✓	Longitude/Latitude Clarification	http://itouchmap.com/latlong.html
~	Location	San Diego IRWM Region
✓	<u>County</u>	San Diego County
✓	<u>Groundwater Basin</u>	Batiquitos Lagoon Valley Campo Valley Cottonwood Valley El Cajon Valley Escondido Valley Mission Valley Otay Valleys Pamo Valley Potrero Valley Poway Valley Ranchita Town Area San Diego River Valley San Dieguito Creek San Elijo Valley San Luis Rey Valley San Marcos Area San Mateo Valley San Onofre Valley



✓ ✓	Hydrologic Region Watershed	San Pasqual Valley Santa Margarita Valley Santa Maria Valley Sweetwater Valley Tijuana Warner Valley South Coast Carlsbad Otay River Pueblo Penasquitos
		San Diego River San Dieguito River San Juan San Luis Rey River Santa Margarita River Sweetwater River Tijuana River
LE	GISLATIVE INFORMATIO	
~	State Assembly District	64, 66, 73, 74, 75, 76, 77, 78, 79
✓	State Senate District	36, 37, 38, 39, 40
~	<u>U.S. Congressional</u> <u>District</u>	45, 49, 50, 51, 52, 53
	AP	PLICANT INFORMATION AND QUESTIONS TAB
~	Q1. Proposal Description	The San Diego IRWM Region is committed to implementing the regional goals and objectives established in the 2007 San Diego IRWM Plan, including (1) optimizing water supply reliability, (2) protecting and enhancing water quality, (3) providing stewardship of our natural resources, and (4) coordinating and integrating water resources management. This <i>San Diego IRWM Implementation Grant Proposal</i> contains authorization documentation, proof of formal adoption, work plans, budgets, schedules, and other project details for each of the 11 projects proposed in this funding package.
		This proposal is a compilation of projects that will diversify water supply, improve water quality, restore native habitat, and coordinate data management throughout the region. The water supply program (4 projects) will serve two purposes (1) diversify water supplies through water conservation and recycling projects and (2) support adequate supplies to small water systems. The projects will together reduce dependence on water imports and enhance water supply reliability. The water quality program (5 projects) will enhance surface water quality by reducing pollutants in stormwater runoff, receiving water bodies, and reservoirs. The natural resources and watersheds program (1 project) will improve surface water quality, in addition to improving ecosystem health and reducing flooding hazards. The final project – a regional data management system – will facilitate data management and coordination throughout the San Diego IRWM region. Below is a listing of 11 proposed projects:



		Water Supply / Recycled Water
		1. Sustainable Landscapes Program
		2. North San Diego County Regional Recycled Water Project
		3. North San Diego County Cooperative Demineralization Project
		 Rural Disadvantaged Community (DAC) Partnership Project: This project directly addresses critical water supply and water quality issues for DACs in rural communities of San Diego.
		Water Quality / Stormwater
		5. Lake Hodges Water Quality and Quagga Mitigation Measures
		 Implementing Nutrient Management in the Santa Margarita River Watershed
		 Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection
		8. Pilot Concrete Channel Infiltration Project
		9. San Diego Regional Water Quality Assessment and Outreach Project
		Natural Resources and Watersheds
		 Chollas Creek Integration Project: This project directly addresses water quality, flooding, and ecosystem health issues for DACs in the disadvantaged Encanto neighborhood.
		Data Management
		11. Regional Water Data Management Program
✓	Q2. Project Director	Mark Stadler
		Principal Water Resources Specialist
		Water Resources Department
		San Diego County Water Authority 4677 Overland Avenue
		San Diego CA 92123
		(858) 522-6735
		MStadler@sdcwa.org
~	Q3. Project	Mark Stadler
	Management	Principal Water Resources Specialist
		Water Resources Department
		San Diego County Water Authority
		4677 Overland Avenue
		San Diego CA 92123
		(858) 522-6735 MStadler@sdcwa.org
\checkmark	Q4. Applicant Information	San Diego County Water Authority 4677 Overland Avenue
	momaton	San Diego CA 92123
		(858) 522-6735
✓	O5 Additional	
×	Q5. Additional	The projects within this proposal are located within the San Diego Funding Area.
	Information	
✓	Q6. Responsible	The San Diego IRWM Region lies within the San Diego Regional Water
~		

✓	Q7. Eligibility	The San Diego IRWM Implementation Grant Proposal has a funding match of approximately 35% of the total project cost.
~	Q8. Eligibility	Yes. The proposal represents a single application from the San Diego IRWM Region approved in the 2009 RAP cycle.
~	Q9. Eligibility	Yes. As described in Attachment 2, the San Diego County Water Authority is a local agency as described in Appendix B of the Guidelines.
 ✓ 	<u>Q10. Eligibility</u>	The urban water suppliers that will receive funding from the proposed grants include: San Diego County Water Authority, City of San Diego, and Olivenhain Municipal Water District. Self-certification forms for the San Diego County Water Authority and Olivenhain Municipal Water District have been submitted previously and approved by DWR. Self certification forms for the City of San Diego have been submitted with the proposal.
 ✓ 	Q11. Eligibility	Yes. The San Diego County Water Authority, the City of San Diego, and Olivenhain Municipal Water District have all submitted and received verification of a complete 2005 UWMP by DWR. All three urban water suppliers will submit an updated 2010 UWMP consistent with the 2010 Guidebook by the July 1, 2011 extension.
~	Q12. Eligibility	Yes. The urban water suppliers that will receive funding from the proposed grants include: San Diego County Water Authority, City of San Diego, and Olivenhain Municipal Water District. Self-certification forms for the San Diego County Water Authority and Olivenhain Municipal Water District have been submitted previously and approved by DWR. Self certification forms for the City of San Diego have been submitted with the proposal.
✓	Q13. Eligibility	No.
✓	Q14. Eligibility	N/A
~	Q15. Eligibility	Yes, the San Diego Region receives imported water supplies through the State Water Project.
~	Q16. Eligibility	Yes, the San Diego IRWM Plan reduces dependence on future additional imported water supplies through water conservation, source substitution, and recycling.
~	Q17. Eligibility	Yes, expected future San Diego IRWM Plan updates will continue to reduce dependence on Delta water supplies.
		PROJECTS TAB
	WA	ATER SUPPLY / RECYCLED WATER PROGRAM
1. 6	PROJECT BENEFITS INFO	DRMATION
✓	Project Name	Sustainable Landscapes Program
✓	Benefit Type	Water Use Efficiency – Conservation-Water Demand/Conservation
✓	Benefit Level	Primary
 ✓ 	Description	The Sustainable Landscapes Program is a multifaceted project that consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants. Implementation of the Sustainable Landscapes Program will aid the region in decreasing reliance on imported water supplies, improving water efficiency, and reducing pollutant discharges into watersheds. Proposed program elements include:



		1. Development of Landscape Standards and Specifications;
		2. Creation of Education Materials and Provision of Landscape Training;
		3. Provision of Technical Assistance;
		4. Retrofit Incentives;
		5. Provision of Landscape Materials; and
		6. Stakeholder Outreach/Involvement.
✓	Measurement	174 AFY
BU	DGET	
~	Other Contribution	\$0
✓	Local Contribution	\$350,000
~	Federal Contribution	\$0
✓	In kind Contribution	\$0
~	Grant Funds Requested	\$1,050,000
~	Total Project Cost	\$1,400,000
GE	OGRAPHIC INFORMATIC	N .
~	Latitude	DD 32 MM 49 SS 47
~	Longitude	DD -117 MM 7 SS 27
~	Location	This regional project will be implemented throughout the San Diego IRWM region, including San Diego County Water Authority service area and County of San Diego unincorporated lands.
~	<u>County</u>	San Diego County
V	<u>Groundwater Basin</u>	Batiquitos Lagoon Valley Campo Valley Cottonwood Valley El Cajon Valley Escondido Valley Mission Valley Otay Valleys Pamo Valley Potrero Valley Poway Valley Ranchita Town Area San Diego River Valley San Diego River Valley San Elijo Valley San Luis Rey Valley San Marcos Area San Mateo Valley San Mateo Valley San Pasqual Valley Santa Margarita Valley Santa Marja Valley Santa Maria Valley Sweetwater Valley



		Tijuana Warner Valley
✓	Hydrologic Region	South Coast
~	<u>Watershed</u>	Carlsbad Otay River Pueblo Penasquitos San Diego River San Dieguito River San Juan San Luis Rey River Santa Margarita River Sweetwater River Tijuana River
LEC	GISLATIVE INFORMATIO	N
✓	State Assembly District	66, 73, 74, 75, 76, 77, 78, 79
✓	State Senate District	36, 38, 39, 40
~	U.S. Congressional District	49, 50, 51, 52, 53
2. F	PROJECT BENEFITS INFO	DRMATION
✓	Project Name	North San Diego County Regional Recycled Water Project
✓	Benefit Type	Water Use Efficiency – Recycling-Water Supply Enhancement
✓	Benefit Level	Primary
×	Description	The North San Diego County Regional Recycled Water Project will provide for a comprehensive recycled water program by consolidating North San Diego recycled water projects to meet a regional need. Over time, the 11 project partners have developed separate and possibly redundant recycled water systems throughout northern San Diego County. This project will conduct a systems assessment of the recycled water systems of each partner, and develop recommendations for projects that interconnect and maximize use of recycled water within the combined service area. By integrating our recycled water systems throughout the North County subregion, the partners will maximize existing/planned infrastructure and resources while minimizing redundant costs. By working together, the reliability of recycled water supply will be vastly improved. This project enables the partners to ensure that all recycled water produced in the subregion is efficiently and effectively distributed to customers. The purpose of the <i>North San Diego County Regional Recycled Water</i> <i>Project</i> is to produce a regional recycled water project supported by the 11 project partners. This project will provide a sustainable, reliable, water resource for North San Diego County.
✓	Measurement	4,440 AFY
BU	DGET	
✓	Other Contribution	\$0



✓	Local Contribution	\$500,000
✓	Federal Contribution	\$0
✓	In kind Contribution	\$0
✓	Grant Funds Requested	\$1,500,000
✓	Total Project Cost	\$2,000,000
GE	OGRAPHIC INFORMATIC	N
✓	Latitude	DD 33 MM 8 SS 40.0194
✓	Longitude	DD -117 MM 12 SS 27.5034
✓	Location	Northern San Diego County
✓	County	San Diego County
~	Groundwater Basin	Batiquitos Lagoon Valley, Escondido Valley, San Dieguito Creek, San Elijo Valley, San Luis Rey Valley, San Marcos Area
✓	Hydrologic Region	South Coast
✓	Watershed	San Luis Rey River, Carlsbad, San Dieguito River, Peñasquitos
LE	GISLATIVE INFORMATIO	N
✓	State Assembly District	66, 73, 74, 75
✓	State Senate District	36, 38
~	<u>U.S. Congressional</u> <u>District</u>	49, 50
3. 1	PROJECT BENEFITS INFO	ORMATION
✓	Project Name	North San Diego County Cooperative Demineralization Project
✓	Benefit Type	Water Use Efficiency – Recycling-Water Quality Improvement
✓	Benefit Level	Primary
V	<u>Description</u>	The North San Diego County Cooperative Demineralization Project is needed to (1) create sustainable and diverse local water supplies, (2) provide salinity and nutrient management to the North San Diego County coastal region, (3) address existing high total dissolved solids (TDS) issues in recycled water (which is currently in excess of requirements in the Water Quality Control Plan for the San Diego Basin 9 [Basin Plan]), (4) divert urban runoff and first flush storm water from the San Elijo Lagoon, a 303(d)-listed water body, (5) divert urban runoff and first flush storm drain (Solana Beach), which has a chronic history exceeding REC-1 water quality bacterial standards, and (6) reduce wastewater discharge to the Pacific Ocean.
		The purpose of the <i>North San Diego County Cooperative Demineralization</i> <i>Project</i> is to (1) construct a demineralization facility at the San Elijo Water Reclamation Facility (SEWRF) to increase recycled water production by 560 AFY and allow the SEWRF to accept high-TDS pollutant streams without impacting permitted limits, (2) construct storm water diversion structures to divert two identified sources of polluted runoff to the SEWRF for treatment in the near-term and additional locations in the future, (3) perform a feasibility study for an 1120 AFY brackish to potable water desalination facility, and (4)



		provide monitoring of water quantity and quality in the San Elijo Lagoon, a 303(d)-listed water body.
~	Measurement	560 AFY
BU	IDGET	
~	Other Contribution	\$2,990,373
~	Local Contribution	\$1,344,427
~	Federal Contribution	\$0
✓	In kind Contribution	\$0
✓	Grant Funds Requested	\$1,050,000
✓	Total Project Cost	\$5,384,800
GE	OGRAPHIC INFORMATIC	DN
~	Latitude	DD 33 MM 0 SS 58.4994
✓	Longitude	DD -117 MM 16 SS 23.988
✓	Location	San Elijo Water Reclamation Facility in Encinitas, and stormwater diversion structures located in Encinitas and Solana Beach
✓	County	San Diego County
✓	Groundwater Basin	Batiquitos Lagoon Valley, San Dieguito Creek, San Elijo Valley
✓	Hydrologic Region	South Coast
~	Watershed	Carlsbad, San Dieguito River
LE	GISLATIVE INFORMATIO	N
~	State Assembly District	74, 75
✓	State Senate District	38
✓	U.S. Congressional District	50
4.	PROJECT BENEFITS INFO	ORMATION
~	Project Name	Rural Disadvantaged Community (DAC) Partnership Project
~	Benefit Type	Other – Improved Water Supply Facilities
✓	Benefit Level	Primary
~	Description	Rural communities within the San Diego IRWM Region unincorporated areas have water quantity 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 watewater treatment results in unplanned discharge events. The goal of the <i>Rural DAC Partnership Project</i> is to 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.



		DACs for available infrastructure projects, while promoting IRWM Plan
		goals.
		The <i>Rural DAC Partnership Project</i> will organize a stakeholder committee to identify and select a minimum of two rural DAC projects that address critical water quality or quantity infrastructure improvements. Emphasis will be given to projects ready to be constructed. The project 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.
✓	Measurement	.000025 mgd
BU	DGET	
✓	Other Contribution	\$0
~	Local Contribution	\$30,000
~	Federal Contribution	\$0
~	In kind Contribution	\$0
✓	Grant Funds Requested	\$500,000
~	Total Project Cost	\$530,000
GE	OGRAPHIC INFORMATIC	DN
~	Latitude	DD 33 MM 0 SS 0
~	Longitude	DD -117 MM 0 SS 0
~	Location	Rural (unincorporated) areas in County of San Diego.
~	<u>County</u>	San Diego County
×	<u>Groundwater Basin</u>	Batiquitos Lagoon Valley Campo Valley Cottonwood Valley El Cajon Valley Escondido Valley Mission Valley Otay Valleys Pamo Valley Potrero Valley Potrero Valley Poway Valley Ranchita Town Area San Diego River Valley San Dieguito Creek San Elijo Valley San Luis Rey Valley San Marcos Area San Mateo Valley San Mateo Valley San Pasqual Valley Santa Margarita Valley Santa Marja Valley

		Sweetwater Valley
		Tijuana
		Warner Valley
✓	Ludralagia Degian	
v	Hydrologic Region	South Coast
~	Watershed	Carlsbad
		Otay River
		Pueblo
		Penasquitos
		San Diego River
		San Dieguito River
		San Juan
		San Luis Rey River
		Santa Margarita River
		Sweetwater River
		Tijuana River
LEC	GISLATIVE INFORMATIO	N
~	State Assembly District	66, 73, 74, 75, 76, 77, 78, 79
~	State Senate District	36, 38, 39, 40
✓	U.S. Congressional	49, 50, 51, 52, 53
	<u>District</u>	
	I	WATER QUALITY / STORMWATER PROGRAM
5. P	PROJECT BENEFITS INFO	ORMATION
~	Project Name	Lake Hodges Water Quality and Quagga Mitigation Measures
~	Benefit Type	Eradication/Treatment of Invasive Species
~	Benefit Level	Primary
•	<u>Description</u>	The Lake Hodges Water Quality and Quagga Mitigation Measures project is needed to protect a nearly \$200 million investment in infrastructure that has been constructed to enhance San Diego County's ability to cope with a significant water supply outage. The Lake Hodges Pumped Storage projects were constructed between 2005 and 2010 and tie Lake Hodges to the Olivenhain Reservoir via a 1.25 mile pipeline and 40MW hydroelectric facility/pump station. Quagga mussels present in Olivenhain Reservoir can travel to Lake Hodges and San Dieguito Reservoir and will increase
		maintenance costs at all facilities attached to those water bodies. Mitigation measures are necessary to protect ability to transfer water between reservoirs and generate power. In addition, water quality improvements within Lake Hodges will be considered to improve the reservoir's usability as a reliable local source and address the water body's 303(d), impaired water body, listing.
✓	Measurement	maintenance costs at all facilities attached to those water bodies. Mitigation measures are necessary to protect ability to transfer water between reservoirs and generate power. In addition, water quality improvements within Lake Hodges will be considered to improve the reservoir's usability as a reliable local source and address the water body's 303(d), impaired water
	<u>Measurement</u> DGET	maintenance costs at all facilities attached to those water bodies. Mitigation measures are necessary to protect ability to transfer water between reservoirs and generate power. In addition, water quality improvements within Lake Hodges will be considered to improve the reservoir's usability as a reliable local source and address the water body's 303(d), impaired water body, listing.
		maintenance costs at all facilities attached to those water bodies. Mitigation measures are necessary to protect ability to transfer water between reservoirs and generate power. In addition, water quality improvements within Lake Hodges will be considered to improve the reservoir's usability as a reliable local source and address the water body's 303(d), impaired water body, listing.



✓	Federal Contribution	\$0
✓	In kind Contribution	\$0
✓	Grant Funds Requested	\$900,000
✓	Total Project Cost	\$1,200,000
GE	OGRAPHIC INFORMATIC	DN
✓	Latitude	DD 33 MM 3 SS 28.6194
✓	Longitude	DD -117 MM 7 SS 2.46
√	Location	Lake Hodges Reservoir, Olivenhain Reservoir, San Dieguito Reservoir, Lake Hodges Pump Station/Hydroelectric Facility, connecting pipelines, and related facilities.
✓	<u>County</u>	San Diego County
✓	Groundwater Basin	San Pasqual Valley, San Dieguito Creek
✓	Hydrologic Region	South Coast
✓	Watershed	San Dieguito River
LE	GISLATIVE INFORMATIO	N
~	State Assembly District	74, 75
~	State Senate District	38
~	U.S. Congressional District	50
6. I	PROJECT BENEFITS INFO	ORMATION
✓	Project Name	Implementing Nutrient Management in the Santa Margarita River Watershed
✓	Benefit Type	Watershed Assessments
✓	Benefit Level	Primary
Ý	<u>Description</u>	Nitrogen and phosphorous loading from the Santa Margarita River 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 (N), phosphorus (P), or eutrophication. Addressing these adverse effects requires use of appropriate water quality objectives (WQOs) based on the level of nutrients a waterbody can sustainably assimilate. The Nutrient Numeric Endpoint (NNE) framework, an alternative regulatory approach advocated by State Water Resources Control Board and U.S. Environmental Protection Agency Region 9, is currently under development. The <i>Implementing Nutrient Management in the Santa Margarita River Watershed</i> project will address data gaps inherent in the NNE framework and refine nutrient WQOs for the watershed. The <i>Implementing Nutrient Management in the Santa Margarita River Watershed</i> project aims to establish nutrient WQOs for the Santa Margarita River estuary (Phase I) and ultimately watershed (Phase II) that will lead to the implementation of nutrient reduction and water conservation practices in the watershed.
~	Measurement	N/A

BL	IDGET	
✓	Other Contribution	\$67,500
✓	Local Contribution	\$172,500
✓	Federal Contribution	\$0
~	In kind Contribution	\$0
~	Grant Funds Requested	\$450,000
~	Total Project Cost	\$690,000
GE	OGRAPHIC INFORMATIC	N
✓	Latitude	DD 33 MM 13 SS 52.7874
✓	Longitude	DD -117 MM 24 SS 57.5994
✓	Location	Santa Margarita River Watershed
✓	County	San Diego County
✓	Groundwater Basin	Santa Margarita Valley
~	Hydrologic Region	South Coast
~	Watershed	Santa Margarita River
LE	GISLATIVE INFORMATIO	N
~	State Assembly District	64, 66, 73
~	State Senate District	36, 37, 38
~	<u>U.S. Congressional</u> <u>District</u>	45, 49
7. F	PROJECT BENEFITS INFO	DRMATION
~	Project Name	Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection
~	Benefit Type	Stormwater Flood – Water Quality Improvement
~	Benefit Level	Primary
	<u>Description</u>	The goal of the Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection project is to reduce the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek Watershed. The load reduction goal will be achieved by diverting stormwater from the street to bioretention and treatment planters through curb cutouts. Enhanced streets will infiltrate storm flows through pervious pavement, which will reduce storm flows. These goals will also be achieved by diverting flows through a trash segregation unit and a series of AbTech (Bacterial Treatment System) units within the watershed.
~	<u>Measurement</u>	1,095 AFY
	DGET	
~	Other Contribution	\$0
~	Local Contribution	\$2,893,300



✓	Federal Contribution	\$0
✓	In kind Contribution	\$0
✓	Grant Funds Requested	\$650,000
✓	Total Project Cost	\$3,543,300
GE	OGRAPHIC INFORMATIC	N .
✓	Latitude	DD 32 MM 49 SS 55.2
✓	Longitude	DD -117 MM 11 SS 38.4
✓	Location	Tecolote Creek Watershed
✓	<u>County</u>	San Diego County
✓	Groundwater Basin	N/A
✓	Hydrologic Region	South Coast
✓	Watershed	Peñasquitos
LE	GISLATIVE INFORMATIO	N
✓	State Assembly District	76
✓	State Senate District	39
~	<u>U.S. Congressional</u> <u>District</u>	50
8. F	PROJECT BENEFITS INFO	ORMATION
✓	Project Name	Pilot Concrete Channel Infiltration Project
✓	Benefit Type	Stormwater Flood – Water Quality Improvement
✓	Benefit Level	Primary
~	Description	The <i>Pilot Concrete Channel Infiltration Project</i> will convert a portion of the concrete channel in Woodglen Vista Creek (and other channels as budget/logistics permit) to a more porous base, facilitating infiltration of dry weather flows without compromising flood control capacity.
		The San Diego River has a TMDL for bacteria and bacteria spikes have been noted in the Woodglen Vista Creek Channel, a location proposed for this pilot project. The proposed <i>Pilot Concrete Channel Infiltration Project</i> is expected to reduce bacteria levels through infiltration.
		If this project is successful, then this technique can be used at other similar locations throughout the San Diego River watershed, resulting in a cumulative benefit to water quality and augmenting groundwater supplies.
✓	Measurement	2.42 AFY
BU	DGET	
✓	Other Contribution	\$0
~	Local Contribution	\$83,400
~	Federal Contribution	\$0
~	In kind Contribution	\$0



✓	Grant Funds Requested	\$250,000
~	Total Project Cost	\$333,400
GE	OGRAPHIC INFORMATIC	N
✓	Latitude	DD 32 MM 50 SS 7.224
✓	Longitude	DD -116 MM 58 SS 24.96
~	Location	City of Santee
~	<u>County</u>	San Diego County
~	Groundwater Basin	San Diego River Valley , El Cajon Valley
~	Hydrologic Region	South Coast
~	Watershed	San Diego River
LEO	GISLATIVE INFORMATIO	N
✓	State Assembly District	77
~	State Senate District	36
~	<u>U.S. Congressional</u> District	52
9. F	PROJECT BENEFITS INFO	ORMATION
✓	Project Name	San Diego Regional Water Quality Assessment and Outreach Project
✓	Benefit Type	Water and Sediment Quality – Surface Water Quality Samples Taken
✓	Benefit Level	Primary
~	<u>Description</u>	The San Diego Regional Water Quality Assessment and Outreach Project brings together community members to understand and actively participate in the monitoring of their watershed health. Critical funding through Proposition 84 builds on San Diego CoastKeeper's established citizen volunteer water quality monitoring program and continues important regional water quality assessment, baseline data acquisition, and analysis to support effective water quality management and source and non-point source pollution identification and reduction.
		The San Diego Regional Water Quality Assessment and Outreach Project addresses the growing information and involvement gap between water agencies and the community. The project will close this gap by promoting volunteer monitoring that uses accepted monitoring and analytical methodologies, increasing public awareness and understanding of water quality data, and conducting youth and community events such as World Water Monitoring Day.
~	Measurement	N/A
BU	DGET	
~	Other Contribution	\$0
~	Local Contribution	\$167,000
~	Federal Contribution	\$0



✓	In kind Contribution	\$0
✓	Grant Funds Requested	\$500,000
~	Total Project Cost	\$667,000
GE	OGRAPHIC INFORMATIC)N
✓	Latitude	DD 32 MM 45 SS 51.588
~	Longitude	DD -117 MM 10 SS 12.2874
✓	Location	San Diego IRWM Region
✓	County	San Diego County
V	<u>Groundwater Basin</u>	Batiquitos Lagoon Valley Campo Valley Cottonwood Valley El Cajon Valley Escondido Valley Mission Valley Otay Valley Pamo Valley Potrero Valley Poway Valley Ranchita Town Area San Diego River Valley San Dieguito Creek San Elijo Valley San Luis Rey Valley San Luis Rey Valley San Marcos Area San Mateo Valley San Mateo Valley San Pasqual Valley Santa Margarita Valley Santa Margarita Valley Santa Maria Valley Sweetwater Valley Tijuana Warner Valley
~	Hydrologic Region	South Coast
~	Watershed	Carlsbad Otay River Pueblo Penasquitos San Diego River San Dieguito River San Juan San Luis Rey River Santa Margarita River Sweetwater River Tijuana River

LE	GISLATIVE INFORMATIO	Ν
✓	State Assembly District	66, 73, 74, 75, 76, 77, 78, 79
~	State Senate District	36, 38, 39, 40
~	U.S. Congressional District	49, 50, 51, 52, 53
	NATU	RAL RESOUCRES AND WATERSHEDS PROGRAM
10.	PROJECT BENEFITS INF	ORMATION
✓	Project Name	Chollas Creek Integration Project
✓	Benefit Type	River Channel Restoration
✓	Benefit Level	Primary
 Image: A start of the start of	<u>Description</u>	The Chollas Creek Integration Project is needed to address water quality, flooding, and habitat protection concerns within the DACs surrounding Chollas Creek. The Chollas Creek watershed has been subject to urban runoff pollution and hydromodification by adjacent landowners and poor maintenance over the past few decades. Through analysis of hydrologic conditions and identification of pollution prevention strategies, these concerns will be addressed. Further, development of a stakeholder-driven water management process will benefit the disadvantaged communities by engaging them in the identification of key watershed issues and priorities.
		The purpose of the <i>Chollas Creek Integration Project</i> is to gather and generate scientific data and stakeholder input to form an integrated planning process for the Pueblo Hydrologic Unit that will establish implementation strategies. This project will also restore riparian habitat and improve flood management in Chollas Creek Section 2A in order to improve environmental health/safety, surface water quality, and availability of green open space for the Encanto area, a disadvantaged urban community. The project improves and maintains Chollas Creek as a natural urban drainage system that serves as a major conduit for stormwater runoff from its headwaters in La Mesa and Lemon Grove to San Diego Bay.
✓	Measurement	N/A
BU	DGET	
✓	Other Contribution	\$0
~	Local Contribution	\$94,500
~	Federal Contribution	\$0
~	In kind Contribution	\$0
~	Grant Funds Requested	\$900,000
~	Total Project Cost	\$994,500
GE	OGRAPHIC INFORMATIC	DN
~	Latitude	DD 32 MM 42 SS 35.6394
~	Longitude	DD -117 MM 4 SS 53.724
~	Location	Chollas Creek

✓	County	San Diego County
✓	Groundwater Basin	Sweetwater Valley
✓	Hydrologic Region	South Coast
✓	Watershed	Pueblo
LE	GISLATIVE INFORMATIO	Ν
✓	State Assembly District	76, 78, 79
✓	State Senate District	36, 39, 40
~	U.S. Congressional District	51, 52, 53
		DATA MANAGEMENT PROGRAM
11.	PROJECT BENEFITS INF	ORMATION
✓	Project Name	Regional Water Data Management Program
✓	Benefit Type	Other – Data bases developed
✓	Benefit Level	Primary
×	Description	During the development of the 2007 San Diego IRWM Plan, stakeholders identified that establishing a regional, web-based data management system was a short-term priority necessary to address immediate needs of the region. It was recognized that there is a multitude of monitoring and sampling programs in place throughout the region, the degree to which data generated by such efforts is shared varies. The result can be duplication of data collection efforts or the failure to identify and address significant gaps in data collection and analysis. The idea is that a web-based system will make data instantly available to interested stakeholders and will facilitate data sharing by transmitting data through user-friendly features. Rather than relying on agency-to-agency data transfers, the web-based system can act as a central clearinghouse for information.
~	Measurement	N/A
BU	DGET	
~	Other Contribution	\$0
✓	Local Contribution	\$53,327
~	Federal Contribution	\$0
✓	In kind Contribution	\$0
~	Grant Funds Requested	\$150,000
✓	Total Project Cost	\$203,327

GE	OGRAPHIC INFORMATIC	DN
✓	<u>Latitude</u>	DD 32 MM 45 SS 25.7034
✓	Longitude	DD -117 MM 15 SS 31.8954
✓	Location	San Diego IRWM Region
✓	<u>County</u>	San Diego County
×	<u>Groundwater Basin</u>	Batiquitos Lagoon Valley Campo Valley Cottonwood Valley El Cajon Valley Escondido Valley Mission Valley Otay Valleys Pamo Valley Potrero Valley Potrero Valley Poway Valley Ranchita Town Area San Diego River Valley San Dieguito Creek San Elijo Valley San Luis Rey Valley San Luis Rey Valley San Matcos Area San Mateo Valley San Mateo Valley San Pasqual Valley Santa Margarita Valley Santa Margarita Valley Santa Maria Valley Sweetwater Valley Tijuana Warner Valley
~	Hydrologic Region	South Coast
· ·	<u>Watershed</u>	Carlsbad Otay River Pueblo Penasquitos San Diego River San Dieguito River San Juan San Luis Rey River Santa Margarita River Sweetwater River Tijuana River
LE	GISLATIVE INFORMATIO	
~	State Assembly District	66, 73, 74, 75, 76, 77, 78, 79
~	State Senate District	36, 38, 39, 40
~	U.S. Congressional	49, 50, 51, 52, 53



	<u>District</u>	
		APPLICATION ATTACHMENTS TAB
~	Attachment 1: Authorization and Eligibility Documentation	Att1_IG1_SanDiegoIRWM_Eligible_1of1.pdf
~	Attachment 2: Adopted Plan and Proof of Formal Adoption	Att2_IG1_SanDiegoIRWM_Adopt_1of1.pdf
~	Attachment 3: Work Plan	Att3_IG1_SanDiegoIRWM_WorkPlan_1of1.pdf
~	Attachment 4: Budget	Att4_IG1_SanDiegoIRWM_Budget_1of1.pdf
~	Attachment 5: Schedule	Att5_IG1_SanDiegoIRWM_Schedule_1of1.pdf
~	Attachment 6: Monitoring, Assessment, and Performance Measures	Att6_IG1_SanDiegoIRWM_Measures_1of1.pdf
~	Attachment 7: Economic Analysis- Water Supply Costs and Benefits	Att7_IG1_SanDiegoIRWM_WSBen_1of1.pdf
~	Attachment 8: Water Quality and Other Expected Benefits	Att8_IG1_SanDiegoIRWM_WQOtherBen_1of1.pdf
•	Attachment 9: Economic Analysis-Flood Damage Reduction Costs and Benefits	Att9_IG1_SanDiegoIRWM_DReduc_1of1.pdf
~	Attachment 10: Cost and Benefits Summary	Att10_IG1_SanDiegoIRWM_BSummary_1of1.pdf
~	Attachment 11: Program Preferences	Att11_IG1_SanDiegoIRWM_Preference_1of1.pdf
~	Attachment 12: Disadvantaged Community Assistance	Att12_IG1_SanDiegoIRWM_DAC_1of1.pdf
~	Attachment 13: AB 1420 and Water Meter Compliance Information	Att13_IG1_SanDiegoIRWM_AB1420_1of1.pdf
~	Attachment 14: Consent Form	Att14_IG1_SanDiegoIRWM_Consent_1of1.pdf
•	Attachment 15: Delta Water	Att15_IG1_SanDiegoIRWM_Delta_1of1.pdf

Authorization and Eligibility Requirements



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

San Diego Integrated Regional Water Management Implementation Grant Proposal Authorization and Eligibility Requirements

Attachment 1 consists of the following items:

- ✓ Authorization and Eligibility Requirements. This attachment consists of authorizing documentation, eligible applicant documentation, Groundwater Management Plan (GWMP) compliance, Urban Water Management Plan (UWMP) compliance, AB 1420 and water meter compliance, groundwater monitoring program, consent form for IRWM Plan Update, and consistency with the adopted IRWM Plan.
- Resolution. Resolution 2010-19 authorizes the San Diego County Water Authority to submit this San Diego IRWM Implementation Grant Proposal and execute an agreement with the State of California for IRWM planning activities (see Appendix 1-1).
- Memorandum of Understanding. The adopted Memorandum of Understanding for the Integrated Regional Water Management Grant Program for FYs 2009-2013 gives the San Diego County Water Authority overall responsibility for managing the San Diego IRWM program and submitting all applications to the State on behalf of the parties (see Appendix 1-2).
- Consistency with San Diego IRWM Plan. To demonstrate consistency with the 2007 San Diego IRWM Plan, this proposal includes the IRWM Plan Amendment addressing the addition of new projects to the project list, the Proposition 84 Project Selection Workgroup Suggested Criteria for Workgroup Consideration, and the package of recommended projects that were recommended through the project selection process for this proposal (see Appendix 1-3).

Authorizing Documentation

Resolution 2010-19 was adopted by the San Diego County Water Authority Board of Directors on December 9, 2010 and authorizes the Water Authority to submit this San Diego IRWM Implementation Grant Proposal and execute an agreement with the State of California for IRWM planning activities (see Appendix 1-1).

Eligible Applicant Documentation

This San Diego IRWM Implementation Grant Proposal is being submitted by the San Diego County Water Authority (SDCWA). Per the adopted Memorandum of Understanding for the Integrated Regional Water Management Grant Program for FYs 2009-2013, the Regional Water Management Group (RWMG) – comprised of the City of San Diego, the County of San Diego, and SDCWA – determined that SDCWA shall have overall responsibility for submitting all applications to the State on behalf of the parties (see Appendix 1-2). SDCWA is also submitting this grant proposal on behalf of the following non-RWMG entities:

- Jacobs Center for Neighborhood Innovation
- City of Santee
- San Diego Coastkeeper
- Rural Community Assistance Corporation
- Olivenhain Municipal Water District
- San Elijo Joint Powers Authority



SDCWA's qualifications as an eligible applicant in accordance with IRWM Program Guidelines are as follows:

- 1. SDCWA is a local agency as defined in Appendix B of the IRWM Grant Program Guidelines. SDCWA is the regional water wholesale agency within San Diego County, whose mission is to provide a safe and reliable supply of water to its 24 member agencies.
- 2. SDCWA is a county water district organized and existing under Division 12, commencing with §30000, of the California Water Code. SDCWA was organized under the County Water Authority Act of 1943 to serve as the San Diego Region's water wholesaler.
- 3. SDCWA has legal authority to enter into a grant agreement with the State of California. Per the adopted *Memorandum of Understanding for the Integrated Regional Water Management Grant Program for FYs 2009-2013*, the RWMG determined that SDCWA shall have overall responsibility for submitting all applications to the State on behalf of the parties (see Appendix 1-2). Resolution 2010-19 authorizes SDCWA to submit this San Diego IRWM Implementation Grant Proposal and execute an agreement with the State of California for implementation of identified water resource projects (see Appendix 1-1).
- 4. SDCWA, the City of San Diego, and the County of San Diego jointly developed and adopted a *Memorandum of Understanding for the Integrated Regional Water Management Grant Program for FYs 2009-2013* (see Appendix 1-2). This MOU replaced the original MOU (dated June 13, 2005), as amended, between SDCWA, the City, and the County for FYs 2005-2009 of the IRWM Grant Program which formed the RWMG and directed the development of the 2007 IRWM Plan. Section 3a of the MOU states that the "Water Authority shall have overall responsibility for administering the Proposition 50 Program grants in the San Diego Region unless other mutually agreeable arrangements are made with the granting agencies or among the Parties. Administrative tasks include contracting with the State and Parties, coordinating and submitting reports, and responding to any audit requests by the granting agency." Should the San Diego IRWM Region receive a Proposition 84 Implementation Grant, the MOU will be amended to define roles and responsibilities for management of Proposition 84 grant funds.

GWMP Compliance

None of the eleven projects included within this San Diego IRWM Implementation Grant Proposal require compliance with or development of a GWMP, because they would not involve groundwater management or recharge. These projects fall within the categories of natural resources and watersheds, water quality/stormwater, water supply, recycled water, and other. As such, these projects do not propose any direct action with regards to groundwater, and would not directly impact groundwater, either positively or negatively.

UWMP Compliance

There are three urban water suppliers included as project proponents within this *San Diego IRWM Implementation Grant Proposal*, including: SDCWA, City of San Diego, and Olivenhain Municipal Water District. As required by the Urban Water Management Planning Act (CWC §10610 *et seq.*), each of these agencies submitted and received approval by the Department of Water Resources (DWR) of a complete 2005 UWMP. Each of these entities will continue to comply with the Act by submitting a 2010 UWMP to DWR by the July 1, 2011 deadline. Per these requirements, the three water suppliers listed above are currently eligible to receive grant funds.

AB 1420 Compliance

As defined in the *IRWM Grant Program Guidelines*, AB 1420 conditions the receipt of IRWM grant funds on implementation of demand management measures in compliance with CWC §10631. There are three urban water suppliers included in this grant proposal which must also comply with AB 1420 requirements: SDCWA, City of San Diego, and Olivenhain Municipal Water District. Per these requirements, each water supplier has submitted AB 1420 compliance forms (see Attachment 13).



Water Meter Compliance

As defined in the *IRWM Grant Program Guidelines*, CWC §529.5 requires urban water suppliers applying for IRWM grant funds to demonstrate that they meet the State's water meter requirements. There are three urban water suppliers included in this grant proposal which must also comply with Water Meter requirements: SDCWA, City of San Diego, and Olivenhain Municipal Water District. Per these requirements, each of these water suppliers has submitted Water Meter compliance forms (see Attachment 13).

Groundwater Monitoring Program

As defined in the *IRWM Grant Program Guidelines*, CWC §10920 establishes a groundwater monitoring program designed to monitor and report groundwater elevations. The RWMG has been coordinating with local water suppliers in the San Diego region to identify the appropriate reporting entity for eligible groundwater basins.

IRWM Plan Update Consent

Projects included within this grant proposal are part of the 2007 San Diego IRWM Plan, which meets the condition of being adopted before September 30, 2008. As amended January 13, 2010, the San Diego IRWM Plan allows for periodic updates to the list of water management projects as new funding opportunities arise (see Appendix 1-3). The San Diego IRWM project list is currently hosted online at: http://irwm.wrime.com/sdirwm/login.php. The San Diego IRWM project list is currently hosted online at: http://irwm.wrime.com/sdirwm/login.php. The RWMG is committed to entering into a binding agreement with DWR to update the Plan within two years of the assumed award date of the grant (by June 1, 2011) to meet the IRWM Plan standards contained in the Guidelines (see Attachment 14). In addition, the RWMG has undertaken all reasonable and feasible efforts to take into account water-related needs of disadvantaged communities (DACs) within the San Diego IRWM region.

Consistency with Adopted IRWM Plan

Projects included within this grant proposal are part of the 2007 San Diego IRWM Plan. As amended January 13, 2010, the San Diego IRWM Plan allows for periodic updates to the list of water management projects as new funding opportunities arise (see Appendix 1-3). The San Diego IRWM project list is currently hosted online at: http://irwm.wrime.com/sdirwm/login.php.

The IRWM project list is now available 'live' on the online project database for project sponsors to review and update at any time. Any project sponsor may submit a project for inclusion in the Plan and/or an upcoming grant opportunity. This makes it easier for sponsors to add or revise projects, integrate their projects with others, or add additional features so the projects provide multiple benefits. As funding opportunities are pursued, the RWMG announces a new 'Call for Projects' with a submittal deadline. The Project Selection Workgroup then reviews, ranks, and tiers the submitted projects and recommends which ones to include within a specific grant application. All grant applications, including proposed funding package, are submitted to the Regional Advisory Committee (RAC) for its consideration and recommendation. The ultimate approval of the application and funding package lies with SDCWA's Board of Directors, the agency authorized to submit grant applications on behalf of the RWMG.

The Project Selection Workgroup selected by the RAC extensively reviewed and ranked all projects submitted to the online project database by the August 2, 2010 deadline. Each project submitted by August 2, 2010 was ranked using the *Prop 84 Project Selection Workgroup Suggested Criteria for Workgroup Consideration* (Appendix 1-3), which was reviewed and approved by the RAC at a public meeting, and developed through an open and transparent process. Each project submitted within this grant proposal was prioritized and recommended by the Project Selection Workgroup, with the final decision regarding the funding package voted upon by the RAC at a public meeting. Appendix 1-3 also contains the recommended package of projects that was put together by the Project Selection Workgroup, and meeting notes from the RAC meeting where the funding package was voted upon.

Section F of the IRWM Plan describes the prioritization process used to identify a top tier of priority projects. While this process ranked projects based on ability to address regional objectives and other criteria, the process does not identify specific groups of projects for which funding should be sought. The

reason for this is twofold: first, prioritizing projects for a specific funding application in the Plan would limit the versatility of the prioritization process for use in identifying projects for future funding opportunities; and second, as the IRWM Plan is intended to be a living document, the prioritization process should remain flexible, such that it may be adapted to changing regional needs.

A supplemental prioritization process is implemented to identify appropriate projects from the Tier 1 project list to be included in future funding applications as they arise. This process was used in the selection of projects for this *San Diego IRWM Implementation Grant Proposal*. The details of this process are fluid, and should reflect the specific needs and requirements of the given funding opportunity. The following were included as criteria for prioritizing high priority projects for inclusion in funding applications.

- Program Preferences. Funding programs frequently outline specific goals and objectives.
- *Regionalism*. Projects with Region-wide beneficiaries may be preferable to those with only local beneficiaries when applying for funding as a region.
- *Degree of Benefit.* The degree and scale of benefit provided by a project may be an important deciding factor in prioritizing projects for funding.
- Degree of Negative Impact. Though a project may provide significant benefits, the degree and scale of negative impacts caused by a project may be an important factor in prioritizing projects.
- *Contribution to Measurable Targets*. Contribution to achieving the region's specific, measurable targets for several areas of water resources management.
- *Cost-effectiveness.* Both short- and long-term cost-effectiveness, as well as potential externalized costs to the public, may be a factor for consideration in prioritization.
- *Readiness to Proceed.* Some funding opportunities require projects to be at a specific point in development, while other opportunities may be targeted toward planning-level projects.
- *Amount Leveraged.* This ability to leverage other projects and/or funding is one potential screening criterion considered in developing a funding application.

As appropriate, the Project Selection Workgroup incorporated these and other prioritization criteria to narrow the pool of high priority projects from the Plan-level prioritization to develop funding applications. These criteria may be applied in multiple ways. Some prioritization criteria are essential to a project's success in achieving the Region's objectives and/or being eligible for funding, and others are necessary to ensure that Regional projects also line up with the State's program preferences. The criteria used, and precise method for applying the criteria, are determined by the Project Selection Workgroup designated by the RAC for each specific funding opportunity.

Proposed Funding Package

As described above, the Project Selection Workgroup used the San Diego IRWM Plan as its guidebook in evaluating and selecting projects for this *San Diego IRWM Implementation Grant Proposal*. All projects proposed within this funding package are consistent with and help to implement the goals and objectives laid out in the IRWM Plan. Table 1-1 (below) provides an overview of the IRWM Plan goals and objectives and Table 1-2 (below) demonstrates that all of the projects included within this proposal would directly meet at least three of those objectives. The proposed funding package includes:

Project 1: Sustainable Landscapes Program. This program is designed to reduce water waste and pollutant infiltration into local waterways through the development and implementation of landscape standards and specifications generally consistent with the CA Model Water Efficient Landscape Ordinance and the San Diego RWQCB Municipal Stormwater Permit.

Project 2: North San Diego County Regional Recycled Water Project. This project is a plan by North San Diego County water and wastewater agencies to regionalize recycled water systems by identifying 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.

Project 3: North San Diego County Cooperative Demineralization Project. This project is focused on developing new local water supplies and managing water quality issues by constructing advanced water treatment facilities at the SEWRF to mitigate high TDS sources and beneficial reuse and studying the feasibility of brackish to potable water desalination in North San Diego County.

Project 4: Rural Disadvantaged Community (DAC) Partnership Project. 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.

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures. This project is intended to address two issues centered within the San Dieguito hydrologic unit. The first is how to improve low water quality within Lake Hodges. The second is how to mitigate against the potential long term effects of quagga mussels on Lake Hodges, San Dieguito Reservoir, Olivenhain Reservoir, and attached facilities.

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed. The project aims to establish nutrient WQOs for SM estuary (Phase I) and ultimately watershed (Phase II) that will lead to the implementation of nutrient reduction and water conservation practices in the watershed. The project consists of three major activities: Form and facilitate discussions among a SMR watershed stakeholder group to guide project activities, conduct monitoring and special studies to address data gaps identified by stakeholders to achieve project objectives, and develop nutrient WQOs for the SMR estuary.

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection. The goal of this project is to reduce the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek Watershed. The load reduction goal will be achieved by diverting stormwater from the street to bioretention and treatment planters through curb cutouts. Enhanced streets will infiltrate storm flows through pervious pavement, which will reduce storm flows. These goals will also be achieved by diverting flows through a trash segregation unit and a series of AbTech (Bacterial Treatment System) units within the watershed.

Project 8: Pilot Concrete Channel Infiltration Project. This project will convert a portion of the concrete channel in Woodglen Vista Creek (and other channels as budget/logistics permit) to a more porous base, facilitating infiltration of dry weather flows without compromising flood control capacity. This effort will assist in the attainment of bacteria TMDL waste loading allocations.

Project 9: San Diego Regional Water Quality Assessment and Outreach Project. This project will engage community stakeholders to collect and analyze surface water samples in eight to nine watersheds throughout San Diego County and conduct trash removal in these areas. Samples will be analyzed for physical, chemical, bacterial, dissolved metals and nutrient constituents, as well as toxicity and bioassessment indicators. Resultant water quality data will be publically accessible to support public involvement in water resource conservation and stewardship of watershed function and health.

Project 10: Chollas Creek Integration Project. This project will gather and generate scientific data and stakeholder input to form an integrated planning process for the Pueblo Hydrologic Unit that will update the *Chollas Creek Enhancement Program* and establish implementation strategies. Further, this project will restore native habitat and reduce flooding hazards within Chollas Creek (Section 2A), which will provide baseline data for future water quality and habitat improvements. The project improves and maintains Chollas Creek as a natural urban drainage system that serves as a major conduit for stormwater runoff in the disadvantaged Encanto community.

Project 11: Regional Water Data Management Program. The goal of this program is to provide a snapshot of current data management efforts and prioritize data needs and lay them out in a basic design parameters recommendations document for the future development of a regional, web-based system for sharing, disseminating and supporting the analysis of water management data and information.

		Primary IR	WM Plan Goals	Implemented b	y Objective
	IRWM Plan Objective	Goal 1: Optimize water supply reliability	Goal 2: Protect and enhance water quality	Goal 3: Provide stewardship of our natural resources	Goal 4: Coordinate and integrate water resource management
А	Maximize stakeholder/community involvement and stewardship	0	0	•	•
В	Effectively obtain, manage, and assess water resource data and information	0	0	0	•
С	Further the scientific and technical foundation of water quality management	0	0	•	•
D	Develop and maintain a diverse mix of water resources	•			0
Е	Construct, operate, and maintain a reliable water infrastructure system	•			0
F	Minimize the negative effects on waterways and watershed health caused by hydromodification and flooding		•	0	0
G	Effectively reduce sources of pollutants and environmental stressors		•	0	0
Н	Protect, restore and maintain habitat and open space	0	0	٠	0
Ι	Optimize water-based recreational opportunities		0	0	•

Table 3-1: San Diego IRWM Plan Goals and Objectives

• Primary IRWM Plan goal targeted by Plan objective

· Additional IRWM Plan goals targeted by objective

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

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• = directly related; • = indirectly related

RESOLUTION No. 2010-19

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN DIEGO COUNTY WATER AUTHORITY AUTHORIZING THE GENERAL MANAGER TO SUBMIT A PROPOSITION 84 IRWM IMPLEMENTATION GRANT APPLICATION

WHEREAS, Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*), authorized the California Legislature to appropriate \$1 billion to encourage integrated regional water management planning in California; and

WHEREAS, Section 83002(b)(3)(A)(i) of the California Water Code appropriated to the Department of Water Resources (DWR) funds for integrated regional water management (IRWM) planning grants and other purposes; and

WHEREAS, DWR has made these funds available through a grant program that allocates specific amounts of money to 11 funding areas located throughout California, including the San Diego Funding Area; and

WHEREAS, grant application procedures established by DWR require applicants to provide a copy of a resolution adopted by the applicant's governing body designating an authorized representative to file an application for an IRWM implementation grant; and

WHEREAS, achieving IRWM grant funding will help to achieve the regional water supply goals established in the Water Authority's 2005 Urban Water Management Plan; and

WHEREAS, the San Diego Regional Water Management Group (RWMG), in close cooperation with the Regional Advisory Committee (RAC), is preparing an application for a Proposition 84 grant to further water supply reliability, water quality enhancement, natural resources stewardship, and water resource management in the region; and

WHEREAS, on October 6, 2010, the RAC recommended that the Water Authority Board authorize submittal of the San Diego Region's application for a round one Proposition 84 implementation grant; and

WHEREAS, the memorandum of understanding that established the San Diego IRWM Program identifies the Water Authority as the program's authorized representative; and

WHEREAS, the Water Authority Board of Directors is the decision-making body for the Water Authority; and

WHEREAS, the Board of Directors has considered the reports submitted by Water Authority staff on IRWM planning dated February 14, 2007; May 16, 2007; July 18, 2007; September 19, 2007; January 16, 2008; June 18, 2008; December 10, 2008; January 14, 2009; March 18, 2009; August 19, 2009; October 14, 2009; July 14, 2010; September 15, 2010; and December 9, 2010.

Appendix 1-1: SDCWA Authorization

NOW, THEREFORE, the Board of Directors of the San Diego County Water Authority resolves the following:

- 1. The foregoing facts are true and correct.
- 2. The General Manager is authorized to prepare the necessary data, conduct investigations, and submit a Proposition 84 implementation grant application.
- 3. The General Manager is authorized to enter into an agreement to receive a round one Proposition 84 implementation grant from the California Department of Water Resources.

PASSED, APPROVED AND ADOPTED, this 9th day of December, 2010, by the following vote:

AYES: Unless otherwise noted, all Directors present voted aye.

NOES: None

ABSTAIN: None

ABSENT: Directors Boyle and Petty.

Chair

ATTEST:

Amite chard Smith

Secretary

I, Doria F. Lore, Clerk of the Board of the San Diego County Water Authority, certify that the vote shown above is correct and this Resolution No. 2010-<u>19</u> was duly adopted at the meeting of the Board of Directors on the date stated above.

Doria F. Lore Clerk of the Board

San Diego Integrated Regional Water Management Prop 84 Grant Application Project List

Project Title	Project Sponsor	Functional Area	Project Summary Grant A	Recommended Grant Amount
Chollas Creek Integration Project – Phase 1 (DAC)	Jacobs Center for Neighborhood Innovation	Natural Resources and Watersheds	l n ection	000'006\$
Integrated Flood Control and Water Quality Protection Program	City of Santee	Water Quality/ Stormwater	Introducing a pervious base to concrete channels will allow dry weather flows to be treated, infiltrate, replenishing groundwater \$2, supplies and preventing pollutants from being discharged to the river.	\$250,000
Bannock Avenue Neighborhood Streetscape Improvements & Bacteria Treatment for Tecolote Creek Watershed Protection	City of San Diego - Storm Water	Water Quality/ Stormwater	Installation of 6" pervious concrete sidewalk, one hydrodynamic separator, 550 bio-retention cells at two each residence, one high volume bacterial filtration storm water and perforated storm drain pipe connecting BMPs. This system will be designed to capture the storm water runoff from the first 0.25 inch of rainfall to increase storrage/infiltration capacity for the bio-retention areas.	\$650,000
Implementing Nutrient Management in the Santa Margarita River Watershed - Phase I	County of San Diego	Water Quality/ Stormwater	This project will use a scientific, stakeholder-based process to set nutrient WQOs for the watershed and implement nutrient reduction and water conservation practices. Benefits include: 1) reduction of NPS runoff & eutrophication, 2) water conservation, 3) habitat/open space protection/restoration, 4) proof-of-concept for a science-based approach to establish nutrient WQOs, & 5) stakeholder buy in.	\$450,000
Lake Hodges Water Quality and Quagga Mittgation Measures	San Diego County Water Authority	Water Supply/Drinking Water Quality	7	000'006\$
San Diego Regional Water Quality Assessment and Outreach Project, 2010 (DAC)	San Diego Coastkeeper	Water Quality/ Stormwater	This project continues work by Coastkeeper as part of the Prop 50 funding cycle and will engage community stakeholders to collect and analyze surface water samples in nine watersheds and conduct trash removal in these areas. Samples will be analyzed for chem, bacti, toxicity, bio assessment and metals. Water quality data collected will be accessible to support public involvement and stewardship.	\$500,000

Appendix 1-1: SDCWA Authorization

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\$7,900,000				Total
\$150,000	The Regional Water Management Group (RWMG) proposes to partner with local agencies and non-governmental organizations (NGOs) to implement a Regional Water Data Management Program that benefits the region. The Regional Water Data Management Program would develop a web-based system to make water supply and water quality data instantly available to interested stakeholders and facilitate data sharing.	Data Management	County of San Diego	Regional Water Data Management Program
\$1,050,000	The North San Diego County Cooperative Demineralization Project will construct advanced water treatment at the SEWRF for salinity management, production expansion, stormwater treatment and pollution mitigation. The SEWRF demineralization facility will provide integral logistics and technical data to assist OMWD with planning and design efforts for a future brackish water desalination facility.	Recycled Water/Water Supply	San Elijo Joint Powers Authority	North San Diego County Cooperative Demineralization Project
\$1,500,000	The North San Diego County Recycled Water Project - Phase II involves preparation of a Recycled Water Facilities Plan that will consolidate the numerous recycled water projects being developed by 11 project partners into an integrated and comprehensive recycling program. This project involves planning, engineering, and environmental review for creation of 10,000 AFY of recycled water supply.	Recycled Water/Water Supply	Olivenhain Municipal Water District	San Diego North Regional Recycled Water Project
\$500,000	RCAC will organize a committee to identify and select the neediest DACs within the Tri-County IRWMP watershed for project development. RCAC will assist rural DACs with project development, project oversight and access to resources, including financial resources other than Prop 84. e.g. USDA-RD, tribal set-a-side, SRF and RCAC financial resources will be considered to leverage project funds.	Water Supply	Rural Community Assistance Corp (RCAC)	Rural Disadvantaged Community Partnership Project (DAC)
Grant Amount \$1,050,000	The SLP is a multifaceted project that consists of a suite of activities designed to reduce water waste and watershed pollutants. The proposed SLP consists of: standards development, development of educational resources (curriculum, materials and training), landscape technical assistance, retrofit incentive funding, and stakeholder involvement.	Conservation/ Water Supply	San Diego County Water Authority	Sustainable Landscapes Program

communities in the San Diego region.

Appendix 1-1: SDCWA Authorization

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MEMORANDUM OF UNDERSTANDING BETWEEN CITY OF SAN DIEGO COUNTY OF SAN DIEGO, and SAN DIEGO COUNTY WATER AUTHORITY for the INTEGRATED REGIONAL WATER MANAGEMENT PLAN AND GRANT PROGRAM For 2009-2013

This Memorandum of Understanding (MOU) between the San Diego County Water Authority (Water Authority); the City of San Diego, a municipal agency (City); and the County of San Diego, a political subdivision of the State of California (County) sets forth the respective roles of the Water Authority, City and County in regard to the Integrated Regional Water Management (IRWM) Plan and Grant Program. Water Authority, City and County are sometimes referred to in this MOU collectively as the "Parties" and individually as "Party."

This MOU replaces the Memorandum of Understanding (June 13, 2005), as amended, between City of San Diego, County of San Diego, and San Diego County Water Authority for Fiscal Years 2005-2009 for the IRWM Grant Program.

RECITALS:

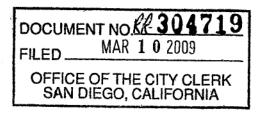
1. The California Legislature enacted SBX2 1 (Perata, Chapter 1 Statutes of 2008), the Integrated Regional Water Management Planning Act, which repealed and re-enacted Part 2.2 of Division 6 of the Water Code relating to integrated regional water management plans. SBX2 1 provides that a regional water management group may prepare and adopt an integrated regional water management (IRWM) plan.

2. In November 2002, Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act (Prop 50), authorized the Legislature to appropriate funding for competitive grants for IRWM projects.

3. In November 2006, Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Act (Prop 84), authorized the Legislature to appropriate funding for competitive grants for IRWM projects.

4. The intent of the IRWM Grant Program (Program) established in accordance with Prop 50 and SBX2 1 is to encourage integrated regional strategies for management of water resources and to provide funding, through competitive grants, for projects that protect communities from drought, protect and improve water quality, promote environmental stewardship, and improve local water security by reducing dependence on imported water.

5. To qualify as a regional water management group (RWMG) and comply with the Program Guidelines (Guidelines) established under Prop 50 and SBX2 1, at least three agencies must participate in the group; two of the agencies must have statutory authority over water management that may include water supply, water quality, flood control, or stormwater management.



6. In 2005, the Parties established an RWMG that consists of the Water Authority and City, both of which have statutory authority over water management, and County, which has statutory authority over water quality and flood control in the unincorporated area.

7. The Parties understand that only through a collaborative effort with the many stakeholders involved in water management planning can the IRWM Plan process be successful in the San Diego region.

8 As part of the public outreach and stakeholder involvement effort, the Parties established the Regional Advisory Committee (RAC), which comprises up to 30 representatives appointed by the Parties from the water management areas of water supply, water quality and natural resources/watersheds management; representatives of businesses, academia and tribes; and other interested members of the public. The purpose of the RAC is to make recommendations to the Parties on key issues related to IRWM planning and grant applications.

9. The Parties, acting with positive recommendations from the RAC, completed the 2007 San Diego IRWM Plan and submitted an implementation grant application (Application) under the second cycle of the Prop 50 IRWM Program. The Parties subsequently were awarded a \$25 million implementation grant application (Application) from the Department of Water Resources (DWR).

10. Prop 84 allocates an additional \$91 million dollars in grant funding for projects developed under the IRWM Plan for the San Diego Funding Area.

11. Prop 84 and Proposition 1E, the Disaster Preparedness and Flood Prevention Bond Act of 2006 (Prop 1E), which passed in 2006, include a combined \$575 million that will be available on a competitive basis statewide for regional flood management and stormwater projects that are consistent with an adopted IRWM Plan. DWR plans to have a single application for Prop 84 IRWM and flood management and Prop 1E stormwater-flood management grant funds.

12. The original MOU between the Parties did not provide funding to implement or update the IRWM Plan, administer the Prop 50 grant contract, or apply for Prop 84 and Prop 1E funding. This MOU consists of five major components: general grant obligations, 2007 San Diego IRWM Plan update, Prop 50 grant contract administration, the role of the RAC, and funding.

Now, therefore, in consideration of the above incorporated recitals and mutual obligations of the Parties herein expressed, the Parties agree as follows:

1. General grant obligations

- a. The Parties are equal partners in the development and submission of State grant applications, including the associated region acceptance process. All Parties shall have necessary reviews and approvals completed by their respective staff before submittal of grant applications.
- b. The Parties shall provide timely input on grant application reviews and approvals according to the schedule upon which they have mutually agreed. The grant

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applications shall be developed in accordance with the Guidelines and schedule established by DWR.

- c. Water Authority shall submit the grant applications to the State on behalf of the Parties.
- d. To expedite the grant application process, Water Authority shall provide initial funding for a consultant to develop the applications. The cost of the consultant and applications shall be shared by the parties consistent with Section 5 of this MOU.
- e. Water Authority shall be responsible for developing project lists and managing funding for its member agencies (except City).
- f. City shall be responsible for developing project lists and managing funding for projects that fall within City's jurisdictional boundaries, are located on City-owned property, or are projects in which City is involved as a partner.
- g. County shall be responsible for developing project lists and managing funding for regional non-governmental organizations, stormwater and watershed projects or projects not otherwise explicitly within the responsibilities of the Water Authority or City.
- h. Procurement of all work for the projects shall comply with the terms and conditions of the State Grant and all other applicable laws.

2. San Diego IRWM Plan update

- a. The Parties are equal partners in the update of the IRWM Plan (Plan). Water Authority shall contract with a consultant to update the Plan in compliance with the Guidelines and schedule established by DWR, and submit the updated Plan to the State.
- b. The update of the Plan shall be contingent upon receipt of additional funding.

3. Prop 50 grant contract administration

Definition: A Local Project Sponsor is a proponent of an individual project that will be funded as part of an IRWM Program grant from State. A local project sponsor may be Water Authority, County, City, a Water Authority member agency, a municipality or a non-governmental organization.

- a. The Water Authority shall have overall responsibility for administering the Prop 50 Program grants in the San Diego region unless other mutually agreeable arrangements are made with the granting agencies or among the Parties. Administrative tasks include contracting with the State and Parties, coordinating and submitting reports, and responding to audit requests by the grant agency.
- b. Each Party shall be responsible for managing grant projects as set forth in this section and for requiring adherence to the contractual requirements of the funding agency. A matrix of projects, Local Project Sponsors, and their administering Party is attached.
- c. A Party whose project is awarded Program funding, or who is managing the project of a Local Project Sponsor_that has been awarded Program funding, shall invoice the Water Authority, which shall in turn invoice the State. The Water Authority shall, within 60 days of receipt of funds from the State, disburse the funds to the Local Project Sponsor and provide notice of disbursement to Managing Party.

- d. The Parties agree to jointly hire a consultant to assist in administration of the Prop 50 Program grant received by the Region. These tasks include collecting necessary data, preparing required quarterly reports consistent with DWR guidelines and verifying invoices. The Parties shall participate in the consultant selection process and in development of the scope of work. All Parties shall be signatories to the consultant contract; the Water Authority shall be the lead Party for contract administration.
- e. The Parties shall pay for the consultant to assist in administration of the Prop 50 Program grants with a fund that comprises three percent of each individual project grant. To the extent that consultant costs exceed the amount in this fund, and the Parties mutually agree to the additional cost, they shall equally share these costs in accordance with Section 5a.
- f. All public works construction using Prop 50 Funds shall comply with all applicable laws for a "public work," including a Labor Compliance Program.
- g. If the State funds the Program at a level lower than the requested dollar amount and does not provide direction on which projects to fund, the Parties, in consultation with the RAC, shall reevaluate all projects and fund as determined by that reevaluation of projects and their integration into regional priorities and benefits.

4. Role of Regional Advisory Committee (RAC)

The RAC shall be considered the project advisory committee. The Parties are committed to a cooperative relationship with the RAC and will incorporate the RAC's consensus recommendations in draft documents prepared for presentations to the Parties' governing bodies. The Parties' governing bodies will give primary consideration to the recommendations of the RAC as part of any decision related to the following:

- a. Adoption of the updated IRWM Plan for the San Diego region.
- b. Development of the San Diego planning region for DWR's region approval process, which precedes grant applications under the combined Prop 84 and Prop 1E grant program.
- c. Criteria for prioritizing projects for funding under the Prop 84 and Prop 1E grant programs.
- d. Approval and submission of grant applications.
- e. Transition responsibility for implementation of the IRWM Plan to a new institutional structure.

5. Funding

- a. Funding under this agreement shall not exceed \$900,000; each Party shall provide an equal share in an amount not to exceed \$300,000. If costs to implement the MOU exceed \$900,000, the Parties shall contribute equally to a mutually agreed upon increase, the terms of which shall be set forth in an amendment to this MOU.
- b. In-kind services provided by the Parties shall be considered in excess of the above funding amounts. The Parties' staff shall separately document time spent on in-kind services for IRWM planning, administration and grant applications. There shall be no reimbursements for staff costs from Parties not providing the service.
- c. The costs of the MOU shall not include expenditures to administer the Prop 50 grant Program.
- d. Water Authority shall invoice City and County on a quarterly basis along with supporting documentation of expenses. City and County shall remit payment within 60 days of receipt of invoice.

6. Assignment

Parties shall not assign or transfer this MOU or any rights under or interest in this MOU without written consent of all other Parties, which may be withheld for any reason.

7. Defense and Indemnity

Water Authority, City, and County each agree to mutually indemnify, defend at its own expense, including attorneys' fees, and hold each other harmless from and against all claims, costs, penalties, causes of action, demands, losses and liability of any nature whatsoever, including but not limited to liability for bodily injury, sickness, disease or death, property damage (including loss of use) or violation of law, caused by or arising out of or related to any negligent act, error or omission, or willful misconduct of that party, its officers or employees, or any other agent acting pursuant to its control and performing under this Agreement.

Nothing in the foregoing shall be construed to require any Party to indemnify another for any claim arising from the sole negligence or willful act of the Party to be indemnified.

8. Document Review

Water Authority, City and County each shall make available for inspection to the other Parties, upon reasonable advance notice, all records, books and other documents relating to the Plan and the Program, unless privileged.

9. Term

The term of this MOU shall begin on the date of execution by all Parties and expire on December 31, 2013. The Parties agree to continue participating in the planning, development and coordination of the Plan and Grants to the maximum extent possible for the duration of the agreement. However, the term is contingent upon funding by Water Authority, City and County. In the event that future budget appropriations are not approved by one or more of the Parties or by DWR, this MOU shall terminate at the beginning of the fiscal year for which such appropriations are not made. The Parties shall notify each other of this event. Also, if appropriations are different than anticipated, MOU and Program funding shall be adjusted based on available funding.

This MOU may be extended upon mutual written agreement of all Parties.

10. Notice

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Any notice, payment, credit or instrument required or permitted to be given hereunder will be deemed received upon personal delivery or 24 hours after deposit in any United States mail depository, first class postage prepaid, and addressed to the Party for whom intended as follows:

If to the Water Authority:

If to City:

San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123 Attn: Mark Stadler

City of San Diego Water Department 600 B Street, Suite 600 San Diego, CA 92101 Attn: Cathy Pieroni

If to County

County of San Diego 5201 Ruffin Road, Suite P San Diego, CA 92123 Attn: Sheri McPherson

Any Party may change such address or contact by notice given to the other Parties as provided herein.

11. Amendments

The MOU may be amended as circumstances necessitate by written agreement executed by all Parties.

12. Severability

The partial or total invalidity of one or more parts of this MOU will not affect the intent or validity of this MOU.

13. Governing Law

This MOU shall be deemed a contract under the laws of the State of California and for all purposes shall be interpreted in accordance with such laws. Any action brought shall be in San Diego County, California.

14. Obligations

Nothing in this agreement shall create additional obligations with respect to the Plan or Program.

15. Termination of MOU

This MOU may be terminated by any Party hereto for any reason 30 days after notice in writing to the other Parties.

16. Signatures

The individuals executing this MOU represent and warrant that they have the legal capacity and authority to do so on behalf of their respective legal entities.

IN WITNESS WHEREOF, the Parties have executed this MOU as of the date below.

San Diego County Water Authority

By:

Ken Weinberg Director of Water Resources

City of San Diego

Bν

Downs Prior Principal Contract Specialist Purchasing & Contracting Department

3/25/09

County of San Diego

By ector Department of Public Works

APPROVED AS TO FORM:

ORIGINAL

San Diego County Water Authority

UN General Counsel

San Diego County Water Authority

City of San Diego

By: (

Raymond C. Palmucci Deputy City Attorney

County of San Diego By:

Senior Deputy County Counsel

25/2001 Date:

L 304719

San Diego Integrateral Regional Waitegrow Robit Project list For Proposition 50 grant funding

Project title	Local Project Sponsor	Administering party	
1 Implementation of Integrated	2		
Landscape & Agricultural Efficiency			
Programs	CWA	CWA	
2 Irrigation Hardware Giveaway		}	
and Dry Weather Runoff Reduction			
Demonstration	City of San Diego	City of San Diego	
3 Over-irrigation Runoff/Bacteria			
Reduction	City of Encinitas	CWA	
4 Santee Water Reclamation	Padre Dam Municipal Water		
Facility Expansion	District	CWA	
5 Recycled Water Retrofit			
Assistance Program	CWA	CWA	
6 Recycled Water Distribution		8	
System Expansion, Parklands		×	
Retrofit, and Indirect Potable Reuse/			
Reservoir Augmentation	City of San Diego	City of San Diego	
7 – San Vicente Reservoir Source			
Water Protection through Watershed	· ·		
Property Acquisition and Restoration			
Educational Demonstration Wetland	~~~~	50 A M A	
Project	CWA	CWA	
8 El Capitan Reservoir	Care Diana River Dark		
Watershed Acquisition and	San Diego River Park	City of Com Diama	
Restoration Program	Foundation	City of San Diego	
9 Northern San Diego County Invasive Non-Native Species	Mission Descures		
Control Program	Mission Resource Conservation District	County of Son Diago	
10 Santa Margarita Conjunctive	Conservation District	County of San Diego	
Use Project			
Green – San Dieguito	Fallbrook Public Utility District	CWA	
11 Carlsbad Desalination Project	Olivenhain Municipal Water		
Local Conveyance	District	CWA	
12 San Diego Region Four -	Biotriot		
Reservoir Intertie Conceptual			
Design	Sweetwater Authority	CWA	
13 - South San Diego County Water	onoothatorradionaly		
Supply Strategy	Sweetwater Authority	CWA	
14 El Monte Valley Groundwater			
Recharge and River Restoration			
Project – Phases 1 and 2	Helix Water District	CWA	
15 – San Diego Regional Pollution			
Prevention	San Diego Coastkeeper	County of San Diego	
16 Biofiltration Wetland Creation	Zoological Society of San	- county of our blogu	
and Education Program	Diego	County of San Diego	
17 San Dieguito Watershed			
Management Plan Implementation			
Project – Lake Hodges Natural			
Treatment System Conceptual	San Dieguito Watershed	0.	
Design	Council	City of San Diego	
18 Green Mall Porous Paving and		Sill of Ball Blogo	
Infiltration, Phase 1	City of San Diego	City of San Diego	
19 Chollas Creek Runoff	eny of our plogo		
Reduction and Groundwater			
		0	

RESOLUTION No. 10–002

RESOLUTION OF THE SAN DIEGO COUNTY BOARD OF SUPERVISORS AMENDING THE 2007 SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group (RWMG), in close cooperation with the Regional Advisory Committee (RAC), drafted the first San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance of water quality, provide stewardship of natural resources and coordinate and integrate water resource management in the region; and

WHEREAS, the San Diego IRWM Plan is the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water stakeholders; and

WHEREAS, carrying out the San Diego IRWM Plan and obtaining IRWM grant funding will help to achieve the County of San Diego Strategic Plan Environment Initiative; and

WHEREAS, the County of San Diego Board of Supervisors is the decision-making body for the County of San Diego; and

WHEREAS, on September 19, 2007, the RAC recommended that the RWMG governing bodies adopt the San Diego IRWM Plan; and

WHEREAS, the County of San Diego Board of Supervisor adopted the San Diego IRWM Plan at its November 7, 2007 meeting; and

WHEREAS, the RWMG would like to amend the San Diego IRWM Plan to facilitate the addition and revision of projects to the plan; and

WHEREAS, amendment of the San Diego IRWM Plan by the San Diego County Board of Supervisors will update the San Diego IRWM Plan in preparation for the San Diego Region's application for Proposition 84 and other potential funding; and

NOW, THEREFORE, LET IT BE RESOLVED that the County of San Diego Board of Supervisors resolves the following:

- 1. The 2007 San Diego Integrated Regional Water Management Plan is amended by the revision of the process for managing the IRWM project list as shown in Attachment 1.
- 2. Staff is directed to incorporate the amendment made by the resolution into the IRWM Plan.

APPROVED AS TO FORM AND LEGALITY COUNTY COUNSES.

SY Ton Bowoth CENCALERATY

ON MOTION of Supervisor Roberts, seconded by Supervisor Horn, the above Resolution was passed and adopted by the Board of Supervisors, County of San Diego, State of California, on this 13th day of January, 2010, by the following vote:

AYES: Cox, Jacob, Slater-Price, Roberts, Horn

STATE OF CALIFORNIA) County of San Diego)^{SS}

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the Board of Supervisors.

THOMAS J. PASTUSZKA Clerk of the Board of Supervisors

By:

No. 10-002

01/13/2010 (8)



Attachment 1 to Resolution 1

2007 San Diego IRWM Plan New text for Section G (Implementation):

G.5 Managing the IRWM Project List

Periodic updates to the list of water management projects must be made as new funding opportunities arise. Updating the project list will allow additional projects to be added, as project concepts are refined to address changing conditions and needs in the Region. This opportunity also will enable the project sponsors to revise their project submittals as necessary.

The San Diego IRWM project list is included in the Plan as Appendix 5. Any sponsor may submit a project for inclusion in the Plan. The Regional Water Management Group (RWMG) will decide whether to add a submitted project to Appendix 5 after reviewing it to ensure it is consistent with the Plan. The RWMG will notify the sponsor of its decision to accept or reject a project. This structure facilitates the addition of projects to the Plan. It also makes it easier for sponsors to add or revise projects, integrate their projects with others, or add additional features so the projects provide multiple benefits.

When the RWMG decides to submit an application for a grant or other funding opportunity, it will work with the Regional Advisory Committee (RAC) to form a technical workgroup that will review the projects in Appendix 5 and recommend which to submit for funding. All grant applications, including projects proposed for funding, will be submitted to the RAC for its consideration and recommendation. The ultimate approval of the application and projects submitted for funding lies with the Board of Directors of the San Diego County Water Authority, the agency authorized to submit grant applications on behalf of the RWMG.

Appendix 1-3: IRWM Project Selection



Prop 84 Project Selection Workgroup Suggested Criteria for Workgroup Consideration

Final September 16, 2010

The following table presents suggested criteria to be considered by the Workgroup in developing the funding application package. Criteria have been categorized as project-level criteria or proposal-level criteria will be used to evaluate individual projects while proposal-level criteria will be used to evaluate the proposal as a whole. It is anticipated that the ability of projects to address project-level criteria will be discussed during the second Workgroup meeting. The ability of the proposed funding application package to address the proposal-level criteria is scheduled for discussion during the third and forth Workgroup meeting.

Criteria	Suggested Workgroup Guidelines					
PROJECT-LEVEL CRITERIA						
Contribution to IRWM Plan Goals and Objectives	Select projects contribute to the attainment of IRWM Plan goals and objectives.					
Scientific and Technical Merit	Select projects that are well supported from a technical standpoint based on supporting studies and data.					
Budget	Select projects that have well-developed budgets and exhibit reasonable costs. Note that DAC projects are exempt from the 25% funding match requirement.					
Readiness to Proceed	Select projects that will be ready to proceed by December 2011.					
Contribution to Measurable Targets	Select projects that contribute to IRWM Plan targets.					
Cost-Effectiveness Water Supply Water Quality Flood Damage Reduction 	Select projects that are cost-effective on both the short- and long-term, and provide quantifiable benefits to the region.					
Program Preferences ^a	Select projects that implement Program Preferences and Statewide Priorities					
Benefits DACs	Select project addresses the critical water supply and water quality needs of DACs.					
Benefits Tribes	Select project addresses the water resources needs of San Diego area tribes.					

Appendix 1-3: IRWM Project Selection

Criteria	Suggested Workgroup Guidelines				
PROPOSAL-LEVEL CRITERIA					
Linkages to Other Projects	Proposal to include projects with synergies and linkages among them.				
Funding Match	Proposal to achieve an overall 25-30% funding match.				
Schedule	Proposal must include at least one project that will begin implementation by December 2011.				
Economic Analysis – Water Supply	Proposal to include projects that realize quantifiable water supply benefits.				
Economic Analysis – Water Quality and Other Expected Benefits	Proposal to include projects that realize quantifiable water quality and other expected benefits.				
Economic Analysis – Flood Damage Reduction	Proposal to include projects that realize quantifiable flood damage reduction benefits.				
Program Preferences ^a	Proposal to include a suite of projects that implements a combination of Program Preferences with a high degree of certainty.				
Geographic Parity	Proposal to include a suite of projects that will benefit hydrologic units across the Region.				
Regional Objectives	Proposal to include a suite of projects that addresses all IRWM Plan objectives.				
Degree of Negative Impact	Proposal to include a suite of projects that have minimal secondary or cumulative negative impacts, including those that occur over a longer time or distance.				
Amount Leveraged	Proposal to include a suite of projects that allow other projects to move forward.				

a. Program Preferences include:

- a) Include regional projects or programs
- b) Effectively integrate water management programs and projects within a region
- c) Effectively resolve significant water-related conflicts within or between regions
- d) Contribute to attainment of one or more objectives of the CALFED Bay-Delta Program
- e) Address critical water supply or water quality needs of disadvantaged communities in the region
- f) Effectively integrate water management with land use planning
- g) Projects which are not receiving State funding for flood control or flood prevention or provide multiple benefits
- h) Address Statewide Priorities, which include:
 - Drought preparedness
 - Use and reuse water more efficiently
 - Climate change response actions
 - Expand environmental stewardship
 - Practice integrated flood management
 - Protect surface water and groundwater quality
 - Improve tribal water and natural resources
 - Ensure equitable distribution of benefits

San Diego Integrated Regional Water Management Prop 84 Project Selection Workgroup

Prop 84-Round 1 Recommended Projects for Funding

ID	Project Title	Organization	Functional Area	Original Grant Request	Workgroup Gran Recommendatio	
181	Integrated Flood Control and Water Quality Protection	City of Santee	Flood Control	\$340,700	\$250,000	
159 & 186	Phase I - Chollas Creek Integration Project / Part A	Groundwork San Diego-Chollas Creek	Natural Resources and Watersheds	\$175,000	\$900,000	
	Phase I - Chollas Creek Integration Project / Part B	Jacobs Center for Neighborhood Innovation	Natural Resources and Watersheds	\$1,060,525		
92	Bannock Avenue Neighborhood Streetscape Improvements & Bacteria Treatment for Tecolote Creek Watershed Protection	City of San Diego Storm Water	Water Quality/ Stormwater	\$650,000	\$650,000	
187	Implementing Nutrient Management in the Santa Margarita River Watershed - Phase I	County of San Diego	Water Quality/ Stormwater	\$510,000	\$450,000	
478	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	Water Quality/ Stormwater	\$976,500	\$900,000	
26	San Diego Regional Water Quality Assessment and Outreach Project, 2010	San Diego CoastKeeper	Water Quality/ Stormwater	\$777,500	\$500,000	
175	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corp	Water Supply	\$1,050,000	\$500,000	
198 & 200 & 218*	Sustainable Landscapes - County of San Diego	County of San Diego	Water Supply	\$896,200	\$1,050,000	
	Sustainable Landscapes - City of San Diego, Water Conservation and Retention Rebate and Education Program	City of San Diego Public Utilities Dept.	Water Supply	\$525,000		
	Sustainable Landscapes Conversions Initiative	Assn of Compost Producers	Water Supply	\$200,000		
212	San Diego North Regional Recycled Water Project	Olivenhain Municipal Water District	Recycled Water	\$2,500,000	\$1,500,000	
213	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	Recycled Water	\$1,100,000	\$1,050,000	
208	Regional Water Data Management Program	County of San Diego	Other	\$150,000	\$150,000	
Total S	otal San Diego IRWM Implementation Grant Recommendation					

* Workgroup has not yet received confirmation from applicants of project integration/acceptance.

Appendix 1-3: IRWM Project Selection



Regional Advisory Committee Meeting #29 Notes

October 6, 2010, 9:00 a.m. – 11:00 a.m. San Diego County Water Authority 4677 Overland Avenue, San Diego, CA 92123

Attendance -

RAC Members

Kathleen Flannery, County of San Diego (chair) Anne Bamford, Industrial Environmental Association Craig Adams, San Dieguito River Valley Conservancy Doug Gibson, San Elijo Lagoon Conservancy Eric Larson, Farm Bureau San Diego County Jennifer Kovecses, San Diego CoastKeeper Toby Roy for Ken Weinberg, San Diego County Water Authority Kirk Ammerman, City of Chula Vista Linda Flournoy, Planning and Engineering for Sustainability Rob Roy, La Jolla Band of Indians Peggy Strand, Sweetwater Authority Mark Umphres for Mark Weston, Helix Water District Cathy Pieroni for Marsi Steirer, City of San Diego Rob Hutsel, San Diego River Park Foundation Bill Hunter, Santa Fe Irrigation District Mike Thornton, San Elijo Joint Powers Authority Rick Alexander, Sweetwater Authority Beth Principe, Mission Resources Conservation District

Non-Voting Members

Laurie Walsh, San Diego Regional Water Quality Control Board Jack Simes, United States Bureau of Reclamation

RWMG Staff

Cathy Pieroni, City of San Diego Jeffery Pasek, City of San Diego Jon Van Rhyn, County of San Diego Mark Stadler, San Diego County Water Authority Loisa Burton, San Diego County Water Authority Liana Whyte, San Diego County Water Authority Sheri McPherson, County of San Diego

Interested Parties to the RAC

Adam Hoch, San Elijo Joint Powers Authority Bill Hidemer, unknown Crystal Mohr, RMC Water and Environment Dan Noble, Association of Compost Producers Erica Ryan, City of San Marcos Greg Bullock, unknown Heather Parkison, RMC Water and Environment Joey Randall, Olivenhain Municipal Water District Kimberly O'Connell, University of California, San Diego Lauma Jurkevics, California Department of Water Resources Laura Carpenter, Brown & Caldwell Leslie Reynolds, Groundworks San Diego-Chollas Creek Myles Pomeroy, Groundworks San Diego-Chollas Creek Malik Tamimi, unknown Natalie De Freitas, City of San Diego Robyn Badger, Zoological Society of San Diego Rosalyn Stewart, RMC Water and Environment Sharon Hudnall, The Jacobs Center Sheri Miller, Rural Community Assistance Corporation Sue Reynolds, City of San Diego Wally Grabbe, Valley Center Municipal Water District

Introductions

Ms. Kathleen Flannery (chair), County of San Diego, welcomed everyone to the meeting and introduced several new members of the RAC: Jim Smyth, and his alternate Peggy Strand, of the Sweetwater Authority and Rob Roy of the La Jolla Band of Indians. Introductions were made around the room.

San Diego IRWM Updates

Proposition 50 Grant Administration

Ms. Loisa Burton, San Diego County Water Authority, announced that the first Proposition 50 grant contract amendment was executed by DWR on October 4, 2010. Additionally, the Proposition 50 grant web tool was launched on October 1, 2010, and the website is now being used to upload invoices and quarterly reports. The next deadline for reports and invoicing is October 15, 2010. Thus far, \$1.3 million of the Proposition 50 grant monies have been spent.

Proposition 84 Grant Opportunities

Ms. Rosalyn Stewart, RMC Water and Environment, explained DWR's proposed schedule for the Proposition 84 grant cycles. According to this schedule, DWR will release their draft recommendations for the Planning Grants in November 2010. DWR received 39 Planning Grant applications for Round 1, wherein approximately \$20 million will be available for distribution.

Ms. Stewart went on to explain the timeline for preparation of an Implementation Grant application. She explained that the Project Selection Workgroup had developed their recommendations and that later today, the RAC would vote to approve the recommendation. Afterward, the recommendation would be forwarded for approval by the SDCWA Board, who is

the grant applicant and contract administrator, as with Proposition 50. The proposal will then be compiled for the Implementation Grant application, which is due January 7, 2011.

Legislative and Policy Updates

Ms. Sheri McPherson, County of San Diego, explained that SB 346 pertains to the management of automotive brake pad particles on roadways, which is then transported in surface runoff. She also explained that the State Water Resources Control Board is working on developing a Trash Policy. Scoping and public comment will occur through November 3, 2010, so RAC members and interested parties are encouraged to take a look at the State's website. The State Water Resources Control Board is also planning to raise NPDES certification fees by 31%, so RAC members and interested parties are urged to follow the State's developments in regards to fees. Finally, the Regional Water Quality Control Board is planning to adopt a new MS4 permit for Riverside County, whose requirements may impact the local permit in the near future.

Ms. Cathy Pieroni, City of San Diego, explained that reservoir operators can face civil and criminal penalties for Quagga mussel infestations. AB 1929 recognizes that Quagga mussel infestations cannot be completely eradicated, but must be managed. SB 918 calls for uniform water recycling criteria – including groundwater recharge and indirect potable reuse to surface water – by December 2013. This bill provides for a better understanding and promotes an even approach to water reuse.

Ms. Pieroni then explained that two bills are no longer going forward. AB 1834 was a good attempt to hold landowners responsible for establishing rainwater capture systems, was not ready to go through and was vetoed. AB 2256 aimed to raise consumer awareness about what products were or were not flushable, but it did not move forward.

Implementation Grant Recommendation

Mr. Kirk Ammerman (chair of Project Selection Workgroup), City of Chula Vista, described the Project Selection Workgroup decision process and recommendation to the RAC. The project Selection Workgroup was made up of 9 representatives from the RAC (3 RWMG, 1 water retailer, 1 water quality, 2 watersheds and natural resources, and 2 at-large members). The Workgroup made a commitment to a democratic process, with the purpose of recommending a package of water management projects for the Proposition 84-Round 1 Implementation Grant proposal. Each and every project submitted to the online project database was seriously considered.

Mr. Ammerman stated that 70 initially projects were submitted, which were combined and revised into a total of 54 integrated projects after the Integration Workshop in early August. In total, \$34 million in grant funds were requested, but the San Diego Region only anticipates receiving \$7.9 million in Round 1.

The Project Selection Workgroup went through a two step process. First, each project was reviewed according to multiple project-level criteria, which included: contribution to the IRWM goals and objectives, scientific and technical merit, budget/cost effectiveness, readiness-to-proceed, and program preferences. The budget and readiness-to-proceed criteria considered the ability of a project to spend funds earlier rather than later. Second, the Workgroup applied multiple proposal-level criteria to the complete package of projects. These criteria included: linkages to other projects, total funding match, schedule, economic analysis, program

preferences, geographic parity, regional objectives, the degree of negative impact, and amount leveraged.

In the meetings, the Workgroup opted to review and identify Tier 2 projects for consideration. These were projects which did not meet initial screening, but were reviewed a second time with the entire project package in mind. After discussion and assessment of individual projects, specific questions were identified and asked of applicants. The Workgroup also considered both watershed group comments and responses from project proponents during review of the individual projects.

Finally, a short list of projects was nominated for the funding package and a list of "parked" projects – which were still being considered but did not rank as high as the nominated projects – was reviewed. The final package was then refined to ensure the package in its entirety met the proposal-level criteria described previously. In the end, 11 projects were recommended for funding by unanimous agreement, and the grant request totaled \$7.9 million.

Mr. Ammerman listed the 11 projects which comprise the recommended package, and highlighted their merits. A table of the projects was included in the handouts. The recommended package ensures that all watersheds are benefited by grant funding, and all but one IRWM objectives are addressed. The package did not directly address recreational activities; however, RAC members pointed out that the package would provide indirect benefits to recreational activities.

The Workgroup will follow up by conducting a debrief and listing suggestions to improve the project selection process, as well as by providing feedback to project proponents to help them compete more effectively for future grant funding. The goal is for this process to be one of bidirectional feedback.

Next steps include a vote by the RAC to approve of the recommended funding package, followed by a vote of the SDCWA Board. Should it gain approval from both bodies, the consultant will work with project sponsors to gather additional information and prepare the grant application.

Workgroup Discussion:

- Kirk Ammerman was thanked for doing an outstanding job chairing the Project Selection Workgroup.
- The process was one of screening, but not linear screening based on early impressions. Rather, projects moved around quite a bit (with use of the "parking lot" concept) and the outcome was in question up until the end. All projects were open for consideration.

RAC Discussion:

• RAC members were reminded that if a RAC member is a proponent for a project, he or she was expected to limit his or her comments to the facts, without advocating for a project. However, project proponents are welcome to vote in favor of a package containing their project.

** Motion to approve the recommended funding package identified by the Project Selection Workgroup was seconded and carried. RAC discussion and public comments followed prior to formal vote.

- The Navy supports inclusion of the Chollas Creek project within the funding package.
- How were watershed-specific projects considered within the funding package?
 - Watershed projects were considered based on the need identified in the watershed and the degree of benefit provided by the project.
 - The Regional Water Quality Monitoring project (CoastKeeper as lead) provides water quality monitoring across the Region's watersheds.
 - The Rural DACs Partnership project (RCAC as lead) offers technical support to small/disadvantaged communities in the eastern watersheds, including tribal groups.
- In the North San Diego Cooperative Demineralization Project (SEJPA as lead), the stormwater diversion of high coliform runoff to the SEJPA treatment plant would make cleaner water for recreation. Would that count as a recreational benefit?
 - Yes, but this diversion is an indirect benefit, not a direct benefit (i.e., provision of trail segment or fishing pier).
 - Almost all projects in funding package benefit recreation indirectly, but none did directly. Many projects had multiple objectives, but the Workgroup spent a lot of time sorting out the direct vs. indirect benefits of each project.

Public Comments:

- Project proponents would like feedback about why their projects did not make the cut in the recommended funding package.
 - The consultant will provide feedback from the Workgroup to project proponents.

** Upon noting a quorum, motion to vote to approve the recommended funding package by the Project Selection Workgroup was seconded. After agreeing to raise hands rather than knock for accurate accounting of such an important vote, the motion to vote was carried.

** Approval of the Recommended Funding Package was unanimous – 15 in favor with 1 abstention (non-voting member).

Additional Policy Considerations

Ms. Kathy Flannery introduced two additional policy considerations raised by the Workgroup.

If A Project Drops Out

Ms. Kathy Flannery explained that since a project could potentially drop out during application preparation, the RAC should decide on how this situation should be handled in advance. Two options were proposed: the grant funding for that project may be redistributed among the other projects in the approved package (since those projects all had their grant funding reduced), or new projects may be considered. Should the RAC agree upon the former option, the RAC must clarify if the reallocation is up to Workgroup discretion (up to \$500,000.00) or if the Workgroup would return with a recommendation for the RAC (over \$500,000.00).

RAC Discussion:

- What would the Workgroup have recommended in the funding package absent one project?
 - A Workgroup member explained that they reduced the grant request amounts from existing projects in order to meet the target (from \$11 million to \$7.9 million).
 - There may have been a few other projects considered, but these were the best projects for the funding package.
 - Many projects will also be good candidates for Round 2 funding.
 - The Workgroup looked at all Proposition 84 program criteria and local geographic balance to get to the funding package list that was recommended.
 - Every project submitted had merit. Tier 1 projects' requested grant funds totaled \$34 million. Using the funding target, the Workgroup narrowed down the projects to what was do-able and ended up with \$8.5 million, which was the further whittled down to \$7.9 million.
- In the Proposition 50 grant cycle when this occurred, the San Diego region reallocated funds within the same functional area.
- It seems as if there is no bright line between these and other submitted projects; Suggestion that had we had the funds, the Workgroup would have gone deeper.
 - Workgroup member acknowledged that they had to pull elements out of projects in order to reduce scope and budget to what was available.
 - Every project (except one) that was selected had to reduce the requested amount.
- There will be subsequent rounds of Proposition 84 funding to \$71 million. Some projects could develop stronger in a later round.
- Are decisions we make about this scenario's approach binding for subsequent rounds?
 - No. The Workgroup will be making suggestions for improving the selection process in the next round.
- The RAC clearly trusts the Workgroup's recommendation look at the unanimous approval of the recommended funding package. The Workgroup has an intimate knowledge of the projects, so we should support allowing Workgroup discretion up to \$500,000.00.

** Motion to rely on Workgroup discretion for reallocation of funds among the existing project list up to a \$500,000.00 maximum, should a project drop out. Over \$500,000.00, the Workgroup must make a recommendation to RAC. Further RAC discussion followed prior to formal vote.

- Request for an explanation of timing of potential project drop?
 - If a project proponent drops out during application preparation, it will mean an emergency RAC meeting is scheduled or a vote is taken via email.
- Request for clarification If a project drops out that is under \$500,000.00, the Workgroup makes the decision of how to reappropriate the funds within the current

funding package; if it is more than \$500,000.00, the Workgroup will make a recommendation to the RAC for approval?

- Yes, that is correct.
- Request for clarification Is this policy decision just for the Round 1 funding cycle?
 - Yes, that is correct.
 - The next round of funding will be tethered to the IRWM Plan Update planned for 2011 and 2012.

** Motion to take a vote was seconded and carried.

** Approval of the Reallocation Policy was unanimous – 15 in favor with 1 abstention (non-voting member).

For Possible Additional Funds (Beyond \$7.9 Million)

Ms. Kathy Flannery and Ms. Rosalyn Stewart explained that DWR could have extra money to distribute if all the IRWM Regions within the State are not able to submit an application. Ms. Stewart explained that it would be best if the San Diego Region were to preemptively explain in the grant application to be submitted in January that San Diego has a plan to use any extra funds available. Ms. Flannery asked the RAC to consider what process would be used to determine what should be done with any extra funding available from DWR.

RAC Discussion:

- Suggestion to reopen project submittal via online database to allow additional projects for consideration. Some project sponsors did not submit projects due to the limited \$7.9 million advertised as available.
 - Opposition voiced regarding opening of another Call for Projects.
- Would preemptive action be necessary to receive additional funds from DWR?
 - Unclear. DWR's proposal solicitation package is unclear how to address the potential additional funds within the grant application.
- Suggestion to include unspecific statement in grant application about San Diego Region's need for additional grant funds for many good projects.
 - We should keep it vague, so we can reassess if and when an offer of additional funds is made.
 - Yes, just be clear that we have a number of projects that can use funds.
 - We want a general statement that if there is money available, we are interested and ready. We should not include a recommended list of for additional funding.
- We could also indicate that we reduced each projects' grant request submitted in the proposal and those projects should be made whole.

** Motion to include a general statement that the San Diego Region would be ready to identify additional projects and/or make the recommended funding package whole, should additional funding be made available. Further RAC discussion and public comment followed prior to formal vote. • We must be clear that the projects' scope and budgets were reduced, but that San Diego is very confident that the projects will be successful. We should convey the message that the projects are stellar. Sometimes when funding is reduced, the job cannot get done, so we do not want DWR to think this will happen in San Diego.

** Amendment to motion: Strike mention of scope/budget reductions in current funding package and intent to make those projects whole.

- Reminder that \$71 million is assured for the San Diego Region through Proposition 84, but it is not wise to leave money on the table. The State has had cash flow problems in recent years and that may be an ongoing concern.
- A lot of this depends on the amount of additional money DWR has available to distribute. Remember that the money will go to our Funding Area and then be divided per our MOU.

Public Comments:

• Project proponents would like to see new projects funded if more money becomes available during Round 1.

** New Motion to include the following statement in the Implementation Grant Application: Should additional funding be made available from DWR through Prop 84-Round 1, the San Diego IRWM region is confident that we can identify and provide detailed information on new projects not included herein or expanded scope of existing proposed projects for that funding.

** Approval of the proposed statement was unanimous – 15 in favor with 1 abstention (non-voting member).

Administrative Question

Question was posed to the RAC as to whether the RAC would allow administration fees up to 5%, with 3% going to the SDCWA for overall grant administration and coordination and 2% going to the project sponsor.

** Motion to limit administration fees to 5%, with 3% going to the SDCWA for overall grant administration and 2% going to the project sponsor. Motion carried.

Next RAC Meeting

The next RAC meeting will be held on Wednesday December 1, 2010 from 9:00am to 11:30am at SDCWA's Board Room.

Public Comments

No additional comments.

Attachment 2

Adopted Plan and Proof of Formal Adoption



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Adopted Plan and Proof of Formal Adoption

Attachment 2 consists of the following item:

- Proof of Formal Adoption. The 2007 San Diego IRWM Plan was adopted by all three RWMG entities, as well as project proponents. Proof of formal adoption is included as Appendix 2-1.
- Appendix 2-1. This appendix contains formal resolutions for each of the RWMG entities and the project sponsors which indicate formal adoption of the IRWM Plan.

The RWMG agencies – San Diego County Water Authority, County of San Diego, and City of San Diego – formally adopted the 2007 San Diego IRWM Plan as follows:

- The San Diego County Water Authority Board of Directors adopted the Plan at a public meeting held on October 25, 2007, and amended on January 24, 2008 and January 13, 2010;
- The County of San Diego Board of Supervisors adopted the Plan at a public meeting held on November 7, 2007;
- The City Council for the City of San Diego adopted the Plan at a public meeting held on December 18, 2007.

The project sponsors that comprise this proposal also adopted the IRWM Plan as follows:

- The Board of Directors for San Diego Coastkeeper adopted the Plan on September 27, 2010;
- The Board of Directors for the Rural Community Assistance Corporation adopted the Plan on October 28, 2010;
- The San Elijo Joint Powers Authority Board of Directors adopted the Plan at a public meeting held on November 8, 2010;
- The Olivenhain Municipal Water District Board of Directors adopted the Plan at a public meeting held on November 17, 2010;
- The City Council for the City of Santee adopted the Plan at a public meeting held on December 15, 2010;
- The Jacobs Center for Neighborhood Innovation adopted the Plan on December 17, 2010.

Appendix 2-1 contains formal resolutions for each of the RWMG entities and the project proponents, which indicate formal adoption of the IRWM Plan.

This attachment does not contain documentation that the San Diego IRWM Plan was adopted consistent with CWC §10543, because the San Diego Region is not establishing eligibility with an IRWM Plan meeting current Plan Standards and Guidelines provisions. Rather, as described in Attachment 14, the RWMG will enter into a binding agreement with DWR to amend the Plan within two years of initiation of the Implementation Grant Agreement (assumed June 1, 2011).



Attachment 1

RESOLUTION No. _2007-_24

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN DIEGO COUNTY WATER AUTHORITY ADOPTING THE 2007 SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group (RWMG), in close cooperation with the Regional Advisory Committee (RAC), has drafted the first San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance of water quality, provide stewardship of natural resources and coordinate and integrate water resource management in the region; and

WHEREAS, the 2007 San Diego IRWM Plan defines the San Diego Region as the 11 parallel and similar hydrologic units with the county that discharge to coastal water; and

WHEREAS, the San Diego IRWM Plan establishes the plan's mission, vision, goals, objectives and regional priorities; and

WHEREAS, the San Diego IRWM Plan will form the foundation of long-term IRWM planning in the region, fostering coordination, collaboration and communication among governmental and non-governmental water stakeholders; and

WHEREAS, achieving IRWM grant funding will help to achieve the regional water supply goals established in the Water Authority's 2005 Urban Water Management Plan; and

WHEREAS, having an IRWM Plan in place will position the San Diego Region to compete for funding opportunities; and

WHEREAS, the Water Authority Board of Directors is the decision-making body for the Water Authority; and

WHEREAS, adoption of the San Diego IRWM Plan by the San Diego County Water Authority Board of Directors is a required element of the San Diego Region's application for Proposition 50, Chapter 8 funding; and

WHEREAS, the Water Authority Board of Directors accepted the public review draft IRWM Plan at its July 26, 2007 meeting; and

WHEREAS, on September 19, 2007, the RAC recommended that the Water Authority Board adopt the San Diego IRWM Plan; and

WHEREAS, the Board of Directors has considered the reports submitted by Water Authority staff on IRWM planning dated February 14, 2007; May 16, 2007; July 18, 2007; and September 19, 2007. NOW, THEREFORE, the Board of Directors of the San Diego County Water Authority resolves the following:

1. The foregoing facts are true and correct.

2. The Board of Directors adopts the final draft of the 2007 San Diego Integrated Regional Water Management Plan.

PASSED, APPROVED AND ADOPTED, this 25th day of October, 2007, by the following vote:

AYES: Unless noted below all Directors voted aye.

NOES:

ABSTAIN: Barrett and Pocklington

ABSENT: Brammell, Craver, Croucher, Lewinger, Martin (p), Muir, Petty and Price

Fern M. Steiner Chair

ATTEST:

Mark W. Watton Secretary

I, Doria F. Lore, Clerk of the Board of the San Diego County Water Authority, certify that the vote shown above is correct and this Resolution No. 2007-<u>24</u> was duly adopted at the meeting of the Board of Directors on the date stated above.

Doria F. Lore Clerk of the Board

Appendix 2-1: Proof of Formal Adoption

RESOLUTION No. _2008-_01

RESOLUTION OF THE BOARD OF DIRECTORS OF THE SAN DIEGO COUNTY WATER AUTHORITY ADOPTING THE AMENDED 2007 SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group (RWMG), in close cooperation with the Regional Advisory Committee (RAC), has drafted the first San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance of water quality, provide stewardship of natural resources and coordinate and integrate water resource management in the region; and

WHEREAS, the 2007 San Diego IRWM Plan defines the San Diego Region as the 11 parallel and similar hydrologic units with the county that discharge to coastal water; and

WHEREAS, the San Diego IRWM Plan establishes the plan's mission, vision, goals, objectives and regional priorities; and

WHEREAS, the San Diego IRWM Plan will form the foundation of long-term IRWM planning in the region, fostering coordination, collaboration and communication among governmental and non-governmental water stakeholders; and

WHEREAS, achieving IRWM grant funding will help to achieve the regional water supply goals established in the Water Authority's 2005 Urban Water Management Plan; and

WHEREAS, having an IRWM Plan in place will position the San Diego Region to compete for funding opportunities; and

WHEREAS, the Water Authority Board of Directors is the decision-making body for the Water Authority; and

WHEREAS, adoption of the San Diego IRWM Plan by the San Diego County Water Authority Board of Directors is a required element of the San Diego Region's application for Proposition 50, Chapter 8 funding; and

WHEREAS, on September 19, 2007, the RAC recommended that the Water Authority Board adopt the San Diego IRWM Plan; and

WHEREAS, the Water Authority Board of Directors adopted the San Diego IRWM Plan at its October 25, 2007 meeting; and

WHEREAS, subsequent to October 25, 2007, the San Diego IRWM Plan has been amended; and

WHEREAS, the Board of Directors has considered the reports submitted by Water Authority staff on IRWM planning dated February 14, 2007; May 16, 2007; July 18, 2007; September 19, 2007; October 25, 2007; and January 24, 2008.

NOW, THEREFORE, the Board of Directors of the San Diego County Water Authority resolves the following:

1. The foregoing facts are true and correct.

2. The Board of Directors adopts the 2007 San Diego Integrated Regional Water Management Plan, as amended, dated January 24, 2008, and on file with the clerk of the board.

PASSED, APPROVED AND ADOPTED, this 24th day of January, 2008, by the following vote:

AYES: Unless otherwise noted, all Directors present voted aye.

NOES:

ABSTAIN:

ABSENT: Arant (p), Bowersox, Brammell, Craver, Ferguson, and Ken Williams

Fern M? Steiner Chair

ATTEST:

Mårk W. Watton Secretary

I, Doria F. Lore, Clerk of the Board of the San Diego County Water Authority, certify that the vote shown above is correct and this Resolution No. 2008-01 was duly adopted at the meeting of the Board of Directors on the date stated above.

Doria F. Lore Clerk of the Board

RESOLUTION No. 110–002

RESOLUTION OF THE SAN DIEGO COUNTY BOARD OF SUPERVISORS AMENDING THE 2007 SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group (RWMG), in close cooperation with the Regional Advisory Committee (RAC), drafted the first San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance of water quality, provide stewardship of natural resources and coordinate and integrate water resource management in the region; and

WHEREAS, the San Diego IRWM Plan is the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water stakeholders; and

WHEREAS, carrying out the San Diego IRWM Plan and obtaining IRWM grant funding will help to achieve the County of San Diego Strategic Plan Environment Initiative; and

WHEREAS, the County of San Diego Board of Supervisors is the decision-making body for the County of San Diego; and

WHEREAS, on September 19, 2007, the RAC recommended that the RWMG governing bodies adopt the San Diego IRWM Plan; and

WHEREAS, the County of San Diego Board of Supervisor adopted the San Diego IRWM Plan at its November 7, 2007 meeting; and

WHEREAS, the RWMG would like to amend the San Diego IRWM Plan to facilitate the addition and revision of projects to the plan; and

WHEREAS, amendment of the San Diego IRWM Plan by the San Diego County Board of Supervisors will update the San Diego IRWM Plan in preparation for the San Diego Region's application for Proposition 84 and other potential funding; and

NOW, THEREFORE, LET IT BE RESOLVED that the County of San Diego Board of Supervisors resolves the following:

- 1. The 2007 San Diego Integrated Regional Water Management Plan is amended by the revision of the process for managing the IRWM project list as shown in Attachment 1.
- 2. Staff is directed to incorporate the amendment made by the resolution into the IRWM Plan.

APPROVED AS TO FORM AND LEGALITY COUNTY COUNSES.

SY Ton Bowoth CENCALERATY

ON MOTION of Supervisor Roberts, seconded by Supervisor Horn, the above Resolution was passed and adopted by the Board of Supervisors, County of San Diego, State of California, on this 13th day of January, 2010, by the following vote:

AYES: Cox, Jacob, Slater-Price, Roberts, Horn

STATE OF CALIFORNIA) County of San Diego)^{SS}

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the Board of Supervisors.

THOMAS J. PASTUSZKA Clerk of the Board of Supervisors

By:

No. 10-002

01/13/2010 (8)



2007 San Diego IRWM Plan New text for Section G (Implementation):

G.5 Managing the IRWM Project List

Periodic updates to the list of water management projects must be made as new funding opportunities arise. Updating the project list will allow additional projects to be added, as project concepts are refined to address changing conditions and needs in the Region. This opportunity also will enable the project sponsors to revise their project submittals as necessary.

The San Diego IRWM project list is included in the Plan as Appendix 5. Any sponsor may submit a project for inclusion in the Plan. The Regional Water Management Group (RWMG) will decide whether to add a submitted project to Appendix 5 after reviewing it to ensure it is consistent with the Plan. The RWMG will notify the sponsor of its decision to accept or reject a project. This structure facilitates the addition of projects to the Plan. It also makes it easier for sponsors to add or revise projects, integrate their projects with others, or add additional features so the projects provide multiple benefits.

When the RWMG decides to submit an application for a grant or other funding opportunity, it will work with the Regional Advisory Committee (RAC) to form a technical workgroup that will review the projects in Appendix 5 and recommend which to submit for funding. All grant applications, including projects proposed for funding, will be submitted to the RAC for its consideration and recommendation. The ultimate approval of the application and projects submitted for funding lies with the Board of Directors of the San Diego County Water Authority, the agency authorized to submit grant applications on behalf of the RWMG.

Appendix 2-1: Proof of Formal Adoption

R-2008-369

RESOLUTION NUMBER R-**303237**DATE OF FINAL PASSAGE**DEC 18** 2007

A RESOLUTION OF THE COUNCIL OF THE CITY OF SAN DIEGO REQUESTING THAT THE MAYOR ADOPT THE SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group, consisting of the City of San Diego (City), the County of San Diego (County), and the San Diego County Water Authority (Water Authority) with the close cooperation of the Regional Advisory Committee, has drafted the first San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources and coordination and integration of water resource management in the region; and

WHEREAS, California voters in 2002 passed Proposition 50 which authorizes the allocation of \$500 million in state funds for local IRWM projects and Proposition 84 in 2006 which authorizes \$1 billion in state funds for local IRWM projects with \$91 million allocated to the San Diego region with the possibility of receiving \$100 million in any unallocated funds; and

WHEREAS, California voters passed Proposition 1E in 2006, which provides \$300 million statewide for flood management and storm water projects identified in an IRWM plan; and

WHEREAS, in 2005 the City, County and Water Authority formed, via a Memorandum of Understanding entered into by the City as authorized by the City Council in Resolution No. R-300517 on June 13, 2005, a Regional Water Management Group to create the IRWM plan and to pursue Propositions 50, 84 and 1E grant funding; and

WHEREAS, the San Diego Region has prepared a package of 21 IRWM projects for Proposition 50 Round 2 grant funding, with a total state funding request of \$25 million, including 5 IRWM projects funded by the City which are eligible to receive \$5.7 million in state funding; and

WHEREAS, the IRWM Plan has been approved by the Regional Advisory Committee and the public in a thirty-day public review; and

WHEREAS, IRWM Plan must be adopted by the City, County and Water Authority by January 1, 2008 to be eligible for Proposition 50 and Proposition 84 grant funding; NOW THEREFORE

BE IT RESOLVED, that the Mayor be authorized to adopt the IRWM plan on behalf of the City.

APPROVED: MICHAEL J. AGUIRRE, City Attorney

hree By

MARK M. MERCER Deputy City Attorney

MMM:sb 10/25/07 Or.Dept: Water R-R-2008-369

-PAGE 2 OF 3-

R-303237

I hereby certify that the foregoing Resolution was passed by the Council of the City of San Diego, at this meeting of $\underline{DEC 042007}$.

ELIZABETH S. MALAND

City Clerk By_ maya Deputy City Clerk

ANDERS, Mayor **JERRY**

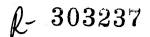
Approved: (date)

JERRY SANDERS, Mayor

Vetoed:

(date)

-PAGE 3 OF 3-



Council Members	· Yeas	Nays	Not Present	Ineligible
Scott Peters Kevin Faulconer Toni Atkins				
Anthony Young Brian Maienschein				
Donna Frye Jim Madaffer				
Ben Hueso				
Date of final passage DEC 1	8 2007		amend Propos; 245-nay.	ition 50 Projects-
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AUTHENTICATED BY:		Mayor of	JERRY SANI The City of San D	
(Seal)	 By	City Clerk	ELIZABETH S. M of The City of San	MALAND Diego, California. , Deputy
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		Office of the	e City Clerk, San	Diego, California
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RESOLUTION OF THE SAN DIEGO COUNTY BOARD OF SUPERVISORS ADOPTING THE 2007 SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT (IRWM) PLAN

WHEREAS, the County of San Diego (County), in cooperation with the San Diego County Water Authority (Water Authority) and the City of San Diego (City) has formed a San Diego Regional Water Management Group (RWMG); and

WHEREAS, on December 3, 2003, the Board of Supervisors authorized County staff to apply for and accept grant funds pursuant to Proposition 50, the Water Security, Clean Drinking Water, Coastal and Beach Protection Act of 2002; and

WHEREAS, on May 11, 2005, the Board of Supervisors authorized County staff to enter into a Memorandum of Understanding (MOU) with the Water Authority and City to develop a Proposition 50 Integrated Regional Water Management Grant Application; and

WHEREAS, on July 25, 2007, the Board of Supervisors authorized the first amendment to the MOU with the Water Authority and the City; and

WHEREAS, the RWMG, in close cooperation with a Regional Advisory Committee, has drafted the 2007 San Diego Integrated Regional Water Management (IRWM) Plan to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources, and coordinate and integrate water resource management in the region; and

WHEREAS, the San Diego IRWM Plan will form the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water stakeholders; and

WHEREAS, having an IRWM Plan will position the San Diego Region to compete for funding opportunities presently available under Proposition 50, Proposition 84 (the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006), and Proposition 1E (Disaster Preparedness and Flood Prevention Bond Act of 2006); and

WHEREAS, the County of San Diego Board of Supervisors is the decisionmaking body for the County of San Diego; and

WHEREAS, adoption of the San Diego IRWM Plan by the San Diego County Board of Supervisors is a requirement of the San Diego Region's application for Proposition 50 and Proposition 84funding and may become a requirement for funding under Proposition 1E and other State propositions, legislation or appropriations; and WHEREAS, on September 19, 2007, the Regional Advisory Committee recommended that the County of San Diego Board of Supervisors accept the San Diego IRWM Plan.

NOW, THEREFORE, BE IT RESOLVED that the County of San Diego Board of Supervisors resolves the following:

- 1) The foregoing facts are true and correct.
- 2) The Board of Supervisors adopts the 2007 San Diego Integrated Regional Water Management Plan.

APPROVED AS TO FORM AND LEGALITY COUNTY COUNSEL

RY SENIOR DEPM



619.758.7743 619.224.4638

2825 DEWEY ROAD, SUITE. # 200 SAN DIEGO, CALIFORNIA 92106

www.sdcoastkeeper.org

ONE ORGANIZATION PROTECTING 100% OF THE COAST

Resolution of the Board of San Diego Coastkeeper Supporting the 2007 San Diego Integrated Regional Water Management Plan

WHEREAS, the County of San Diego, in cooperation with the San Diego County Water Authority, and the City of San Diego has formed a San Diego Regional Water Management Group (RWMG); and

WHEREAS, the RWMG, in cooperation with the Regional Advisory Committee (RAC), drafted the San Diego Integrated Regional Water Management (IRWM) Plan; and

WHEREAS, the IRWM Plan establishes the plan's mission, vision, goals and objectives; and

WHEREAS, San Diego Coastkeeper is an active member of the IRWM RAC to provide input on non-profit environmental priorities for the San Diego region; and

NOW, THEREFORE, the Board of Directors of San Diego Coastkeeper resolves the following:

- 1. The foregoing facts are true and correct.
- The Board of Directors agrees with and supports the IRWM Plan, dated October 2007.

PASSED, APPROVED, and ADOPTED on this September day of 27 2010. AYES: 10

NOES: 0

ABSTAIN: 0

ABSENT: 2

Rural Community Assistance Corporation (RCAC) BOARD RESOLUTION

LET IT RESOLVED, that RCAC's, Board of Directors duly accepts and endorses the 2007 San Diego Regional Integrate Regional Water Management Plan part of the 2006 Proposition 84.

BE IT ALSO RESOLVED, that the RCAC will meet the conditions prescribed by the grant award from the Integrated Regional Water Management Plan (IRWMP) in the amount of \$500,000

BE IT ALSO RESOLVED, that the Board of Directors of RCAC authorizes its officers to execute and attest all necessary papers, documents, and applications related to the foregoing.

BE IT FURTHER RESOLVED, that Stanley Keasling, RCAC chief executive officer, is authorized on behalf of the RCAC Board of Directors to execute all ascpects of this grant request.

I, Robert Rendon, Secretary of the RCAC Board of Directors, do hereby certify that the above is a true and correct copy of a resolution adopted at the meeting of the Board of Directors of RCAC on October 28, 2010, at which a quorum was present and voted.

Robert Rendon, Secretary

RESOLUTION NO. 2011-05

BOARD OF DIRECTORS OF THE SAN ELIJO JOINT POWERS AUTHORITY

A RESOLUTION OF ADOPTION FOR THE SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS the San Diego Regional Water Management Group (RWMG), comprised of the San Diego County Water Authority, City of San Diego, and County of San Diego, has collaborated with the Regional Advisory Committee (RAC), comprised of water management stakeholders from throughout the San Diego region, to draft the 2007 San Diego Integrated Regional Water Management (IRWM) Plan;

WHEREAS the 2007 San Diego IRWM Plan seeks to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources, and coordinate and integrate water resource management within the region;

WHEREAS the San Diego IRWM Plan forms the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water management stakeholders; and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through IRWM Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans;

NOW THEREFORE BE IT RESOLVED that the San Elijo Joint Powers Authority adopts the 2007 San Diego Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to support water resources management in the San Diego region, and

BE IT FURTHER RESOLVED that we encourage the California Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan.

PASSED AND ADOPTED this 8TH day of November 2010.

AYES: Barth, Campbell, Houlihan, Roberts

NOES:

ABSENT:

ABSTAIN:

Maggie Houlihan, Chairperson SEJPA Board of Directors

Attest:

Michael T. Thornton, P.E Secretary of the Board

IServer2010\Administration\SANELIJO\AGENDA\2010\11-November\Resp 2011-05 SD IRWM Plan,Doc

RESOLUTION NO. 2010-35

RESOLUTION OF THE OLIVENHAIN MUNICIPAL WATER DISTRICT BOARD OF DIRECTORS ADOPTING THE SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS, the San Diego Regional Water Management Group (RWMG), comprised of the San Diego County Water Authority, City of San Diego, and County of San Diego, has collaborated with the Regional Advisory Committee (RAC), comprised of water management stakeholders from throughout the San Diego region, to draft the 2007 San Diego Integrated Regional Water Management (IRWM) Plan; and

WHEREAS, the 2007 San Diego IRWM Plan seeks to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources, and coordinate and integrate water resource management within the region; and

WHEREAS, the San Diego IRWM Plan forms the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water management stakeholders; and

WHEREAS, the State of California encourages integrated water resource planning on a regional basis through IRWM Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 et seq.) – to activities contained in IRWM Plans;

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of Olivenhain Municipal Water District hereby adopts the 2007 San Diego Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to support water resources management in the San Diego region, and

BE IT FURTHER RESOLVED that we encourage the California Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan.

PASSED, ADOPTED AND APPROVED at a regular meeting of the Board of Directors of Olivenhain Municipal Water District held on Wednesday, November 17, 2010.

Edmund K. Spragué, President Board of Directors Olivenhain Municipal Water District

Appendix 2-1: Proof of Formal Adoption

RESOLUTION NO. 2010-35 continued

ATTEST:

Jacob J. Krauss, Secretary Board of Directors Olivenhain Municipal Water District

RESOLUTION NO. 081 – 2010 RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTEE, CALIFORNIA, IN SUPPORT OF GRANT FUNDING FOR THE SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN PROJECTS

WHEREAS the San Diego Regional Water Management Group (RWMG), comprised of the San Diego Water Authority, City of San Diego, and County of San Diego, has collaborated with the Regional Advisory Committee (RAC), comprised of water management stakeholders from throughout the San Diego region, to draft the 2007 San Diego Integrated Regional Water Management (IRWM) Plan; and

WHEREAS the 2007 San Diego IRWM Plan seeks to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources, and coordinate and integrate water resource management within the region; and

WHEREAS the San Diego IRWM Plan forms the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and non-governmental water management stakeholders; and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through IRWM Plans and by conditioning certain existing and possibly future grant funding programs – including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 *et seq.*) – to activities contained in IRWM Plans.

NOW THEREFORE BE IT RESOLVED that the City of Santee adopts the 2007 San Diego Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to support water resources management in the San Diego region.

BE IT FURTHER RESOLVED that we encourage the California Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan.

ADOPTED by the City Council of the City of Santee, California, at a Regular Meeting thereof held this 15th day of December 2010, by the following roll call vote to wit:

AYES:	DALE, MINTO, RYAN, VOEPEL	
NOES:	NONE	
ABSENT:	NONE APPROVED:	
	RANDY VOEPEL, MAYOF	
ATTEST: PATSY BELL, CMC, IN		/

BOARD OF DIRECTORS OF JACOBS CENTER FOR NEIGHBORHOOD INNOVATION

A RESOLUTION OF ADOPTION FOR THE SAN DIEGO INTEGRATED REGIONAL WATER MANAGEMENT PLAN

WHEREAS the San Diego Regional Water Management Group (RWMG), comprised of the San Diego Water Authority, City of San Diego, and County of San Diego, has collaborated with the Regional Advisory Committee (RAC), comprised of water management stakeholders from throughout the San Diego region, to draft the 2007 San Diego Integrated Regional Water Management (IRWM) Plan; and

WHEREAS the 2007 San Diego IRWM Plan seeks to optimize water supply reliability, protect and enhance water quality, provide stewardship of natural resources, and coordinate and integrate water resource management within the region; and

WHEREAS the San Diego IRWM Plan forms the foundation of long-term IRWM planning in the region, fostering coordination, collaboration, and communication among governmental and nongovernmental water management stakeholders; and

WHEREAS the State of California encourages integrated water resource planning on a regional basis through IRWM Plans and by conditioning certain existing and possibly future grant funding programs - including Proposition 84, the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resources Code section 75001 et seq.) - to activities contained in IRWM Plans;

NOW THEREFORE BE IT RESOLVED that the Jacobs Center for Neighborhood Innovation adopts the 2007 San Diego Integrated Regional Water Management Plan and is committed to continued development and implementation of the Plan to support water resources management in the San Diego region, and

BE IT FURTHER RESOLVED that we encourage the California Department of Water Resources to fully fund the grant applications that are prepared as a result of this Plan.

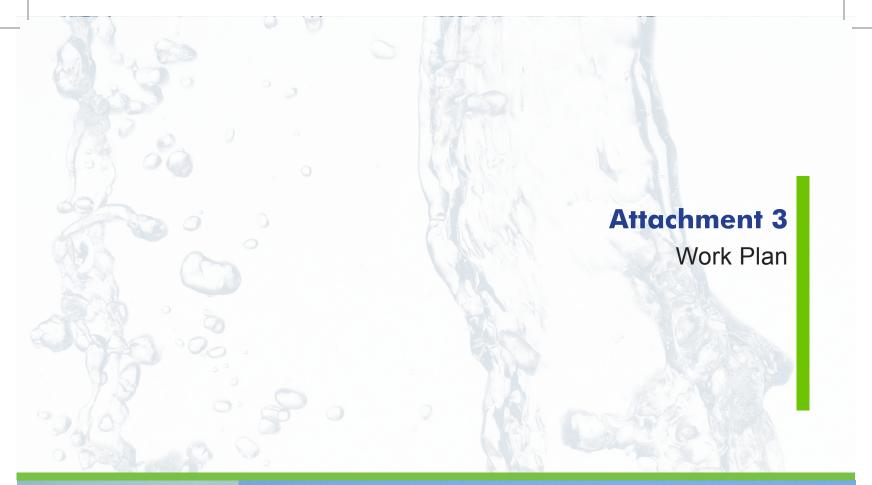
ADOPTED this 16th day of December 2010. I, the undersigned, hereby certify that the foregoing resolution was adopted by the Board of Directors.

JACOBS CENTER FOR NEIGHBORHOOD INNOVATION

Malinie Jacobs

Chair of the Board of Directors

Attest:





Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Work Plan

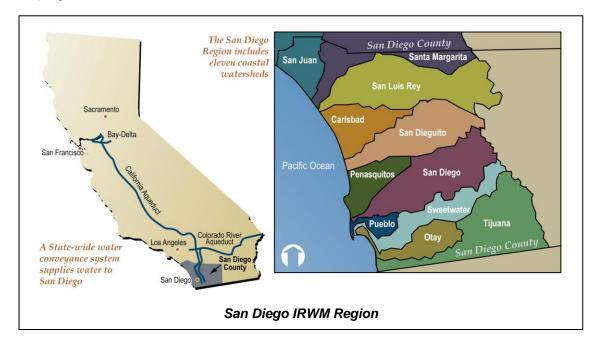
Attachment 3 consists of the following items:

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* 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 (SDCWA), 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 and RAC 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. Each of the IRWM Plan goals and their corresponding objectives are listed in Table 3-1.

		Primary IRWM Plan Goals Implemented by Objective					
	IRWM Plan Objective	Goal 1: Optimize water supply reliability	Goal 2: Protect and enhance water quality	Goal 3: Provide stewardship of our natural resources	Goal 4: Coordinate and integrate water resource management		
А	Maximize stakeholder/community involvement and stewardship	0	0	•	•		
В	Effectively obtain, manage, and assess water resource data and information	0	0	0	•		
С	Further the scientific and technical foundation of water quality management	0	0	•	•		
D	Develop and maintain a diverse mix of water resources	•			0		
Е	Construct, operate, and maintain a reliable water infrastructure system	•			0		
F	Minimize the negative effects on waterways and watershed health caused by hydromodification and flooding		•	0	0		
G	Effectively reduce sources of pollutants and environmental stressors		•	0	0		
н	Protect, restore and maintain habitat and open space	0	0	•	0		
Ι	Optimize water-based recreational opportunities		0	0	•		

Table 3-1: San Diego IRWM Plan Goals and Objectives

• Primary IRWM Plan goal targeted by Plan objective

Additional IRWM Plan goals targeted by objective

Through development and adoption of the IRWM Plan, regional stakeholders identified a suite of water management projects and programs that, together, will 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 as part of the Proposition 50 funding package.

As part of the ongoing IRWM program, regional stakeholders were invited to revise existing projects and/or submit new projects that further progress toward meeting the regional goals and objectives. The RWMG, RAC, and Project Selection Workgroup reviewed the submitted projects and identifies a new suite of projects for submittal as part of this *San Diego IRWM Implementation Grant Proposal* (Proposition 84-Round1).

The projects included within this proposal are consistent with the IRWM Plan. Each project included was identified as a Tier 1 high priority project by regional stakeholders. 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.

Proposal Projects	Α		IRWM Plan Objectives Addressed						
	~	В	С	D	Е	F	G	Н	I
Water Supply / Recycled Water									
Sustainable Landscapes Program	•	0	0	•		0	•		
North San Diego County Regional Recycled Water Project	•	•		•	٠				
North San Diego County Cooperative Demineralization Project	•			٠	٠		•		
Rural Disadvantaged Community (DAC) Partnership Project	•			•	•		•		
Water Quality / Stormwater				·				•	
Lake Hodges Water Quality and Quagga Mitigation Measures		•	•	•	•		•		
Implementing Nutrient Management in the Santa Margarita River Watershed	•	•	•				•		
Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	•		•	0		•	•		0
Pilot Concrete Channel Infiltration Project		•	•	0		•	•		
San Diego Regional Water Quality Assessment and Outreach Project	•	•	•				•	0	
Natural Resources and Watersheds			•	•			•		
Chollas Creek Integration Project	٠	٠				•	•	•	
Data Management				•					
Regional Water Data Management Program	•	•	•						

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

Proposal Goals and Objectives

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

- Further the mission, vision, goals, and objectives established in the San Diego IRWM Plan;
- Provide multiple benefits through integration of water management strategies; •
- Implement high priority projects and programs as identified by the RAC; and •
- 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 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 SDCWA'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 guality 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 habitat that is home to a number of endangered species. An important aspect of integrated regional water management 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 use efficiency in the form of conservation and recycling, 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 1 program and a recommended funding package was considered and approved by the RAC and then the SDCWA Board of Directors.

Through this process, 11 projects and programs were developed to best address the needs of the San Diego region, consistent with the goals and objectives of the San Diego IRWM Plan. 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 is a compilation of projects that will diversify water supply, improve water quality, restore native habitat, and coordinate data management throughout the region. The water supply program (4 projects) will serve two purposes (1) diversify water supplies through water conservation and recycling projects and (2) support adequate supplies to small water systems. The projects will together reduce dependence on water imports and enhance water supply reliability. The water quality program (5 projects) will enhance surface water quality by reducing pollutants in stormwater runoff, receiving water bodies, and reservoirs. The natural resources and watersheds program (1 project) will improve surface water quality, in addition to improving ecosystem health and reducing flooding hazards. The final project – a regional data management system – will facilitate data management and coordination throughout the San Diego IRWM 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 programs integrates projects to address the major water supply, water quality, and resource management needs of the region. Further, projects within each program contain synergies and linkages with projects included in other programs, 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.

Project	Description	
WATER SUPPLY /	RECYCLED V	VATER
1: Sustainable Landscapes Program	Abstract:	The Sustainable Landscapes Program is designed to reduce water waste and pollutant infiltration into local waterways through the development and implementation of landscape standards and specifications generally consistent with the CA state Model Water Efficient Landscape Ordinance and the San Diego Regional Water Quality Control Board Municipal Stormwater Permit. This project is being developed in partnership with City of San Diego, County of San Diego, California American Water and non-profit partners such as California Center for Sustainable Energy, Surfrider Foundation, and Association of Compost Producers. The Sustainable Landscapes Program relies on the integration of landscape standards and specifications development, education and training, materials, incentives, outreach, and technical assistance to achieve project goals (water waste and pollution reduction). The project is targeted towards the residential sector, but will also include commercial participants. The project benefits are expected to accrue through 2022. Project benefits include: 1) water use reduction; 2) green waste reduction; 3) labor reductions associated with maintenance; 4) CO ₂ emissions reduction; and 5) water quality improvements.
	Status:	Landscape standards and specifications are underway. Education and training curriculums have been developed by the Water Authority and will be geared towards the residential sector. Technical assistance has been initiated; the Water Authority is in the process of hiring a consultant on a limited basis to provide technical assistance to three pilot sites. No design work has been completed to date for this project.
	Priority:	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.
	Sponsor:	San Diego County Water Authority
2: North San Diego County Regional Recycled Water Project	Abstract:	The North San Diego County Regional Recycled Water Project is a plan by North San Diego County water and wastewater agencies to regionalize recycled water systems by identifying 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.
	Status:	The Recycled Water Facilities Plan will be completed in March 2011. This plan analyzed existing and proposed recycled water facilities and evaluated each agency's ability to interconnect and maximize the use of recycled water within their combined service areas. The Engineering Study for Regional Seasonal Recycled Water Storage will be completed in June 2010 after the Grant Agreement is in place, in order to complete the project. No design work has been completed to date for this project.
	Priority	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.
	Sponsor:	Olivenhain Municipal Water District
3: North San Diego County Cooperative Demineralization Project	Abstract:	In Southern California wastewater, brackish water, and urban runoff are high in total dissolved solids (TDS) and other impurities that require advanced treatment to allow beneficial reuse. The <i>North San Diego County Cooperative Demineralization Project</i> is focused on developing new local water supplies and managing water quality issues by constructing advanced water treatment facilities at the SEWRF to mitigate high TDS sources and beneficial reuse and studying the feasibility of brackish to potable water desalination in North San Diego County.
	Status:	Project administration tasks have been implemented by the San Elijo Joint Powers Authority. The <i>Conceptual Design Report</i> was completed on March 23, 2009. The <i>Preliminary Design Report (PDR)</i> was completed on December 1, 2009. Geotechnical, chlorine and opportunities and constraints analysis have all also been performed. The project design is estimated at approximately 50% completed.

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



Priority High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Work project that should be implemented without delay. Sponsor: San Elijo Joint Powers Authority 4: Rural Disadvantaged Community Abstract: The Rural DAC Partnership Project will provide funding to address inadequate water supply and water quality affecti DACs, including tribal communities. The project will reduce potential for high public health risks in water and/or wast community systems. The project will promote environmental justice in rural communities by providing outreach to rural DACs for infrastructure projects, while promote nervironmental justice in rural communities. Providing outreach to rural DACs for unitige of critical infrastructure improvement projects. Partnership Project Will be completed as part of the Rural DAC Partnership Project will be committee (RAC), to solicit and sele DACs for funding of critical infrastructure improvement projects. Status: Projects that will be completed as part of the Rural DAC Partnership Project will occur after initiation of the Implementation Grant Agreement (after June 1, 2011). No design work has been completed to date for this project was project that should be implemented without delay. Sponsor: Rural Community Assistance Corporation WATER QUALITY/STORWWATER The Lake Hodges Water Quality and Quagga Mitigation Measures project is intended to address two issues centere San Dieguit hydrologic unit. The first is how to improve low water quality within Lake Hodges. The second is how against the potential long term effects of quagga mussels on Lake Hodges, San Dieguit Reserv	
4: Rural Disadvantaged Community (DAC) Partnership Abstract: The Rural DAC Partnership Project will provide funding to address inadequate water supply and water quality affecti DACs, including tribal communities. The project will reduce potential for high public health risks in water and/or wast systems. The project, while promote environmental justice in rural communities by providing outreach to rural DACs for infrastructure projects, while promoting IRWMP goals. RCAC will manage the Prop 84 grant funds to address inaded supply and water quality in rural DACs, including tribal communities. RCAC will lead a representative group of staked agencies, including or critical infrastructure improvement projects. Status: Projects that will be completed as part of the Rural DAC Partnership Project have not yet been selected, and will be the "Assessment and Evaluation" task has been complete. All reporting for this project will occur after initiation of the Implementation Grant Agreement (after June 1, 2011). No design work has been completed to date for this project. WATER QUALITY/STORMWATER 5: Lake Hodges Water Quality and Quagga Mitigation Measures Abstract: The Lake Hodges Water Quality and Quagga Mitigation Measures project is intended to address two issues centere San Dieguito hydrologic unit. The first is how to improve low water quality within Lake Hodges. The second is how against the potential long term effects of quagga mussels on Lake Hodges, San Dieguito Reservoir, Olivenhain Rese attached facilities. Status: The Santa Fe Irrigation District (SFID) Water Quality Assessment was subsequently selected by the Project. Priority: High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project.	group as a
Disadvantaged Community (DAC) Partnership Project DACs, including tribal communities. The project will reduce potential for high public health risks in water and/or wast systems. The project will promote environmental justice in rural communities by providing outreach to rural DACs for infrastructure projects, while promoting IRWMP goals. RCAC will manage the Prop 84 grant funds to address inade supply and water quality in rural DACs, including tribal communities. RCAC will lead a representative group of staked agencies, including a representative of the San Diego IRWM Regional Advisory Committee (RAC), to solicit and sele DACs for funding of critical infrastructure improvement projects. Status: Projects that will be completed as part of the <i>Rural DAC Partnership Project</i> have not yet been selected, and will be the "Assessment and Evaluation" task has been complete. All reporting for this project will occur after initiation of the Implementation Grant Agreement (after June 1, 2011). No design work has been completed to date for this project Work project that should be implemented without delay. Sponsor: Rural Community Assistance Corporation WATER QUALITY/STORMWATER Sa bistract: 5: Lake Hodges Water Quality and Quagga Mitigation Measures Abstract: Status: The Lake Hodges Water Quality and Quagga Mitigation Measures project is intended to address in water qualit Lake Hodges and A Vulnerability Assessment (to report on vulnerability to quagga mussel infestation) is underway. J Study will be completed in February 2012. No design work has been completed to date for this project. Priority: High. This project was ranked Tier 1 in the prioritization process and was	
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white assessment project that should be implemented without delay. Sponsor: Rural Community Assistance Corporation WATER QUALITY/STORMWATER 5: Lake Hodges Water Quality and Quagga Mitigation Measures Abstract: The Lake Hodges Water Quality and Quagga Mitigation Measures project is intended to address two issues centere San Dieguito hydrologic unit. The first is how to improve low water quality within Lake Hodges. The second is how against the potential long term effects of quagga mussels on Lake Hodges, San Dieguito Reservoir, Olivenhain Reservation Mitigation Measures Status: The Santa Fe Irrigation District (SFID) Water Quality Assessment was finalized in May 2011 addressing water qualit Lake Hodges and A Vulnerability Assessment (to report on vulnerability to quagga mussel infestation) is underway. J Study will be completed in February 2012. No design work has been completed to date for this project. Priority: High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Work project that should be implemented without delay. Sponsor: San Diego County Water Authority	
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	group as a
6: Implementing Abstract: The project aims to establish nutrient WOOs for SM estuary (Phase I) and ultimately watershed (Phase II) that will be	
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Watershed Status: This project will build on existing efforts by reviewing, with stakeholders, the available data for selection of NNE target calibrating and validating the estuarine water quality model in order to estimate the "maximum sustainable load" of N tasks for the project have been completed to date, and completion of design is not relevant to this project.	
<i>Priority:</i> High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Work project that should be implemented without delay.	group as a
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T: Bannock Avenue Abstract: The goal of the Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Produce the pollutant load and volume of nuonoff entering the storm drain system in the Tecolote Creek Watershee reduce the pollutant load and volume of nuonoff entering the storm drain system in the Tecolote Creek Watershee reduces the pollutant load and volume of nuonoff entering the storm drain system in the Tecolote Creek Watershee reducion goal will be achieved by diverting flows through a trash segregation unit and a series of ADTech (Bacterial Treatment Sy within the watershee). Creek Watersheed Protection Status: Ther II and Tier II Storm Water Best Management Practices Conceptual Designs were prepared in July 2006. Cu project is at 10% design, and 30% design for the project is anticipated prior to the grant award date (by May 2011). Priority: Priority: High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Working project that should be implemented without delay. 8: Pilot Concrete Channel Abstract: The Pilot Concrete Channel Infiltration Project will convert a project will convert a Date in 2009. This of is currently at 5% design status. Project Status: A Dry Weather Field Screening and Analytical Monitoring Program was developed by the City of Santee in 2009. This of is currently at 5% design status. Priority: Priority: High. This project was ranked Tier 1 in the prioritization process and was subsequently selected by the Project Working reprict that should be implemented without delay. San Diego Reg	
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Integration integrated planning process for the Pueblo Hydrologic Unit that will update the Chollas Creek Enhancement Pro-	
Project establish implementation strategies. Further, this project will restore native habitat and reduce flooding hazards with Creek (Section 2A), which will provide baseline data for future water quality and habitat improvements. The project im maintains Chollas Creek as a natural urban drainage system that serves as a major conduit for stormwater ru disadvantaged Encanto community.	ogram and iin Chollas proves and
Status: This project will build from a 2002 Chollas Creek Enhancement Program developed by the City of San Diego. B	iology and



Project	Description	
		hydrology studies have been prepared for the Section 2A alignment. The creek restoration conceptual design has been initiated. 10% conceptual design has been completed to date.
	Priority:	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.
	Sponsor:	Jacobs Center for Neighborhood Innovation
DATA MANGEM	ENT	
11: Regional Water Data Management	Abstract:	The goal of the <i>Regional Water Data Management Program</i> is to provide a snapshot of current data management efforts and prioritize data needs and lay them out in a basic design parameters recommendations document for the future development of a regional, web-based system for sharing, disseminating and supporting the analysis of water management data and information.
Program	Status:	No design work has been completed to date for this project.
	Priority:	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.
	Sponsor:	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.

For a full explanation of the linkages and synergies between projects, please refer to individual project Work Plans included in this attachment.

Regional Map

Figure 3-1 provides a regional overview of the eleven proposed projects in this San Diego IRWM Implementation Grant Proposal.

Completed Work

Significant work has been completed is expected to be completed prior to the grant award date (June 1, 2011) 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 by June 1, 2011. By June 1, 2011, the following work will have been completed on the programs included herein:

Project 1: Sustainable Landscapes Program

Prior to initiation of the grant agreement, SDCWA and other partners involved in this project will have and will continue to hold meetings to coordinate project elements and draft the project structure. In addition, the project partners will have drafted a Memorandum of Understanding prior to June 1, 2011.

Completed work for this project has also included a Request for Proposal process and issuance of a purchase order to a landscape architect to develop water efficiency guidelines and specifications. These actions were completed in November 2010.

Project 2: North San Diego County Regional Recycled Water Project

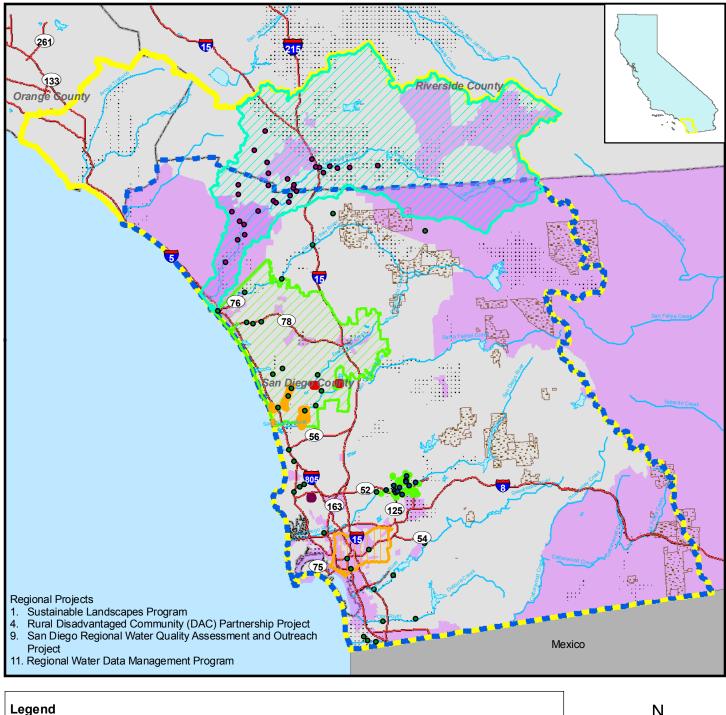
Olivenhain Municipal Water District (OMWD), in conjunction with some of its project partners, is in the process of completing a *Recycled Water Facilities Plan*, which is anticipated in March 2011. This plan includes analysis of existing and proposed recycled water facilities, and evaluates each partner agency's ability to interconnect and maximize the use of recycled water within their combined service areas.

Project 3: North San Diego County Cooperative Demineralization Project

Prior to initiation of the grant agreement, San Elijo Joint Powers Authority (SEJPA) will have conducted several plans and/or studies to assess and evaluate the *North San Diego County Cooperative Demineralization Project*. These studies include:

- San Elijo Joint Powers Authority. March 2009. Conceptual Design Report for Flow Equalization/Recycled Water Storage Facility.
- San Elijo Joint Powers Authority. July 2009. Updated Financial Assessment for the Recycled Water System.
- San Elijo Joint Powers Authority. December 2009. San Elijo Recycled Water Project Mitigated Negative Declaration.
- San Elijo Joint Powers Authority. December 2009. San Elijo Water Reclamation Facility: Final Preliminary Design Report, Recycled water Demineralization Project.
- San Elijo Joint Powers Authority. March 2010. Geotechnical Investigation, Proposed Improvements, San Elijo Water Reclamation Facility Encinitas, California.
- San Elijo Joint Powers Authority. August 2010. San Elijo Water Reclamation Facility Chlorine Contact Basin Tracer Study Final Report.
- Opportunities and Constraints Analysis, which will be completed in March 2011. Please note that because this document has not been finalized, it is not contained within this Implementation Grant Proposal.

Figure 3-1: Implementation Grant Proposal Regional Map





U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm In addition, the *North San Diego County Cooperative Demineralization Project* is anticipated to be at 60% design status on June 1, 2011. As such, the SEJPA completed 10% conceptual design for the project in September 2009, completed 30% conceptual design for the project in December 2009, and anticipates completing 60% and 90% design for the project in January 2011 and May 2011, respectively. The SEJPA also completed membrane pre-selection design work for the project in December 2010.

Environmental documentation for this project has also been partially completed. An Initial Study/Mitigated Negative Declaration document was completed in December 2009. In addition, permitting for this project will be partially completed by June 1, 2011, as the SEJPA anticipates obtaining a Coastal Development Permit for the project by February 2011.

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

While no specific work has been or will be completed for this project by June 1, 2011, this project was developed and designed based on information within existing data and studies. A detailed list of these studies is available below within the individual work plan description of this project.

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

Prior to initiation of the grant agreement, the San Diego County Water Authority (SDCWA) will have conducted several plans and/or studies to assess and evaluate the *Lake Hodges Water Quality and Quagga Mitigation Measures project*. These studies include:

- Agreement between SDCWA and City of San Diego for the Emergency Storage Project (Joint Use of lake Hodges Dam and Reservoir), Section 9.1.2, April 1998.
- San Diego Regional Quagga Mussel Working Group. April 2008. San Diego Regional Dreissena Mussel Response and Control Plan.

In addition to these completed studies, two additional studies, the Santa Fe Irrigation District Water *Quality Assessment* and a *Quagga Mussel Vulnerability Assessment* will be finalized in May 2011 and June 2011, respectively.

Prior to initiation of the grant agreement, the SDCWA and other partners involved in this project will have assembled a stakeholder committee, developed agreements with project partners, held stakeholder meetings and correspondence, set up the project budget in the SDCWA financial system, and entered the project schedule.

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

In 2009, the Santa Margarita Lagoon discharges conducted studies to assess and evaluate data relevant to the implementation of the *Implementing Nutrient Management in the Santa Margarita River Watershed* project. These studies include:

- 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.

In addition to the completed studies, the San Diego County Water Authority and its project partners will complete a *Sample and Analysis Plan*, a *Quality Assurance Project Plan*, and a *Project Assessment Evaluation Plan* by May 31, 2011. The San Diego County Water Authority and its project partners will also form and facilitate a stakeholder advisory group, complete a *Santa Margarita River Estuary Investigation,* and collect data in the Santa Margarita River Estuary by May 31, 2011.

It is also anticipated that environmental documentation, which is anticipated to include a CEQA Categorical Exemption, will be established for the project by May 31, 2011.



Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Prior to initiation of the grant agreement, the City of San Diego will have conducted several plans and/or studies to assess and evaluate the *Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project. These studies include:

- City of San Diego Storm Water Pollution Prevention Division. November 2007. *The Strategic Plan for Watershed Activity Implementation.*
- City of San Diego. July 2008. *Tier II and Tier III Storm Water Best Management Practices Conceptual Designs* (Pages 59-74).
- Storm Water Department, Storm Water Pollution Prevention Division. October 2009. Preliminary Engineering Report (10% Pre-Design Report): Bannock Avenue Neighborhood Streetscape Enhancements and Bannock Avenue Bacteria Treatment for Tecolote Creek Watershed Protection.
- CVALDO Corporation Civil Engineering. 2008. Bannock Ave Neighborhood Streetscape Enhancements and Bacteria Treatment for Tecolote Creek Watershed Protection – Concept Plan.

As of June 1, 2011, 30% of the design for this project will be complete. 10% design for this project was completed in August 2008 and 30% design for this project is anticipated to be complete by May 2011.

Environmental documentation for this project has also been completed. An Initial Study/Mitigated Negative Declaration document was completed to address impacts from the City of San Diego's Jurisdictional, Watershed, and Regional Urban Runoff Management Plans (these plans have been revised per the City's Municipal Storm Water NPDES permit, issued in January 2007). In particular, the MND addressed potential environmental impacts associated with infiltration projects citywide. The MND was approved by the San Diego City Council, conjunction with approval of the City's updated Urban Runoff Management Plans, in January 2008.

Project 8: Pilot Concrete Channel Infiltration Project

Prior to initiation of the grant agreement, the City of Santee will have conducted several plans and/or studies to assess and evaluate the *Pilot Concrete Channel Infiltration Project*. These studies include:

- City of Santee. 2009. Dry Weather Field Screening and Analytical Monitoring Program.
- City of Santee. 2009. 2009 Additional Study, Rivers and Creeks.

The City of Santee will also complete a review of prior monitoring data, a literature review, community consultation and education, and make geotechnical recommendations regarding the project prior to June 1, 2011. In addition, the City of Santee completed work necessary to secure approval of the 2007 San Diego IRWM Plan by the Santee City Council, which occurred in December 2010.

As of June 1, 2011, 10% of the design and environmental documentation for this project will be complete. 10% design documentation as well as CEQA documentation for this project are anticipated to be complete by May 2011.

Project 9: San Diego Regional Water Quality Assessment and Outreach Project, 2010

San Diego Coastkeeper is in the process of completing *Annual Watershed Reports*, which are anticipated to be complete in March 2011.

Project 10: Chollas Creek Integration Project

Prior to initiation of the grant agreement, the Jacobs Center for Neighborhood Innovation, in conjunction with project partners, will have conducted several plans and/or studies to assess and evaluate the *Chollas Creek Integration Project*. These studies include:

- City of San Diego. September 2006. Chollas Creek TMDL Source Loading, Best Management Practices, and Monitoring Strategy Assessment.
- City of San Diego. May 2002. Chollas Creek Enhancement Program.



- Jacobs Center. October 2008. Chollas Creek Section 2A Restoration Biology Study.
- Jacobs Center. October 2008. Chollas Creek Section 2A Restoration Hydrology Study.

Project 11: Regional Water Data Management Program

No work will be performed for this project prior to June 2011.

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 Implementation Grant proposal.

Project Maps

Site maps showing each project's geographical location and the surrounding work boundary are included in individual project Work Plans provided belwo. 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 whiles others are not. For project timing and phasing for each project please refer to individual project Work Plans included in this attachment.

Work Plan Tasks

The following sections outline the specific activities that will be performed to implement each project in the *San Diego IRWM Implementation Grant Proposal*. 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.

Project 1: Sustainable Landscapes Program

I. Introduction

Project Sponsor

The San Diego County Water Authority is the project sponsor for the Sustainable Landscapes Program.

Project Need

The San Diego region is about 80% dependent on imported water supplies, with many impaired watersheds. It is estimated that about 50% of potable water is applied on landscapes, of which 50% is wasted due to inefficient irrigation and poor soil conditions, which contribute to undesirable urban runoff. Studies have shown that most landscapes are over-irrigated, providing an opportunity to conserve and extend our water supply by more precise management of applied water, upgrades to irrigation systems, changes in the types of plants used (moving away from thirsty turf to a water wise plant palette), and improved landscape maintenance practices.

Urban runoff (or dry-weather flow) can contribute high pollutant loading to receiving waters. As a consequence, the region's waterways continue to be impaired by pollutants such as bacteria, nitrates, sediment, and phosphorus that are associated with landscaping activities. This continuous pollution detracts from the beneficial uses of waterways and watersheds.



Project Purpose

The Sustainable Landscapes Program is a multifaceted project that consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants. Implementation of the Sustainable Landscapes Program will aid the region in decreasing reliance on imported water supplies, improving water efficiency, and reducing pollutant discharges into watersheds. Proposed program elements include:

- Development of Landscape Guidelines and Specifications This task will produce an integrated set of landscape guidelines and specifications that are generally consistent with both the California Model Water Efficient Landscape Ordinance (adopted in September of 2009) and Low Impact Development. This effort is focused on simplifying complex technical standards to make them more practicable by industry practitioners and property owners. It is anticipated this task will generate deliverables not limited to:
 - User-friendly landscape guidelines; and
 - Project design & implementation checklists.
- 2. Creation of Educational Materials and Provision of Landscape Training This project will develop new curriculum and educational materials, and provide training classes based on the landscape guidelines developed in Task 1 (see above). This task aims to make the technical content of both Model Water Efficient Landscape Ordinance and Low Impact Development more accessible to professional and Do-It-Yourself (DIY) audiences. These new educational resources will ensure participants understand the objectives of the guidelines and increase the probability that their projects are executed effectively.
- 3. *Provision of Technical Assistance* This task will provide limited technical assistance to participants that may include:
 - Sample irrigation and landscape designs
 - Landscape design workshops
 - Limited site-specific design assistance

This task is anticipated to improve the effectiveness of landscape retrofit projects by participants, based on findings from the Water Authority's Landscape Retrofit Pilot. Past conservation program participants have emphasized a need for site-specific technical assistance in order to abide by program guidelines and successfully incorporate key sustainability features.

- 4. **Retrofit Incentives** This project will provide limited financial incentives to subsidize the cost to participants of qualified landscape design services and materials that are consistent with the guidelines developed under Task 1. Incentives may include, but are not limited to:
 - Landscape materials (plants, irrigation hardware, & other related costs); and
 - Discounts and/or credit for qualified landscape design services.

Other types of incentives are under consideration and may be included if deemed viable.

- 5. Provision of Landscape Materials Subject to availability, this task may offer free or discounted landscape materials and equipment to participants to aid them with landscape conversion projects. Materials and equipment may include, but is not limited to compost, smart controllers, rotating nozzles, pressure regulators and other items. If feasible, the program will offer participants access to promotional, discounted rates for landscape materials.
- Outreach & Stakeholder Involvement The project team anticipates soliciting input from industry and stakeholders via a project advisory committee(s). Anticipated stakeholder involvement may include:
 - Irrigation Association
 - California Landscape Contractors Association
 - American Society of Landscape Architects



- o California Association of Community Managers
- Past conservation program participants

This task may include the development and printing of project marketing and outreach materials, as needed.

Project Objectives

The Sustainable Landscapes Program seeks to accomplish the following objectives:

- To actively seek community involvement by means of outreach activities and advisory groups to help guide the development and implementation of this project.
- To integrate water conservation and watershed protection measures leading to measurable water savings, runoff reduction, and local watershed improvement.
- To develop new materials and resources to assist the public in implementing sustainable landscape retrofits.
- To create interest and demand for sustainable products and services, spurring market transformation through financial incentives.
- To apply community-based marketing to influence social norms (attitudes and practices) as related to urban landscape design and maintenance.
- Increase incorporation of Low Impact Design (LID) in San Diego landscapes to encourage onsite infiltration to alleviate impact of development on waterways.
- Educate residential and commercial sectors on how to create water efficient and LID landscapes that will assist with market transformation.

Table 3-4 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (•) or directly (•) achieved through implementation of the *Sustainable Landscapes Program*.

Proposal Projects -		Contribution to IRWM Plan Objectives							
		В	С	D	E	F	G	Н	I
Sustainable Landscapes Program	•	0	0	•		0	•		

Table 3-4: Contribution to IRWM Plan Objectives

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

- A: Maximize stakeholder/community involvement and stewardship. A stakeholder advisory group will guide the development of various program elements. Additionally, all program efforts will engage the community, and instill a sense of stewardship.
- **B:** Effectively obtain, manage, and assess water resources data and information. The project will access or generate participants' water use data (baseline and post-conversion). The collected data will be available to project managers and overall results will be periodically reported to the grant funding agency.
- **C:** Further the scientific and technical foundation of water management. Upon project completion, a process evaluation and impact assessment will document the effectiveness of the program, and identify opportunities for further refinement. Expected outcomes include a measurable reduction in applied water.
- **D: Develop and maintain a diverse mix of water resources.** The project will yield measurable water savings to help the region achieve regional water conservation targets. The project will also use innovative techniques, such as site rainwater harvesting, to reduce potable water use and maximize the use of other resources.

- F: Reduce the negative effects on waterways and watershed health caused by hydromodification and flooding. The project aims to abate dry season runoff, to significantly increase onsite storm water runoff retention at participating sites, and to improve local watershed health. The resulting lower runoff volume will benefit the downstream storm water system and receiving waters.
- **G:** Effectively reduce sources of pollutants and environmental stressors. The project promotes a zero tolerance for dry weather urban runoff. Project guidelines will promote organic methods. Use of chemical pesticides and fertilizers will be discouraged and subject to use only in moderation. Measures to improve onsite runoff retention will intercept and retain onsite pollutants that would otherwise pollute storm water runoff, entering the ocean and harming the ecosystem. Non-point source pollutant loading associated with landscaping activities at participating sites is expected to be significantly reduced.

Project Partners

Project partners in the *Sustainable Landscapes Program* include: the County of San Diego (Watershed Protection Program); City of San Diego Public Utilities Department; City of San Diego Storm Water Department (Storm Water Pollution Prevention Program and Think Blue Program); California American Water; Surfrider Foundation (Ocean Friendly Gardens Program); California Center for Sustainable Energy (CCSE); and the Association of Compost Producers (ACP).

Project Abstract

The Sustainable Landscapes Program is designed to reduce the amount of potable water applied to urban landscapes (reduce water waste) while also reducing pollutant infiltration into local waterways. The project aims to provide a practical, integrated approach to help the public comply with the spirit of two separate regulations that impact urban landscapes: the CA state Model Water Efficient Landscape Ordinance and the San Diego Regional Water Quality Control Board's Municipal Stormwater Permit. This project is a collaborative effort among three public agencies, a private water utility, and three non-profit organizations within San Diego County. The Sustainable Landscapes Program relies on the integration of landscape guidelines and specifications development, education, training, incentives, technical assistance, and outreach to achieve project goals (water waste and pollution reduction).

The project is principally targeted at the residential sector, but may also include commercial participants. The project's comprehensive scope is a departure from conventional landscape conservation programs in that it goes well beyond addressing merely financial incentives for a specific device. Although the project term spans only from October 2010 to September 2014, the project benefits are expected to accrue through 2022. Project benefits include: 1) water use reduction; 2) green waste reduction; 3) labor reductions associated with maintenance; 4) CO_2 emissions reduction; and 5) water quality improvements.

This multifaceted project relies on the integrated implementation of the six inter-dependent tasks. The Water Authority and its partners are ready to begin implementation upon execution of the grant award. Advanced planning and implementation for several project tasks is already underway, and the project is currently at 0% completion of design. Specific details on progress achieved to date are provided below.

Progress to Date

Progress towards the completion of the six activities outlined in this project is detailed below:

- Guidelines and Specifications (Started) SDCWA has already outsourced the development of landscape guidelines based on the CA State Model Water Efficient Ordinance. Additional work to combine these guidelines with Low Impact Development standards will be tasked upon execution of the Proposition 84 grant contract.
- Education/Training (Partners Selected) SDCWA will work with its partners to develop curriculum consistent with the guidelines and specifications discussed in bullet 1. To a large degree, educational resources will build upon the Ocean Friendly Gardens curriculum already developed by the Surfrider Foundation. The partners will scope out work for this task during early 2011, so



that work may commence upon contract execution. Primary focus will be on the residential sector, but may also address commercial-grade landscapes.

- Technical Assistance (In Progress) Through another existing water conservation program, the Water Authority will be developing in Spring 2011 three new landscape designs. To date, we have already produced and collected several other landscape designs as well. Such design templates will be an important reference to project participants. Upon execution of the grant, anticipated work may include site-specific planning, preliminary design recommendations, cost estimating & scheduling, pre- and post-implementation site visits, and periodic technical support.
- Incentives (Pending Award) It is estimated that the requested funding for this task will be sufficient to retrofit about 6 acres of existing turf, resulting in approximately 180 AF of water savings over 10 years. The methodology for issuing incentives will be adapted from the Water Authority's ongoing WaterSmart Landscape Retrofit pilot, which provides a cash incentive for the conversion of existing turf to landscapes that meet program specifications. Other types of incentives may also be incorporated (i.e. landscape design plan incentive).
- Materials (Pending Award) Project participants may be eligible to receive free or discounted landscape materials and equipment. Already secured is a supply of free compost from multiple sources. It is anticipated that new industry sponsors may be willing to provide products at a discounted rate as part of a regional promotion related to this project. This may eventually enable the project to also deliver added value to participants in relation to irrigation materials and other items.
- Outreach (Pending Award) Outreach efforts will leverage input from several existing stakeholder groups. It is anticipated that a Project Advisory Committee may be convened to solicit community input and feedback on various program elements.

Linkages and Synergies between Projects

The San Diego County Water Authority's WaterSmart Landscape Conversion Pilot Rebate Program provides past implementation experience; relevant program materials; and a demonstrated model for issuing financial incentives proportional to the size of the retrofit.

The City of San Diego's Residential Outdoor Water Conservation Rebate Program and other turf conversion programs currently provide cash incentives. The proposed project will develop new resources (such as technical assistance, public outreach, education materials, and marketing efforts), which will enhance the City's current offerings. Another potential benefit is improved regional consistency in messaging for current and future turf conversion programs.

The County of San Diego's Regional Water Data Management Program (Project 11 in this proposal) aims to determine data management needs, sensitivities, analysis tools, etc. that could be used to develop a data management system to track watershed activities and resulting pollutant levels. There is a possibility that the efforts may provide monitoring analysis tools to help track the impact of this project on watersheds.

The Water Authority developed and piloted a Homeowners Association How-To-Guide (2008-2009) aimed at property managers and HOA Board members. The guide provides best management practices for community associations interested in making water-efficient improvements to their landscapes. Some of the existing content may be adapted for use in this project. This prior experience will guide the project team's efforts in developing new technical assistance materials.

CAL FIRE grant agreement #8CA09929 (Proposition 84 funds) with the California Center for Sustainable Energy will create an Advice and Technical Assistance Center (ATAC) for Urban Forestry in the San Diego Region. As a project partner, CCSE will make the new ATAC available to project participants.

The University of California Cooperative Extension's Integrated Pest Management (IPM) Community Outreach engages the public via runoff workshops, event booths, and two kiosks. Principles from IPM outreach could possibly be shared and mutually support the goal to reduce urban runoff contaminants.

The outreach program at the Water Conservation Garden at Cuyamaca College and other regional gardens provide water conservation and runoff reduction workshops, classes and events. Both the regional gardens and this project could benefit from synergies such as public outreach opportunities, outreach and education materials, and technical resources.

County of San Diego Rain Barrel Sales Program provides reduced-cost rain barrels as a tool to reduce urban runoff and "first-flush" pollutants. The County, a project partner, will apply its experience with the Rain Barrel Program to inform and guide this project in relation to potential onsite runoff retention measures.

Sustainable Urban Landscape Conference at Cuyamaca College provides a venue for industry professionals to share their visions and technical expertise on San Diego landscape trends and the job market. The conference is a source of information and potential case studies of relevance to this project.

The Water Authority's past 20 Gallon Challenge, the City of San Diego's current "Waste No Water" and other regional water conservation awareness campaigns provide public awareness for water conservation and storm water runoff issues. These campaigns have effectively sensitized the public about our region's water shortages, increasing our probability of successfully recruiting an adequate number of project participants.

Surfrider Foundation, another project partner, has successfully developed the Ocean Friendly Gardens (OFG) Program Series, which serves as a precursor to this project's education components. The series consists of a basic class that teaches conservation, permeability and retention (CPR) principles and practices. Class participants receive a CPR guide. The basic class is followed by a Hands-On Workshop (HOW) that applies OFG components to an actual garden in preparation for a landscape retrofit. During the retrofit, or Garden Assistance Program (GAP), class participants transform a landscape that incorporates the CPR principles and practices. Finally, the series includes a "Lawn Patrol" neighborhood walk to identify OFG criteria in a neighborhood's landscapes. The OFG provides opportunities for public agencies to sponsor the series for their community. Other important elements of the OFG program include the yard sign and tracking tool.

Existing Data and Studies

This project type, scope, and focus is identified in the following plans and studies:

- Greater Los Angeles County Integrated Regional Water Management Plan. April 2009. *Region Acceptance Process Application.*
- US EPA. December 2009. Research Report on Turfgrass Allowance.
- Municipal Water District of Orange County, Irvine Ranch Water District. July 2004. *The Residential Runoff Reduction Study.*
- Los Angeles County Department of Public Works. May 2004. *Sun Valley Watershed Management Plan.* Available from: <u>http://www.sunvalleywatershed.org/ceqa_docs/plan.asp</u>
- Los Angeles and San Gabriel Rivers Watershed Council. January 2010. Watershed Augmentation Study: Research, Strategy, and Implementation Report.
- Center for Watershed Protection. April 2008. Technical Memorandum: The Runoff Reduction Method.
- Wilson, Alex and Jessica Boehland. *What's Wrong with the Conventional Lawn?* Facilities Management Resources Sustainability: Natural Landscaping and Artificial Turf: Achieving Water Use and Pesticide Reduction.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.



Project Timing and Phasing

The *Sustainable Landscapes Program* is not a multi-phased project. It is a pilot that tests a new integrated delivery method (e.g., incentives, training, technical assistance, education, materials, marketing and outreach) for water conservation and LID techniques.

Project Map

Figure 3-2 provides a project site map for the *Sustainable Landscapes Program*, showing the project boundary, surface waters, and groundwater basins.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 to DWR. The Sustainable Landscapes Program will contribute \$31,500 to this administrative cost.

A. Direct Project Administration Costs

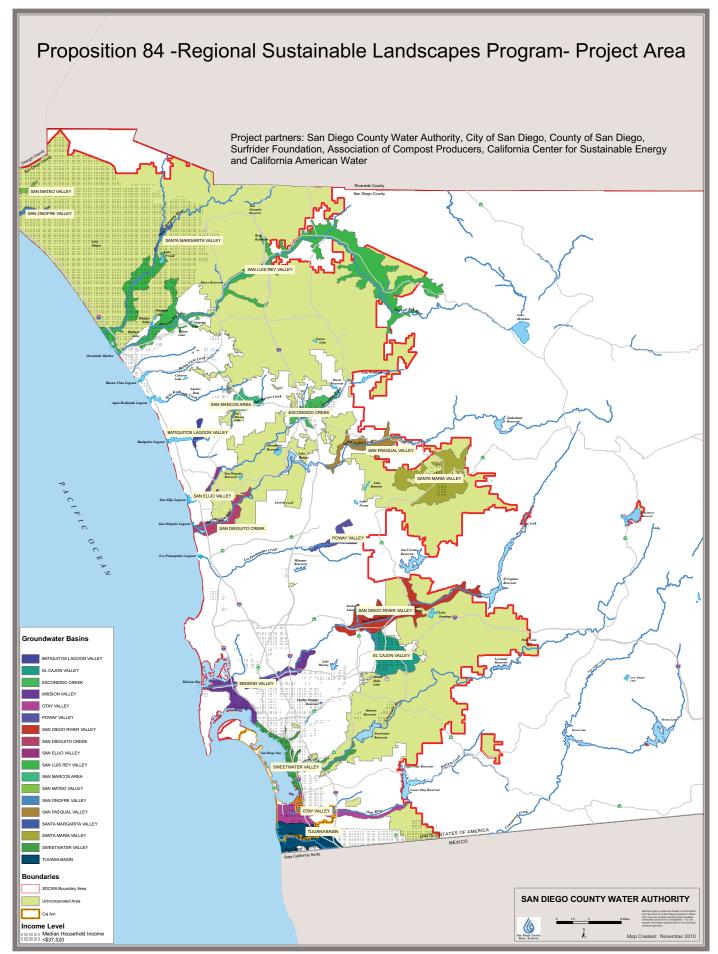
Task 1 – Project Administration: This project will involve project administration before and after the Implementation Grant Agreement is formalized (June 1, 2011).

Project administration for this project before June 1, 2011 will involve ongoing meeting coordination and development of draft memorandums of understanding among partners. Deliverables that will be produced from these project administration efforts include a Draft Memorandum of Understanding, and a Draft Project Organization Chart. These efforts will require labor from a Project Scheduler/Management Analyst, a Water Resources Specialist (Project Manager), a Senior Water Resources Specialist, and a Principal Water Resource Specialist.

Project administration for this project after June 1, 2011 will involve execution of Memorandums of Understanding; invoicing and reporting; and Project Tracking Procedures, and Regular Coordination Meetings with Partners. Deliverables that will be produced from these project administration efforts include invoices, quarterly reports, updated budgets, updated schedules, and change orders. These efforts will require labor from a Project Scheduler/Management Analyst, a Water Resources Specialist (Project Manager), a Senior Water Resources Specialist, and a Principal Water Resource Specialist.

Labor Category	Level of effort	Status
BEFORE June 1, 2011		
Project Scheduler/Management Analyst	30	Underway
Water Resources Specialist (Project Manager)	60	Underway
Senior Water Resources Specialist	10	Underway
Principal Water Resources Specialist	15	Underway
AFTER June 1, 2011		
Project Scheduler/Management Analyst	220	Not started
Water Resources Specialist (Project Manager)	480	Not started
Senior Water Resources Specialist	90	Not started
Principal Water Resources Specialist	150	Not started







Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program (LCP) in accordance with CCR §16421-16439. The Water Authority has a vendor (Golden State LLC) that provides assistance with labor compliance efforts. This vendor is authorized by the State of California to provide labor compliance services. This program has been designed in a manner that is not expected to require labor compliance. The program scope is focused on the development of technical resource, educational resources, and incentives for materials, which exclude construction. If this project is deemed to trigger labor compliance requirements the vendor will be used to administer labor compliance-related tasks associated with this project. Deliverables for this task, if necessary, would include an assessment of the need for a LCP for this project, a LCP (if necessary), and annual reports (if necessary).

Task 3 – Reporting: All reporting for this project will occur after the Implementation Grant Agreement is formalized (after June 1, 2011). In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Reports and Invoices	Quarterly as determined by Start	Not started
Project Completion Report	November 2014*	Not started

*Based on completion of project by June 30, 2014. Project completion report due 90 days after end of term.

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

- Task 4 Assessment and Evaluation: Not applicable.
- Task 5 Final Design: Not applicable.
- Task 6 Environmental Documentation: Not applicable.
- Task 7 Permitting: Not applicable.

D. Construction/Implementation

Task 8 – Implementation Contracting: Prior implementation contracting for this project has included a Request for Proposal (RFP) process and issuance of a purchase order to a landscape architect to develop water efficiency guidelines and specifications in November 2010. This project involves program implementation. It is not a construction project.

Task 9 – Implementation: Implementation of this project will occur after initiation of the Grant Agreement on June 1, 2011.

Materials and/or Design Standards

Average hourly rates and costs/unit used were based on past experience and information obtained from project partners. The project budget by task reflects the expected level of effort required by each task. The Project Team will generally rely on the State of California Model Water Efficient Landscape Ordinance and on Low Impact Development features consistent with the San Diego Regional Water Quality Control Board Municipal Stormwater Permit as a guide.

Implementation Tasks

The Water Authority will adaptively manage this program and may revise tasks in response to changing conditions to ensure program objectives are reached within the allotted schedule and budget. Project subtasks are detailed below.



- Subtask 9.1 Development of Landscape Guidelines and Specifications. Develop an integrated set of guidelines combining water efficiency provisions (consistent with the CA Model Water Efficient Landscape Ordinance) and watershed protection provisions (based on Low Impact Design).
- Subtask 9.2 Development of Education/Training Implementation Plan.
 - Development of Educational Curriculum and Materials for Residential and Professional Series. Develop new curriculum and materials based on the integrated landscape guidelines in Subtask 9.1. Incorporate existing information and materials from other sources, where feasible.
 - Development of Certification and/or Recognition Program. This task includes development of criteria for a regional certification and/or recognition program that builds upon existing industry certification programs. Rely on existing certification programs where applicable (i.e. CLCA, ASLA). Potentially develop a continuing education element for the certification program.
 - Design of Training. The project team will design training modules to be taught throughout the county consistent with the curriculum referenced above. Modules/classes will be targeted to specific audiences.
 - o Deploy training, monitor performance, and administer certification and/or recognition.
- Subtask 9.3 Development of Technical Assistance Implementation Plan. The project team will identify the parameters for technical assistance. Assistance may include, but is not limited to sample irrigation and landscape designs, landscape design workshops, limited site-specific design assistance, "how-to" assistance for do it yourselfers, hand's on demonstrations.
- Subtask 9.4 Development of Marketing/Outreach Plan. The project team will develop a Marketing/Outreach Plan and then conduct targeted outreach to audiences that may include, but are not limited to high water users, customers with excessive lawn areas or customers with visible signs of water waste.
- **Subtask 9.5 Development of Incentive Criteria.** The project team will develop incentive criteria and administer issuance of incentives, which may cover design services and materials including, but not limited to: designs, landscape materials (plants, hardware, etc.), and other items.
- Subtask 9.6 Development of Landscape Material Provision Criteria. The project team will develop and administer landscape material provisions. Materials may include, but are not limited to landscape materials (plants, hardware, compost, etc.).
- **Subtask 9.7 Design and Conduct Evaluation.** It is anticipated that the project will be undergo a mid-stream assessment (to guide potential adaptive management refinements), and upon conclusion, a final evaluation to determine its effectiveness.

Implementation Submittals	Date	Status
AFTER June 1, 2011		
Landscape Standards and Specifications	January 2012	Underway
Education/Training Implementation Plan	February 2012	Not started
Technical Assistance Implementation Plan	March 2012	Not started
Incentive Criteria	April 2012	Not started
Landscape Material Provision Criteria	June 2012	Not started
Marketing/Outreach Plan	June 2012	Not started



E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Although this project funds incentives, it is not responsible for individual/onsite environmental compliance/mitigation/enhancement. It is the responsibility of the individual site owner/manager to identify environmental compliance/mitigation/enhancements that may apply to them.

F. Construction Administration

Task 11 – Construction Administration: Not applicable.

Project 2: North San Diego County Regional Recycled Water Project

I. Introduction

Project Sponsor

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

Project Need

The North San Diego County Regional Recycled Water Project will provide for a comprehensive recycled water program by consolidating North San Diego recycled water projects to meet a regional need. Over time, the 11 project partners have developed separate and possibly redundant recycled water systems throughout northern San Diego County. This project will conduct a systems assessment of the recycled water systems of each partner, and develop recommendations for projects that interconnect and maximize use of recycled water within the combined service area. By integrating our recycled water systems throughout the North County subregion, the partners will maximize existing/planned infrastructure and resources while minimizing redundant costs. By working together, the reliability of recycled water supply will be vastly improved. This project enables the partners to ensure that all recycled water produced in the subregion is efficiently and effectively distributed to customers.

Project Purpose

The purpose of the *North San Diego County Regional Recycled Water Project* is to produce a regional recycled water project supported by the 11 project partners. This project will provide a sustainable, reliable, water resource for North San Diego County.

Project Objectives

The North San Diego County Regional Recycled Water Project will provide for additional delivery and use of recycled water in North San Diego County through:

- Preparation of a Recycled Water Facilities Plan to consolidate the numerous recycled water projects being developed by 11 project partners into an integrated and comprehensive recycling program;
- Planning, design, and environmental review for delivery of 5,000 AFY of recycled water in North San Diego County; and
- Study of regional seasonal recycled water storage.

Table 3-5 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *North San Diego County Regional Recycled Water Project*.

Proposal Projects	Contribution to IRWM Plan Objectives								
	Α	В	С	D	Ε	F	G	Н	I
North San Diego County Regional Recycled Water Project	•	•		•	•				

• = directly related; • = indirectly related

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

- A: Maximize stakeholder and community involvement and stewardship. This project will involve an extensive community outreach and education campaign about the benefits of using recycled water for non-potable uses. The project will include a stakeholder working group to help identify and recommend the priority projects implemented by the 11 partners.
- **B:** Effectively obtain, manage, and assess water resources data and information. This project will collect and assess data related to the recycled water systems within the project partner's combined service areas. As a result, the 11 partners will have access to a consolidated dataset that identifies existing and planned recycled water facilities throughout the region.
- **D:** Develop and maintain a diverse mix of water resources. This project will identify and implement projects that interconnect and maximize use of recycled water within the partners' combined service areas. The resulting regional system will provide greater water supply availability and reliability (5,000 AFY of recycled water) to all agency partners.
- *E: Construct, operate, and maintain a reliable infrastructure system*. This project will identify and implement projects that interconnect and maximize use of recycled water within the project partners' combined service areas. Coordination of 11 recycled water systems will maximize the use of current and planned treatment plants and conveyance facilities.

Project Partners

Project partners in the North San Diego County Regional Recycled Water Project include: Olivenhain Municipal Water District, Carlsbad Municipal Water District, Vallecitos Water District, Santa Fe Irrigation District, Vista Irrigation District, City of Oceanside, Leucadia Water District, City of Vista/Buena Sanitation District, San Elijo Joint Powers Authority, City of Escondido, and Rincon del Diablo Municipal Water District.

Project Abstract

The North San Diego County Regional Recycled Water Project is a plan by North San Diego County water and wastewater agencies to regionalize recycled water systems by identifying 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. Currently, the project is at 0% completion of design.

Linkages and Synergies between Projects

The North San Diego County Cooperative Demineralization Project (Project 3 in this proposal) and the North San Diego County Regional Recycled Water Project are both being developed to address the regional need for a diversified water portfolio by providing more recycled water. The North San Diego County Cooperative Demineralization Project creates additional recycled water treatment capacity, and the North San Diego County Regional Recycled Water Project creates the distribution and storage system necessary to deliver the water.



Existing Data and Studies

This project type, scope, and focus is specifically addressed in the Recycled Water Facilities Plan, which is anticipated to be completed in March 2011. In addition, this project type, scope, and focus is identified in the following water master planning documents:

- Olivenhain Municipal Water District. 2010. Strategic Plan 2010 Update.
- Santa Fe Irrigation District. August 2005. Santa Fe Irrigation District Recycled Water Master Plan.

These documents are contained on a supplementary CD that was submitted with this proposal.

Project Timing and Phasing

The project is a multi-phased project. The design phase in the proposed Work Plan can serve as a roadmap for future engineering and construction activities.

Project Map

Figure 3-3 provides a project site map for the *North San Diego County Regional Recycled Water Project*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

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 *North San Diego County Regional Recycled Water Project* will contribute \$45,000 to this administrative effort.

A. Direct Project Administration Costs

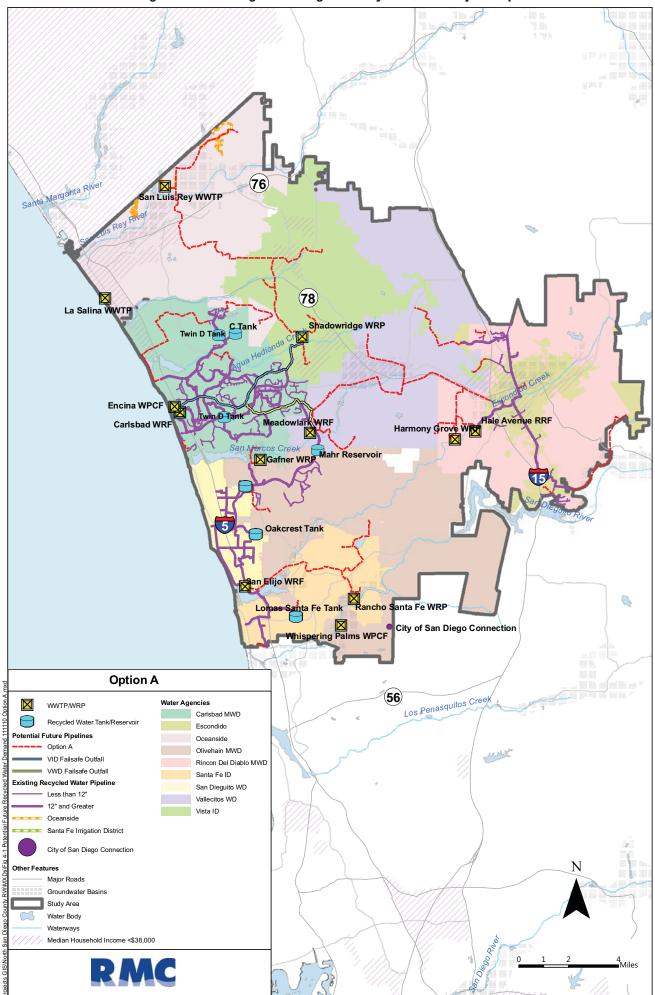
Task 1 – Project Administration: This project will involve project administration after the Implementation Grant Agreement is formalized (after June 1, 2011). Project administration will involve coordinating various project elements with the twelve project partners. The project partners entered into an agreement in June 2010 to utilize the Recycled Water Facilities Master Plan to: analyze individual facilities and projects, to study the ability to interconnect, to maximize recycled treatment facilities and use of recycled water, and to study any potential water quality or physical issues with the comprehensive regional project. In addition, project administration will involve administration, coordination, and review of all project tasks. Completing this task will require OMWD staff time as follows:

Labor Category	Level of effort	Status
AFTER June 1, 2011		
Project Director	60	Not started
Project Manager	180	Not started
Support	160	Not started

Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program (LCP) in accordance with CCR §16421-16439. The OMWD is in process of contracting with an approved third party Labor Compliance Program. Deliverables for this task will include a Labor Compliance Program that is approved by the California Department of Industrial Relations, and an Annual Report that is consistent with the requirements of the approved LCP.

Task 3 – Reporting: All reporting for this project will occur after the Implementation Grant Agreement is formalized (after June 1, 2011). In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.





Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly as determined by Start	Not started
Final Project Completion Report	Upon Project Completion	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: The *Recycled Water Facilities Plan* was completed in March 2011. This plan analyzed existing and proposed recycled water facilities and evaluated each agency's ability to interconnect and maximize the use of recycled water within their combined service areas. Tasks that were undertaken to complete this plan include: reviewing previous studies, reviewing regulatory/water quality considerations, comparing supply and demand, developing alternative concepts, evaluating alternative concepts, summarizing funding options, and preparing the plan. The following data and information were reviewed to complete this plan: Recycled Water Master Plans, Waste Discharge Permits, Annual Recycled Water Supply Reports, Recycled Water Project Implementation Plans, Water and Sewer Master Plans, NPDES Permits, Urban Water Management Plans, Recycled Water Facilities Plans, Outfall Capacity Studies, Asset Management Plans, Recycled Water Agreements, and Recycled Water maps. In addition, recycled water supply and demand forecasts were collected and analyzed in order to complete the plan.

The Engineering Study for Regional Seasonal Recycled Water Storage will be completed by June 2012. This study will evaluate two regional sites as potential regional seasonal recycled water storage sites. This study will expand upon the regional seasonal storage alternatives identified in the Recycled Water Facility Plan. The anticipated sites have been identified previously, but not studied as a regional alternative.

Study Performed	Date	Status
BEFORE June 1, 2011		
Recycled Water Facilities Plan	March 2011	In process
AFTER June 1, 2011		
Engineering Study for Regional Seasonal Recycled Water Storage	June 2012	Not started

Task 5 – Final Design: Design for this project has not yet been completed, and will therefore be completed after June 1, 2011. Completion of the project design is anticipated to occur as follows: 10% conceptual design by December 2011, 30% concept design by September 2012, 50% design by June 2013. This project will not involve final design, and will therefore not include any solicitation efforts.

Design Submittals	Date	Status
AFTER June 1, 2011		
10% Conceptual Design	December 2011	Not started
30% Concept Design	September 2012	Not started
50% Design	June 2013	Not started

Task 6 – Environmental Documentation: Environmental documentation for this project has not been started, and will therefore be completed after June 1, 2011. It is anticipated that a CEQA Initial Study (IS)/NEPA Environmental Assessment (EA) will be completed in order to provide an understanding of environmental impacts at regional seasonal storage sites. Environmental documentation (IS/EA) for this project will be submitted in August 2013.

Environmental Documentation	Date	Status
AFTER June 1, 2011		
CEQA Initial Study/NEPA Environmental Assessment	June 2013	Not started

Task 7 – Permitting: This project will not require any permitting.

D. Construction/Implementation

Task 8 – Construction Contracting: This project will not require construction contracting.

Task 9 - Construction: This project will not involve construction.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: No environmental mitigation or enhancement action or tasks are required as this is a conceptual design project.

F. Construction Administration

Task 11 – Construction Administration: This project will not require construction administration.

Project 3: North San Diego County Cooperative Demineralization Project

I. Introduction

Project Sponsor

San Elijo Joint Powers Authority (SEJPA) is the project sponsor for the North San Diego County Cooperative Demineralization Project.

Project Need

The North San Diego County Cooperative Demineralization Project is needed to (1) create sustainable and diverse local water supplies, (2) provide salinity and nutrient management to the North San Diego County coastal region, (3) address existing high total dissolved solids (TDS) issues in recycled water (which is currently in excess of requirements in the Water Quality Control Plan for the San Diego Basin 9 [Basin Plan]), (4) divert urban runoff and first flush storm water from the San Elijo Lagoon, a 303(d)-listed water body, (5) divert urban runoff and first flush storm water at the Seascape storm drain (Solana Beach), which has a chronic history exceeding REC-1 water quality bacterial standards, and (6) reduce wastewater discharge to the Pacific Ocean.

Project Purpose

The purpose of the *North San Diego County Cooperative Demineralization Project* is to (1) construct a demineralization facility at the San Elijo Water Reclamation Facility (SEWRF) to increase recycled water production by 560 AFY and allow the SEWRF to accept high-TDS pollutant streams without impacting permitted limits, (2) construct storm water diversion structures to divert two identified sources of polluted runoff to the SEWRF for treatment in the near-term and additional locations in the future, (3) perform a feasibility study for an 1120 AFY brackish to potable water desalination facility, and (4) provide monitoring of water quantity and quality in the San Elijo Lagoon, a 303(d)-listed water body.

Project Objectives

The North San Diego County Cooperative Demineralization Project includes the following project objectives:

- Implement cooperative efforts by multiple agencies and stakeholders to provide water education and outreach to over 43,000 residents of North San Diego County.
- Develop 1120 AFY of potable water through brackish water desalination and 560 AFY of recycled water through advanced treatment.



- Construct water infrastructure designed to deliver a local and reliable supply of water to the region.
- Implement facilities to manage the impacts of pollutants to the San Elijo Lagoon, a 303(d)-listed water body, and the Pacific Ocean via the interception and treatment of pollutant loadings at multiple locations.
- Monitor the water quantity and quality of the San Elijo Lagoon.

Table 3-6 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *North San Diego County Cooperative Demineralization Project.*

Proposal Projects	Contribution to IRWM Plan Objectives								
	Α	В	С	D	Е	F	G	Н	I
North San Diego County Cooperative Demineralization Project	•			٠	٠		٠		

• = directly related; • = indirectly related

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

- A: Maximize stakeholder/community involvement and stewardship. This project includes efforts by SEJPA and OMWD in collaboration with the City of Encinitas Clean Water Program, the City of Solana Beach Storm Water Division, and the San Elijo Lagoon Conservancy to conduct water management outreach to area residents.
- **D: Develop and maintain a diverse mix of water resources**. This project will develop and maintain a diverse mix of water resources by increasing tertiary treatment capacity at the SEWRF by 560 AFY and studying an increase of potable water capacity by 1120 AFY through desalination of brackish water with ecological consideration.
- *E: Construct, operate, and maintain a reliable infrastructure system.* This project will construct facilities to (1) increase recycled water production, (2) provide salinity management for coastal water basins, and (3) ensure a reliable source of recycled water. This project will also help develop facilities to produce potable water locally with ecological consideration.
- **G:** Effectively reduce sources of pollutants and environmental stressors. This project will implement facilities to intercept and treat high-TDS first-flush storm water and dry weather urban runoff that would otherwise reach San Elijo Lagoon and Pacific Ocean. This project proposes to expand from two storm water capture locations in northern San Diego County to five.

Project Partners

SEJPA, OMWD, and San Elijo Lagoon Conservancy are project partners in the *North San Diego County Cooperative Demineralization Project*, with support from San Dieguito Water District, Santa Fe Irrigation District, Del Mar, Encinitas, and Solana Beach, the Escondido Creek Watershed Alliance, and Caltrans.

Project Abstract

In Southern California, wastewater, brackish water, and urban runoff are high in total dissolved solids (TDS) and other impurities that require advanced treatment to allow beneficial reuse. The *North San Diego County Cooperative Demineralization Project* is focused on developing new local water supplies and managing water quality issues by constructing advanced water treatment facilities at the SEWRF to mitigate high TDS sources and beneficial reuse and studying the feasibility of brackish to potable water desalination in North San Diego County. The project design is estimated at 50% completed.



Linkages and Synergies between Projects

The North San Diego County Cooperative Demineralization Project includes the construction of infrastructure to increase recycled water production capacity by 520 AFY. This project is linked to the North San Diego County Regional Recycled Water Project (Project 2 in this proposal), which includes efforts to identify new and integrated recycled water projects in North San Diego County. A portion of the projects identified by the North San Diego County Regional Recycled water projects Water Project Water Project Water Project will most likely be served by recycled water produced as a result of the North San Diego County Cooperative Demineralization Project.

Existing Data and Studies

This project type, scope, and focus is identified in the following plans and studies:

- San Elijo Joint Powers Authority. March 2009. Conceptual Design Report for Flow Equalization/Recycled Water Storage Facility.
- San Elijo Joint Powers Authority. July 2009. Updated Financial Assessment for the Recycled Water System.
- San Elijo Joint Powers Authority. December 2009. San Elijo Recycled Water Project Mitigated Negative Declaration.
- San Elijo Joint Powers Authority. December 2009. San Elijo Water Reclamation Facility: Final Preliminary Design Report, Recycled water Demineralization Project.
- San Elijo Joint Powers Authority. March 2010. Geotechnical Investigation, Proposed Improvements, San Elijo Water Reclamation Facility Encinitas, California.
- San Elijo Joint Powers Authority. August 2010. San Elijo Water Reclamation Facility Chlorine Contact Basin Tracer Study Final Report.
- *Opportunities and Constraints Analysis*, which will be completed in March 2011. Please note that because this document has not been finalized, it is not contained within this proposal.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

This project is NOT a multi-phase project.

Project Map

Figure 3-4 provides a project site map for the *North San Diego County Cooperative Demineralization Project*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

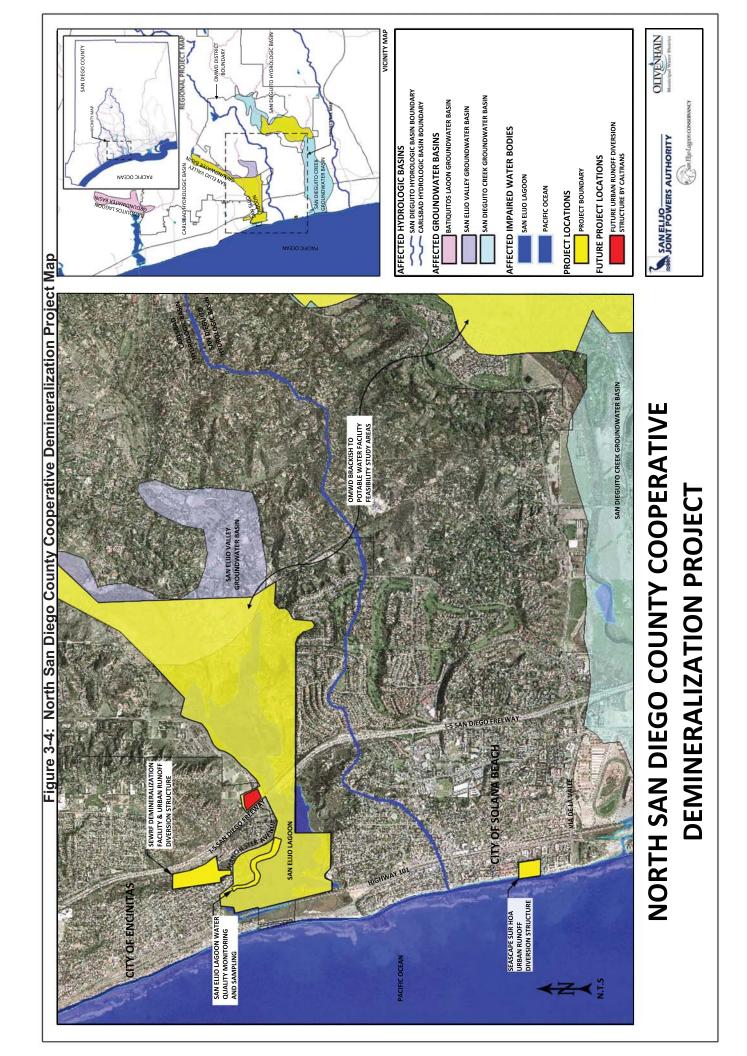
II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 *North San Diego County Cooperative Demineralization Project* will contribute \$31,500 to these administrative fees.

A. Direct Project Administration

Task 1 – Project Administration: This project will involve project administration before and after the Implementation Grant Agreement is formalized (June 1, 2011). Ongoing project administration for this project will involve coordinating the various project elements with partner agencies through memorandums of understanding (MOUs). SEJPA will implement other necessary project administration tasks; however, those staff costs are not included within the work plan.



Labor Category	Level of effort	Status
AFTER June 1, 2011		
Project Manager	20 hours	Ongoing

Task 2 –Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program (LCP) in accordance with CCR §16421-16439. The San Elijo Joint Powers Authority has been in contact with Cal State Compliance and Consulting, a state approved third party LCP contractor, to contract for these services. Cal State Compliance Consulting, which has a State approved LCP program, will be under contract as required to ensure the SEJPA complies with this requirement.

Task 3 – Reporting: All reporting for this project will occur after the Implementation Grant Agreement is formalized (after June 1, 2011). In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	12/31/2012	Not started

B. Land Purchase Easement

The land that will be required for this project was purchased by SEJP in 1965; therefore a land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: This subtask involves preparation of all studies that were completed before initiation of the Grant Agreement in order to assess and evaluate the project.

- The *Conceptual Design Report* was completed on March 23, 2009. This study identified methods and looked at options for relieving flows to the San Elijo Ocean Outfall (SEOO), which is shared by the City of Escondido and the SEJPA, including advanced water treatment.
- A *Financial Assessment* was completed on July 12, 2009. The financial assessment utilized historical financial and usage data to identify the existing and projected revenue streams of the SEJPA's recycled water system.
- The Preliminary Design Report (PDR) was completed on December 1, 2009. The PDR utilized SEWRF secondary effluent constituent levels, data on specific manufacturer MF/UF skids, and permit requirements to identify and analyze (1) the Source water quality and treatment objectives, (2) the appropriate treatment train and parameters, (3) connections to the existing facility, (4) electrical compatibility, and (5) the architectural and structural requirements of the system.

The PDR included a *Geotechnical Investigation* for the project (completed April 24, 2010). This investigation collected soil properties, subsurface properties, and seismic data within the project area in order to identify the existing soil, subsurface, and seismic conditions and make recommendations on site preparation, excavations and shoring, fill placement and compaction, import soils, foundations, retaining wall lateral earth pressures, subterranean basins, preliminary pavement designs, construction operation, and potential limitations.

Laboratory fees were incurred by the SEJPA during preliminary design. These fees went toward laboratory analysis of demineralization feed water that assessed the concentrations of constituents-of-interest, such as phosphorus. Testing was concentrated during preliminary design, but may continue into the future and will be incurred as required or requested by the engineer or other consultants.



- The San Eljio Water Reclamation Facility (SEWRF) Chlorine Contact Basin Tracer (CCT) Study Final Report was finalized on August 26, 2010. This report collected contact time data for the existing chlorine contact tank and used a Dye Tracing method to assess the modal contact time of the existing CCT at 3.02 MGD of flow. The purpose of the study was to determine the ultimate flow that could be run through CCT and maintain the required chlorine residual to conform with Title 22 requirements.
- An *Opportunities and Constraints Analysis* will be completed in March 2011 to identify fatal flaws for a brackish to potable water desalination facility.
- Loan Assistance was provided by Kennedy/Jenks Consultants to prepare a Clean Water State Revolving Fund (SRF) loan packet and provide additional coordination with the State Water Resources Control Board (SWRCB) as necessary.

Several additional studies will need to be completed as part of the project:

- The North County Brackish-to-Potable Water Feasibility Study that will be completed by December 15, 2012. This study will collect data regarding sustainable yields from source wells, ecological and hydrogeological information, and water quality data in affected groundwater basins in order to perform tasks relating to the feasibility of constructing a brackish to potable water desalination facility. This study will be a project deliverable.
- The San Eljio Lagoon Water Quality Report that will be completed by December 15, 2012. This report will monitor water quality data during the life of the project at numerous locations in the Escondido Creek. This report will be a project deliverable.

Study Performed	Date	Status
BEFORE June 1, 2011		
Conceptual Design Report	March 2009	Complete
Financial Assessment	July 2009	Complete
Preliminary Design Report (PDR)	December 2009	Complete
Geotechnical Investigation	April 2010	Complete
SEWRF Chlorine Contact Basin (CCT) Tracer Study Final Report	December 2010	Complete
Opportunities and Constraints Analysis	March 2011	In Process
Loan Assistance	December 2010	Complete
AFTER June 1, 2011		
North County Brackish-to-Potable Water Feasibility Study	December 2012	Not started
San Eljio Lagoon Water Quality Report	December 2012	Not started

Task 5 – Final Design: As of June 1, 2011 the project will be at 60% design status. The 10% conceptual design for the project was completed in September 2009. The 30% conceptual design for the project was finalized in December 2009, the 60% design for the project will be completed in January 2011, and the 90% pre-final design will be completed in May 2011. Design efforts up to this point prompted solicitation for pre-selection of the filtration membrane by December 15, 2010.

Completion of the final project design is anticipated to occur in September 2011. The final design for this project is currently under contract. Final design documents will include drawing sets and technical specifications for construction of the project.

Design Submittals	Date	Status
BEFORE June 1, 2011		
10% (conceptual) Design	September 2009	Complete
30% (concept) Design	December 2009	Complete
60% Design	January 2011	Not started
90% (pre-final) Design	May 2011	Not started
Membrane Pre-selection	December 2010	Underway
AFTER June 1, 2011		
100% (Final) Design	September 2011	Not started

Task 6 – Environmental Documentation: This project has been analyzed in an Initial Study/Mitigated Negative Declaration (IS/MND) (CEQA-Plus) document that was completed and finalized in December 2009. The final document was adopted by resolution in December 2010. This document identified the environmental impacts of proposed construction for the project per applicable state and federal environmental laws, and detailed mitigation efforts required to offset those impacts. The CEQA-Plus document also outlined a Mitigation Monitoring Program (MMP) that requires two biological mitigation efforts. These mitigation efforts outlined within the MMP require that SEJPA conduct a Biological Survey Report, which will be completed prior to project construction.

Environmental Documentation	Date	Status
BEFORE June 1, 2011		
Initial Study/Mitigated Negative Declaration Environmental (CEQA-Plus)	December 2009	Complete
AFTER June 1, 2011		
Biological Survey Report	TBD	Not started

Task 7 – Permitting: Currently, the SEJPA is working to a Coastal Development Permit for the project. This permit is anticipated on February 1, 2011, and was required to obtain approval from the City of Encinitas Planning Commission, which is authorized to make a final determination on coastal development, to construct facilities. Prior to implementation of the project, SEJPA will obtain a Revised Master Recycled Water Permit for the SEWRF to ensure that the plant's recycled water treatment train conforms to Title 22.

Permit	Approval Date	Status
BEFORE June 1, 2011		
Coastal Development Permit	2/01/2011	Underway
AFTER June 1, 2011		
Master Recycled Water Permit No. 2000-10	July 2011	Existing permit to be modified.

D. Construction/Implementation

Task 8 – Construction Contracting: All construction contracting for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011). Construction contracting will include advertisement for bids and a mandatory pre-bid meeting, preparation and distribution of addenda, bid opening, evaluation of bids and award of contract. Formalization of the Notice to Proceed is estimated to occur in September 2011.

Task 9 – Construction: All construction for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011).



Building Materials and/or Construction Standards

The building materials will have been chosen during final design using good asset management principles – meaning, the materials will provide the desired level of service at the lowest life-cycle cost. Construction occurring after June 1, 2011 will conform to the specifications prepared for the project by a licensed Civil Engineer. These specifications include project-specific construction standards and also require the contractor to conform to applicable local, state, and federal laws. The specific codes identified in the preliminary design report for this project include the California Building code (CBC), the National Electric Code (NEC), the Uniform Plumbing code (UPC), the Uniform Mechanical Code (UMC), the California Fire Code (CFC), and CAL-OSHA (California Occupational Safety and Health) requirements. Additionally, the Contractor will be required to conform to the SEJPA Contractor Safety Program or their own safety program. Where there are conflicting requirements, the Contractor will be required to conform to the most stringent requirement.

Construction Tasks

Construction tasks for this project will include Mobilization and Site Preparation, Project Construction, and Performance Testing and Demobilization. These subtasks are described in detail below:

- **Subtask 9.1 Mobilization and Site Preparation**: Mobilization and site preparation includes ordering of equipment, mobilization of contractor equipment and materials, and preparation of physical site (including saw cutting, over excavation, pipeline inspection, and compaction of materials.
- **Subtask 9.2 Project Construction**: Project construction includes foundation work, construction of canopy structures and diversion structures, installation of equipment, installation of mechanical piping, installation of electrical and instrumentation equipment, and connecting the new system to the existing electrical and controls systems.
- **Subtask 9.3 Performance Testing and Demobilization**: Project performance testing and demobilization will include testing and demobilization procedures that will be identified in the final design documents.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Environmental compliance for this project will occur prior to construction of the project, which will be after June 1, 2011. Mitigation efforts that are required per the final Initial Study/Mitigated Negative Declaration (CEQA-Plus) and will be implemented during construction include:

- To avoid direct and indirect impacts to migratory bird species protected under the Migratory Bird Treaty Act, a nesting bird survey, identification, and buffering shall be implemented.
- To avoid indirect impacts to the California gnatcatcher, a pre-construction survey, identification, and buffering shall be implemented.
- Construction-related noise and dust shall be minimized through implementation of BMPs.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. The San Elijo Joint Powers Authority (SEJPA) will implement other necessary project administration tasks. However, those staff costs are not included within the work plan.



Project 4: Rural Disadvantaged Community (DAC) Partnership Project

I. Introduction

Project Sponsor

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

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 (U.S. EPA 2007).

Three major problems that impede the sustainability of a small community water system include: (1) Contamination of drinking water source water from wastewater intrusion, agricultural influences, and/or contaminant spills from industrial activities; (2) 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 (3) Deteriorating collection and distribution systems compromise source water quality and increase the cost of water treatment (U.S. EPA 2007).

Rural communities within the San Diego IRWM Region unincorporated areas have water quantity 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.

There is not enough available funding to meet the needs of rural DACs. The California Department of Public Health (CDPH) has 97 small (less than 10,000 population) systems located in San Diego County on its 2010 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 are faced with water supply 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, disadvantaged rural communities lack technical expertise and financial stability to access and comprehend funding programs.

Project Purpose

The goal of the *Rural DAC Partnership Project* is to 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 IRWMP goals.

The *Rural DAC Partnership Project* will organize a stakeholder committee to identify and select a minimum of two rural DAC projects that address critical water quality or quantity infrastructure improvements. Emphasis will be given to projects ready to be constructed.

Project 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. RCAC has created a Green Infrastructure Guide for small rural DACs promoting conservation, energy efficiency and renewable energy sources.



Project Objectives

The Rural DAC Partnership Project 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 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.

Projects that address conservation of groundwater and surface water supplies, water reuse and/or regionalization will be priorities for rural DAC project selection. 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.

Table 3-7 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *Rural DAC Partnership Project*.

Proposal Projects		Contribution to IRWM Plan Objectives							
FTOPOSal FTOJECIS	A B	В	С	D	Е	F	G	Н	I
Rural DAC Partnership Project	•			•	•		•		

 Table 3-7: Contribution to IRWM Plan Objectives

• = directly related; • = indirectly related

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

- A: Maximize stakeholder/community involvement and stewardship. Selection of DAC projects for funding will be decided by stakeholder/ community decision makers with additional educational meetings to inform citizens of the importance of environmental stewardship emphasizing conservation, renewable energy, and utility efficiency.
- **D:** Develop and maintain a diverse mix of water resources. Projects that address conservation of groundwater and surface water supplies, water reuse and/or regionalization will be priorities during rural DAC project selection Efficient use of finite water supplies and energy resources will be incorporated into DAC projects when appropriate and affordable.
- *E: 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. RCAC will leverage sustainability with other state, federal and local programs.
- **G: Effectively reduce sources of pollutants and environmental stressors**. RCAC has created a 'Green Infrastructure Guide' for DACs with the intent of limiting pollution and environmental stressors due to aging infrastructure. Using this guide and other reputable guidance during project development will help assure that new infrastructure supports environmentally sound and efficient projects.



Project Partners

Project partners in the *Rural DAC Partnership Project* include: County of San Diego, California Rural Water Association, Native American Environmental Protection Coalition, U.S. Department of Agriculture (USDA) Rural Development, U.S. Environmental Protection Agency (USEPA) Region 9, Indian Health Services, and Rural Community Assistance Partnership.

Project Abstract

RCAC will manage the Prop 84 grant funds 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 2000 Census or already recognized income data.

RCAC will lead a representative group of stakeholders and agencies, including a representative of the San Diego IRWM Regional Advisory Committee (RAC), to solicit and select rural DACs for funding of critical infrastructure improvement projects. Rural DACs will be contacted for eligible projects as well as agencies for DACs in non-compliance with local, state, and federal agencies. Criteria for selection will be based on the following factors: 1) public health risks, 2) environmental justice, 3) multiple benefits, 4) affordability and sustainability, 5) incorporation of green technologies. Opportunities to merge related projects will be evaluated. Projects will be selected from both tribal and non-tribal rural DACs. Preference will be given to DAC projects that are ready to be constructed. In every case, RCAC will look at other available funding resources to leverage Prop 84 dollars.

RCAC will provide DACs with outreach, program information, assisting with project scope and readiness, project documentation for funding, assistance with engineering and contractor selection, project oversight, and disbursement of individual DAC project payments. To extend Prop 84 dollars, RCAC will provide supplementary capacity development, training, and technical assistance to support project sustainability utilizing existing RCAC programs.

RCAC is a certified Community Development Financial Institution (CDFI) and will be responsible for disbursements for selected DAC projects. Reporting process for the DAC projects will, at a minimum, include required reporting to receive Prop 84 grant funds. Work will be verified by RCAC before 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.

Typical project types implemented recently by RCAC to address inadequate water supply and water quality in rural DACs include the following. The proposed *Rural DAC Partnership Project* would select and implement two or more similar projects.

- Sample Project 1: MGB Well Rehab and Treatment Plant Renovation. Project would modify sole source well for increased production and replacement of iron/manganese treatment that has never worked. Source does not currently meet existing demands; the community is rationing water supply. Chlorine residuals are not maintained. Untreated water is red-colored. Provides direct water supply and water quality benefits to population of 50 (17 homes) tribal members. Total estimated cost of \$251,000.
- Sample Project 2: SCWWD Robbins Wastewater Rehabilitation. Project would replace existing wastewater treatment system with package recirculating bed filters. The existing filters are failing, leading to excessive discharge nitrate levels and the possibility of sewer overflows. Provides direct wastewater benefits to population of 350-450 (93 connections). Total estimated cost of \$566,000.
- Sample Project 3: LCB Surface Water Treatment and Upgrades. Source is untreated surface/spring water. Project includes installing slow sand filtration, disinfection, and solar power equipment on surface/spring source for compliance with drinking water regulations and to reduce risk of waterborne illness. Project includes security measures to project equipment. Provides direct water supply and water quality benefits to population of 29 (13 homes) tribal members. Total estimated cost of \$352,000.



- Sample Project 4: HB Water Booster Pump Station. Project would construct a new booster station and transmission pipeline to supply water to storage tanks currently being supplied by tanker trucks. Provides direct water supply benefits to population of 350 (70 connections). Total estimated cost of \$90,000.
- Sample Project 5: SJ Well Replacement and Storage. Project would construct a new well to replace wells contaminated with nitrates. Project would include transmission piping and interconnection for redundancy. Provides direct water supply benefits to population of 300 (67 farm worker units). Total project cost of \$3.7 million; Phase 1 involving the new well and disinfection treatment has estimated cost of \$550,000.
- Sample Project 6: COF Wastewater System Improvements. Project would construct improvements to reduce inflow and infiltration in a wastewater treatment system. The operator has received a Cease and Desist Order for discharging to nearby surface waters at 15:1; permit states 100:1. Provides direct wastewater benefits to a population of 1460 (660 connections). Total project cost of \$5.9 million; Phase 1 provides for the headworks pump station at an estimated cost of \$470,000. The existing headworks station is prone to flooding, did not provide grit removal and has confined space safety requirements.

Linkages and Synergies between Projects

The *Rural DAC Partnership Project* supports the goals of the San Diego IRWM Plan, with emphasis on solutions, outreach, and environmental justice for rural DACs. Through RCAC outreach to DACs, information on the overall San Diego IRWM program and any selected projects that may benefit the DAC will be distributed. For example, data obtained in the *Sustainable Landscapes Program, Regional Water Data Management Program, Nutrient Management in the Santa Margarita River Watershed,* and the *San Diego Regional Water Quality Assessment and Outreach Project* that may help DACs implement required source water assessment and source water protection programs.

The Rural DAC Partnership Project also supports:

- USEPA Region 9 primacy regulatory responsibilities for Indian Tribes.
- CDPH primacy regulatory responsibilities.
- SWRCB's Small Community Wastewater Strategy which promotes strategies to assist small and/or disadvantaged communities with wastewater needs.
- Low income projects targeted by the Health and Human Services and USDA Rural Development.
- Indian Health Services public health goals.

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

Project Timing and Phasing

The *Rural DAC Partnership Project* is not a phased project. Each DAC project selected will be implemented independent of other selected DACs.

Existing Data and Studies

The project selection process for the project will utilize the following plans and studies:

- 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.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Map

Figure 3-5 provides a project site map for the *Rural DAC Partnership Project*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 Project* will contribute \$15,000 to this administrative effort.

A. Direct Project Administration Costs

Task 1 – Project Administration: This task involves project administration, contract administration, and coordination with project partners. A Project Manager, Project Support, and Supervisor from RCAC will contribute to fulfilling this task, and will also be responsible for producing reports and other deliverables to the project partners.

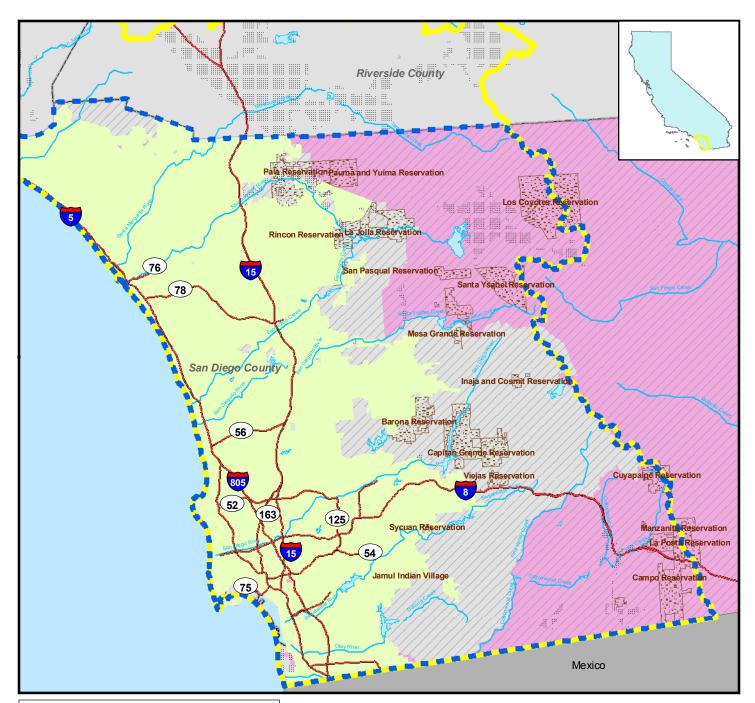
Labor Category	Level of effort	Status
After June 1, 2011		
RCAC Project Manager	95 hours	Not started
RCAC Project Support	29 hours	Not started
RCAC Supervisor	12 hours	Not started

Task 2 – Labor Compliance Program: Projects that will be completed as part of the *Rural DAC Partnership Project* have not yet been selected, and will be selected as part of Task 4 (see below for details). As such, it is not yet known if this project will require a Labor Compliance Program (LCP). However, if an LCP is required, one 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: All reporting for this project will occur after initiation of the Implementation Grant Agreement (after June 1, 2011). In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	January 2012	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start date	Not started
Project Completion Report	January 2014	Not started

Figure 3-5: Rural Disadvantaged Community Partnership Project Map



Legend

Rural Disadvantaged Community Partnership Project San Diego County Water Authority Unincorporated County Lands Groundwater Basins Median Household Income <\$38,000 Tribal Lands San Diego IRWM Region Funding Area Boundary Waterbody River Freeway Mexico County U.S. Census Bureau, 2000 Census, Median Household Income by Census

Note: Projects will be selected from low income rural communities or tribal communities located outside of the San Diego County Water Authority Boundary but within the San Diego IRWM region.







U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm



B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

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 DAC project-specific reports as applicable.

- A Disadvantaged Communities Project Assessment and Selection Study will be performed by January 2012. This study will involve organizing a committee of local DAC stakeholders, soliciting for critical water quantity and/or quality projects from rural DACs, finalizing project selection criteria, selecting two or more projects for funding, 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.
- Disadvantaged Community Project Planning (as required) will be completed, if necessary, by June 2012. This assessment/evaluation may consist of feasibility studies and/or preliminary engineering studies as needed to evaluate options and provide recommendations and cost estimates. The preliminary engineering study or report provides the basis for design. Planning requirements for each DAC project will be determined during DAC project selection. The RCAC will provide capacity development, training, and technical assistance to support project sustainability utilizing existing RCAC programs.

Study Performed	Date	Status
AFTER June 1, 2011		
DAC Project Assessment and Selection	January 2012	Not started
DAC Project Planning, as Required	Est. June 2012	Not started

Task 5 -- Final Design: Completion of the final project design will be determined based on DAC project selection (Task 4). Design required for sample projects include the following:

- Sample Project 1: MGB Well Rehab and Treatment Plant Renovation. Project design would include design drawings and specifications for rehabilitation of a ground water well and iron and manganese treatment equipment. Rehabilitation efforts include washing and scrubbing well casing to increase production.
- Sample Project 2: SCWWD Robbins Wastewater Rehabilitation. Project design would include design drawings and specifications for installation of package recirculating bed filters, associated piping and valves, monitoring equipment and alarms.
- Sample Project 3: LCB Surface Water Treatment and Upgrades. Project design would include design drawings and specifications for treatment facilities to include slow sand filtration and sodium hypochlorite disinfection, wood structure building to house equipment, and solar power equipment to operate the disinfection injection pump and alarm system.
- Sample Project 4: HB Water Booster Pump Station. Project design would include design drawings and specifications for a booster pump station and 6-inch transmission pipeline. The pump station will include wood structure building with concrete floor, access door and pump access through roof, two pumps, piping and valves, lighting, alarm system, emergency power capability and security measures.
- Sample Project 5: SJ Well Replacement and Storage. Project design would include design drawings and specifications for a new ground water well including site layout, well drilling requirements, casing and seal specifications, well head details, pump selection and placement, piping, valves, meter, well performance testing, electrical controls and alarms and auxiliary power capability.



• Sample Project 6: COF Wastewater System Improvements. Project design would include design drawings and specifications for a new above grade headworks pump station including a multi-level structure, pumps, piping, grit removal system, electrical controls, alarms and security measures.

Design Submittals	Date	Status
AFTER June 1, 2011		
100% (Final) Design	Est. October 2012	Not started

Task 6 – Environmental Documentation: CEQA, NEPA, and other required environmental documentation will be addressed during the DAC project selection (Task 4). Environmental documentation required for sample projects may include the following:

- *Categorical Exemptions* which may be used for the sample projects above include, but are not limited to, the following:
 - CEQA Guidelines §15301-Existing Facilities, which provides exemption from CEQA documentation for "operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment..."
 - CEQA Guidelines §15302-Replacement or Reconstruction, which provides exemption for "replacement or reconstruction of existing structures and facilities..."
- Negative Declaration or Mitigated Negative Declaration may be prepared for the sample projects above if the lead agency determines that the selection project(s) will not have a significant effect or will incorporate revisions/mitigation measures to avoid or reduce the effects to a point where no significant effects would occur.

Environmental Documentation	Date	Status
AFTER June 1, 2011		
CEQA/ NEPA and other environmental documentation	Est. January 2013	Not started

Task 7 – Permitting: All required permitting will be addressed during the DAC project selection (Task 4). Because it is unclear at this time what permits may be needed for the selected project(s), these activities are not included in the Work Plan or Budget.

D. Construction/Implementation

Task 8 – Construction Contracting: All construction contracting for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011). Construction contracting for this project will include solicitation of bids and award of contract by April 2013. Construction will begin when the contractor receives a Notice to Proceed from the Project Manager.

Construction will occur in accordance with contract requirements, and any changes must be by contract amendment. Contractor will file a Notice of Completion with the Project Manager when construction is complete.

Construction Submittals	Date	Status
AFTER June 1, 2011		
Notice to Proceed	Est. June 2013	Not started
Notice of Completion	Est. December 2013	Not started

Task 9 – Construction: All construction for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011).



Building Materials and/or Construction Standards

The building materials and computational methods for construction will be determined based on DAC project selection. 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.

Construction Tasks

Construction tasks for this project are anticipated to include Mobilization and Site Preparation, Project Construction, and Performance Testing and Demobilization. These subtasks are described in detail below.

- **Subtask 9.1 Mobilization and Site Preparation:** All construction documentation will be requested for each DAC project that includes construction. Activities undertaken as part of this subtask could potentially include ordering of equipment, mobilization of construction equipment and materials, and preparation of physical site (including excavation, inspection, grading, and compaction).
- Subtask 9.2 Project Construction: All construction documentation will be requested for each DAC project that includes construction. Construction activities may include grading and site preparation, trenching, installation of underground pipes and equipment, pouring of concrete, well drilling, installation of chemical treatment tanks, installation of pumps and valves and installation of small structures or housings.
- **Subtask 9.3 Performance Testing and Demobilization:** Performance testing will be implemented per industry standards and applicable State and local regulations. Demobilization may include removal of construction equipment and restoration of staging areas to former character.

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. Because it is unclear at this time what environmental mitigation may be needed for the selected project(s), these activities are not included in the Work Plan or Budget.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. This task will require labor from a RCAC Project Manager to oversee the DAC community, review progress, and approve payouts. This task will also require labor from a DAC Project Manager to manage the construction contract. The level of effort needed to complete this task will depend on the DAC project selected and will be addressed after selection of the DAC projects. The Contract Administration budget was based on 8% of the estimated construction cost in the range of \$330,000 - \$320,000.

Labor Category	Date Status		
AFTER June 1, 2011			
RCAC Project Manager	March 2013	Not started	
DAC Project Manager	March 2013	Not started	



Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

I. Introduction

Project Sponsor

The San Diego County Water Authority is the project sponsor for the *Lake Hodges Water Quality and Quagga Mitigation Measures* project.

Project Need

The Lake Hodges Water Quality and Quagga Mitigation Measures project is needed to protect recently constructed infrastructure at Lake Hodges, a nearly \$200 million investment, that reduces our reliance on imported water, increases our ability to generate power locally, and improves our ability to deliver water within San Diego County during a significant water supply outage. The project addresses the issues of supply usability due to significantly impaired water quality and the effects of Quagga mussel presence on facility and reservoir operation.

Project Purpose

The Lake Hodges Water Quality and Quagga Mitigation Measures project's purpose is to evaluate methods to improve water quality within Lake Hodges, prioritizing implementation of those methods and test available technologies through a pilot study or studies to determine potential for full scale implementation success. The project will also assess vulnerabilities to reservoir and facility operation from Quagga mussel invasion in Lake Hodges, Olivenhain Reservoir, San Dieguito Reservoir and attached facilities, prioritize implementation, and design and construct a limited number of control measures.

Project Objectives

The Lake Hodges Water Quality and Quagga Mitigation Measures project seeks to accomplish the following objectives:

- Involve local stakeholders to capitalize on complementary project efforts that will address long standing water quality and environmental issues in Lake Hodges.
- Make technical information available, such as product evaluation or control measures implemented, to agencies who may be considering similar applications.
- Decrease reliance on imported water supplies by maintaining infrastructure required to deliver Lake Hodges water within the region.
- Evaluate methods to improve Lake Hodges water quality and protect water treatment infrastructure reliability.
- Produce a plan to decrease levels of pollutants in Lake Hodges that contribute to its 303(d) listed water body status.
- Control the quagga mussel population within the Lake Hodges Pumped Storage facility and evaluate the ability to reduce numbers of viable quagga mussels in connected reservoirs.

Table 3-8 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *Lake Hodges Water Quality and Quagga Mitigation Measures* project.

Proposal Projects	Contribution to IRWM Plan Objectives								
rioposarriojecis	A B	С	D	Ε	F	G	Н	I	
Lake Hodges Water Quality and Quagga Mitigation Measures		•	•	•	•		•		

Table 3-8: Contribution to IRWM Plan Objectives

• = directly related; • = indirectly related



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

- **B:** Effectively obtain, manage, and assess water resources data and information. This project would compile water quality and invasive species control data related to management of the Lake Hodges reservoir.
- C: Further the scientific and technical foundation of water management. Response to and control of quagga mussel infestations in western US waters is a relatively new issue. Results of this project may be helpful to other water agencies who are dealing with or will deal with this or similar issues.
- D: Develop and maintain a diverse mix of water resources. Connecting Lake Hodges to the Water Authority's delivery system increases local supply region-wide and helps to diversify our water supply.
- E: Construct, operate, and maintain a reliable infrastructure system. Exploring ways to increase water quality through this project is key to maintaining water treatment infrastructure reliability within the San Diego region.
- **G:** *Effectively reduce sources of pollutants and environmental stressors.* This project produces a plan to manage lake quality and evaluates methods to reduce turbidity, increase oxygen in lower levels of the reservoir, reduce manganese, and reduce entry of nutrients into the reservoir to lower algal activity. In addition, the project prioritizes and implements select measures to combat effects of quagga mussels in linked reservoirs and connected facilities.

Project Partners

This project is complementary to the ongoing effort by San Dieguito Water District, Santa Fe Irrigation District, City of San Diego, San Dieguito River Valley Conservancy, and the San Dieguito Watershed Council to address long term water quality and environmental issues within the Lake Hodges watershed. Additional project supporters include San Diego CoastKeeper and San Diego Gas and Electric.

Project Abstract

The Lake Hodges Water Quality and Quagga Mitigation Measures project is intended to address two issues centered within the San Dieguito hydrologic unit. The first is how to improve low water quality within Lake Hodges. The second is how to mitigate against the potential long term effects of quagga mussels on Lake Hodges, San Dieguito Reservoir, Olivenhain Reservoir, and attached facilities.

In order to accomplish the water quality objective, we propose to gather baseline water quality data, evaluate existing technologies for applicability, evaluate environmental effects of various measures, and determine which methods should be pilot tested in this first phase of the project. If an environmental impact report (EIR) is indicated for implementation occurring in a future phase of the project, the EIR will be incorporated into Phase 1.

In order to accomplish the Quagga mitigation objective, we will conduct a vulnerability assessment for the three reservoirs and attached facilities (a hydroelectric facility, a water filtration plant, a flow control facility, pump stations, and pipelines), evaluate applicability of existing control methods and level of control achieved, and prioritize control implementation for this and subsequent phases of the project. Funds have been included in this project phase to design and implement at least one control measure.

For purposes of budgeting, it was estimated that the highest priority control would be at the Hodges Pumped Storage facility (hydroelectric facility) to potentially re-route piping and install controls such as disinfection and filtration to protect the cooling water system from infestation. Depending on the outcome of the vulnerability assessment, control measure evaluation, and prioritization process, the location or type of controls constructed may change.

Additional water quality or Quagga control priorities may be implemented if it is determined that an EIR is not required for the planned work. No design work has been completed to date for this project.



Linkages and Synergies between Projects

This project is complemented by the San Dieguito Watershed Management Plan Implementation Project – Lake Hodges Natural Treatment System Conceptual Design (Project 17 in the San Diego IRWM Proposition 50 grant program) which deals with land/watershed improvements that can be made to improve long term water quality. The Lake Hodges Water Quality and Quagga Mitigation Measures project proposes facility and in-reservoir improvements to address existing water quality.

Existing Data and Studies

The need for this project type, scope or focus is identified in the following agreements, plans, and studies:

- Agreement between SDCWA and the City of San Diego for the Emergency Storage Project (Joint Use of lake Hodges Dam and Reservoir), Section 9.1.2, April 1998.
- San Diego Regional Quagga Mussel Working Group. April 2008. San Diego Regional Dreissena Mussel Response and Control Plan.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

This project is a multi-phased project. Water quality and Quagga mussel control measures can be fully evaluated, prioritized and scheduled for implementation under this first phase, allowing for more effective and efficient use of funds for future phases.

Some funds have been included to implement Quagga control measures for those items identified as high priority and where existing technology can be applied effectively.

Project Map

Figure 3-6 provides a project site map for the *Lake Hodges Water Quality and Quagga Mitigation Measures* project, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 *Lake Hodges Water Quality and Quagga Mitigation Measures* project will contribute \$27,000 to these administrative fees.

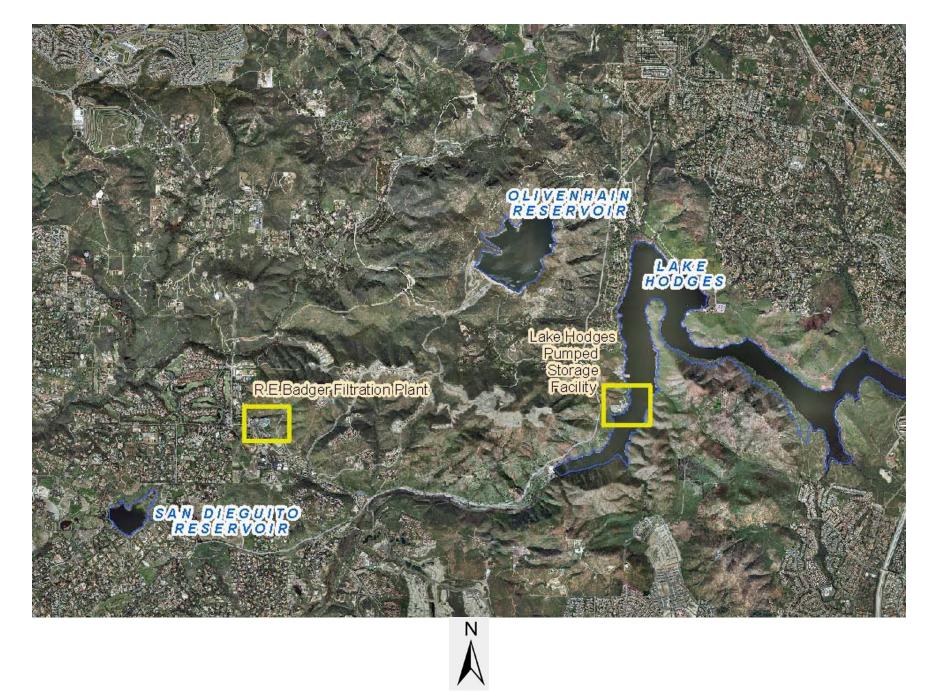
A. Direct Project Administration

Task 1 – Project Administration: This project will involve project administration before and after the Implementation Grant Agreement is formalized (June 1, 2011).

Ongoing project administration for this project (before June 1, 2011) will involve assembling a stakeholder committee, developing agreements with project partners, stakeholder meetings and correspondence, setting up the project budget in the financial system, and entering the project schedule. SDCWA has employed a Project Manger and Administration Support to date for project administration and will utilize interagency project coordinators from cost sharing agencies to coordinate project partner expenses.

Future project administration (after June 1, 2011) will continue to involve stakeholder coordination meetings and project partner expenses. Deliverables for future project administration include a final agreement with project partners and quarterly project reports and invoices representing project progress.

Figure 3-6: Lake Hodges Water Quality and Quagga Mitigation Measures Project Map



Labor Category	Level of effort	Status
BEFORE June 1, 2011		
Project Manager	32 hours	Underway
Administration Support	8 hours	Underway
Interagency Project Coordination	4 hours	Underway
AFTER June 1, 2011		
Project Manager	92 hours	Not started
Administration Support	32 hours	Not started
Interagency Project Coordination	16 hours	Not started

Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program (LCP) in accordance with CCR §16421-16439. The Water Authority currently has an active Labor Compliance Program contract with Golden State Labor Compliance, LLC. The program was approved by the California Department of Industrial Relations in 2003. Deliverables from this LCP include the approved LCP and an annual report.

Task 3 – Reporting: In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	December 2014	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: The following provides a list of necessary studies that have been completed in order to assess and evaluate the project.

- The Santa Fe Irrigation District Water Quality Assessment is expected to be finalized in May 2011. This assessment involves collection of water quality data from Lake Hodges and San Dieguito Reservoir, and then analysis of the data to develop future water quality improvement measures for feasibility studies and analyses.
- A *Quagga Mussel Vulnerability Assessment* will be finalized in June 2011. The report will assess the Olivenhain, Lake Hodges, and San Dieguito Reservoirs, the Lake Hodges Pumped Storage Facility, and other related facilities for vulnerability to quagga mussel infestation, determine which available protection measures can be implemented, and how implementation should be phased.

The following provides a list of necessary studies that will be completed after the Implementation Grant Agreement is in place, in order to assess and evaluate the project.

 A Water Quality Improvement Measures Feasibility Study will be completed in February 2012. This study will assess available technologies for potential to improve water quality in Lake Hodges when compared to baseline data, including assessing reasonability of costs to implement and maintain. Results of any pilot testing and/or technology trials will also be included. This study will be a project deliverable.

Study Performed	Date	Status		
BEFORE June 1, 2011				
SFID Water Quality Assessment	May 2011	Underway		
Quagga Mussel Vulnerability Assessment	June 2011	Underway		
AFTER June 1, 2011				
Water Quality Improvement Measures Feasibility Study	February 2012	Not started		

Task 5 – Final Design: None of the design work has been completed for this project. All design work will occur after initiation of the Grant Agreement (after June 1, 2011). Future design efforts will occur as outlined in the table below.

Preliminary Design will be completed in April 2012. This design will utilize conclusions from the vulnerability assessment and prioritization process to develop the preliminary design of Phase 1 Quagga control measures. This study will be a project deliverable.

Solicitation efforts will be conducted for the aforementioned design efforts. Solicitation for the planning and design of water quality projects will occur in July 2011, and deliverables for this design will include final design of Phase 1 water quality improvement equipment. Solicitation for the design of Quagga control measures will occur in September 2011, and deliverables for this design will include final design of Phase 1 Quagga control equipment/facility retrofits.

Design Submittals	Date	Status		
AFTER June 1, 2011				
10% (conceptual) Design	January 2012	Not started		
30% Preliminary Design	April 2012	Not started		
100% (Final) Design	July 2012	Not started		
Solicitation Efforts	Date	Status		
AFTER June 1, 2011				
Planning/Design – Water Quality Projects	August 2011	Not started		
Design – Quagga Control Measures	September 2011	Not started		

Task 6 – Environmental Documentation: This project will not require environmental documentation prior to initiation of the Grant Agreement (before June 1, 2011), because the project will still be in the planning phase at that time.

The project will go through a CEQA determination process at the 10% design stage (in January 2012), which will determine the environmental documents required to proceed with Phase 1 and subsequent phases of project implementation. An Environmental Impact Report (EIR) may be required for in-lake construction and implementation activities. This environmental documentation, or other environmental documentation required for project implementation will be finalized by June 2013. Deliverables for environmental documentation will include a Certified EIR, and/or a certified copy of any other environmental documentation required.

Environmental Documentation	Date	Status
AFTER June 1 , 2011		
CEQA determination	January 2012	Not started
EIR/Other Environmental Documentation	July 2013	Not started

Task 7 – Permitting: No permitting will be required for this project prior to initiation of the Grant Agreement (June 1, 2011). The need for permits will be evaluated during environmental review of this project; no environmental permitting is included within the Work Plan at this time.



D. Construction/Implementation

Task 8 – Construction Contracting: No construction contracting will be required for this project prior to initiation of the Grant Agreement (June 1, 2011). Construction contracting for this project will include advertisement for bids, pre-bid contractors meeting, evaluation of bids, and contract award. Formalization of the Notice to Proceed will occur in January 2013.

Construction Contracting Tasks	Date	Status
AFTER June 1, 2011		
Notice to Proceed	January 2013	Not started

Task 9 – Construction: All construction for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011). Design for this project has not yet been started, and as such this Work Plan contains projected and estimated information regarding construction.

Building Materials and/or Construction Standards

Final design for the project has not started; however, construction costs were estimated using costs incurred by another government agency that has done work similar to anticipated consultant recommendations and prioritization of projects following feasibility, planning and design stages. All standards will comply with local, state and federal regulations.

Construction Tasks

Construction tasks for this project will include installation of Quagga mussel control equipment and reconfiguration of existing facilities. However, the actual construction items will be determined based on a prioritization process that will be completed following the vulnerability analysis and feasibility study listed above in Task 4: Assessment and Evaluation.

Actual labor and materials necessary for construction of the Quagga mussel control equipment will include site mobilization and preparation, installation of control measures, performance testing and demobilization. Construction is anticipated to be complete in mid-2014.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Environmental mitigation has not yet been determined and may not be required if work is contained within an existing facility. Any environmental compliance/mitigation/enhancement will be completed in compliance with requirements determined in the final environmental documentation. However, no environmental mitigation is included within the Work Plan at this time.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. This task will be carried out by a Construction Administrator, Construction Manager, and Project Manager.

Labor Category	Level of effort	Status
AFTER June 1, 2011		
Construction Management	360 hours	Not started
Construction Administration	220 hours	Not started
Project Management	120 hours	Not started



Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

I. Introduction

Project Sponsor

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

Project Need

Nitrogen and phosphorous loading from the Santa Margarita River 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 (N), phosphorus (P), or eutrophication. Addressing these adverse effects 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 are problematic, in part, because they do not consider site-specific factors. The Nutrient Numeric Endpoint (NNE) framework, an alternative regulatory approach advocated by State Water Resources Control Board (SWRCB) staff and U.S. Environmental Protection Agency (USEPA) Region 9, is currently under development. The *Implementing Nutrient Management in the Santa Margarita River Watershed*_project will address data gaps inherent in the NNE framework and refine nutrient WQOs for the watershed.

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

Project Purpose

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project aims to establish nutrient WQOs for the Santa Margarita River estuary (Phase I) and ultimately watershed (Phase II) that will lead to the implementation of nutrient reduction and water conservation practices in the watershed.

Project Objectives

The Implementing Nutrient Management in the Santa Margarita River Watershed project seeks to accomplish the following objectives: Create and facilitate a Santa Margarita River watershed stakeholder group that will provide feedback, critical review of technical work products, and achieve consensus on WQOs;

- Conduct monitoring and special studies to address data gaps in data required to develop WQOs for the River; and
- Develop proposed nutrient WQOs or nutrient endpoints for Santa Margarita River estuary based on the NNE approach and local data.
- Maximize stakeholder and community involvement in the Santa Margarita watershed by establishing a stakeholder group
- Develop nutrient WQOs for SMR watershed that are protective of beneficial uses thus encouraging the implementation of BMPs to reduce nutrient runoff from wet and dry weather sources

Table 3-9 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *Implementing Nutrient Management in the Santa Margarita River Watershed Project.*

Proposal Projects	Contribution to IRWM Plan Objectives								
	Α	В	С	D	Е	F	G	Н	I
Implementing Nutrient Management in the Santa Margarita River Watershed	•	٠	•				•		

• = directly related; • = indirectly related

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

- A: Maximize stakeholder and community involvement and stewardship. Stakeholder involvement is central to the goals of the project. The stakeholder group will guide project objectives, identify data gaps, review technical outcomes, participate in water conservation outreach, and achieve consensus on recommending WQOs for the lagoon that are protective of beneficial uses that include protecting current habitats.
- **B:** *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.
- C: Further the scientific and technical foundation of water management. The project will demonstrate an innovative approach to establishing nutrient WQOs by using open source models, publishing results in peer-reviewed scientific literature, and making presentations to stakeholders, thus improving the technical foundation of water management.
- **G:** *Effectively reduce sources of pollutants and environmental stressors*. This project will develop nutrient WQOs that will help reduce sources of pollutants, specifically nutrients, and other environmental stressors associated with point and non-point source runoff.

Project Partners

Project partners in the *Implementing Nutrient Management in the Santa Margarita River Watershed* project 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); 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; Elsinore Murrieta Anza Resource Conservation District (EMARCD); and Trout Unlimited.

The project is also a partnership between the Upper Santa Margarita RWMG and the San Diego RWMG, as partners in the Tri-County Funding Area Coordinating Committee (Tri-County FACC) of the San Diego Funding Area.

Project Abstract

The project consists of three major activities (listed in Task 4) as described below. Please note that this project is part of a joint application between the San Diego IRWM Region and the Upper Santa Margarita IRWM Region. The *Upper Santa Margarita IRWM Implementation Grant Proposal* includes the same project. The project descriptions are identical (as each proposal partially funds the whole project) except for the budget, which is specific to the IRWM planning region (please refer to Attachment 4). The County of San Diego will serve as the administrator for the overall project. Completion of design is not relevant to this project, because it will not include final design efforts.

Each of the tasks below identifies which proposal(s) are funding the task:

Subtask 4A: Form and Facilitate Stakeholder Advisory Group (San Diego and Upper Santa Margarita Proposals)

The purpose of this subtask is to form and facilitate discussions among a Santa Margarita River watershed stakeholder group to guide project activities, review technical work products, and achieve

consensus. The group will guide project activities, and review and provide feedback on technical and policy elements. The group will be formed from the existing Santa Margarita River Executive Management Team (EMT), which is comprised of key agencies and land owners in the watershed who meet quarterly to address water management issues.

One of the group's first tasks will be to develop a monitoring program to support the development of nutrient WQOs. This will be done by identifying key questions and conceptual approach, determining specific technical activities and information required, evaluating existing data and identifying data gaps. The resulting products will be the monitoring plan and Quality Assurance Project Plan (QAPP) to be prepared by USMC Camp Pendleton.

This task includes funding for the Principal and Senior Scientist for the field and special studies to attend ten four-hour Stakeholder Advisory Group Meetings, scheduled approximately bimonthly initially and then as needed from July 2011 through December 2014 (10 meetings). Their purpose would be to take input from the stakeholder group regarding the project and provide updates, grant reports, and other information. Each meeting is presumed to require 2 hours of driving and 6 hours of preparation.

Subtask 4B: Conduct Field and Special Studies (San Diego and Upper Santa Margarita Proposals)

The purpose of this subtask is to conduct monitoring and special studies to address data gaps identified by stakeholders to achieve project objectives. Pending the analysis of data gaps, potential studies will include core field data collection and special studies.

The goal of core field data collection will be to measure ambient nutrient concentrations and conduct algal bioassessment studies. The core studies will focus on site-specific factors controlling algal response that include canopy cover, substrate types, flow rates, and others. Pending the outcome of task 4A, approximately 10 to 15 sites will be sampled 3 times per year during the growing season over a period of 1 year. The studies may include hydrology measurements as well as water quality sampling. 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 (includes water chemistry, algal biomass, cover, biovolume, and PHAB).

The special studies will include a characterization of the "natural background" conditions of nutrient concentrations and algal growth. The studies will provide information needed to select appropriate algal thresholds and to determine "background" indicator variability (the margin of error). The special studies will further address important nutrient sinks (ex. denitrification), sources (ex. groundwater), and rates of nutrient transformation processes. They will help characterize the variability in numeric targets. The specific studies required will be better defined during work plan discussions.

The deliverables will include data uploaded to Santa Margarita River watershed database, technical report summarizing data quality and conditions by reach, and technical report summarizing the outcomes of the special studies.

The specific distribution of stations for monitoring and special study between the two regions will be determined from the data gap analysis. Funding of the data collection and special study will be based on the attached budget worksheets independent of station/study location as the project, as a whole, benefits both the Upper Santa Margarita and San Diego regions. The San Diego and Upper Santa Margarita IRWM Regions have therefore agreed to a fixed percentage distribution of costs for this project.

Subtask 4C: Develop Nutrient WQOs for Santa Margarita River Estuary (San Diego Proposal)

The approach for developing nutrient WQOs for the Santa Margarita River estuary leverages two major activities: 1) data collection to support modeling in the estuary and watershed to develop TMDLs and 2) ongoing research to develop the estuarine NNE framework, based on dissolved oxygen and macroalgae as endpoints.

In 2007, the SDRWQCB issued a Monitoring Order to San Diego Co-Permittees to collect data to support the calibration and validation of watershed loading and lagoon water quality models, with the specific purpose of calculating the "maximum load" of nutrients that the estuary can sustain and establishing the TMDL (load and waste load allocations, implementation plan, etc.). To assist in this effort, SCCWRP received funding from a Prop 50 grant to conduct special studies to complement the monitoring order. Data collection is now completed and the final baseline report will be issued in December 2010. In addition, SCCWRP is providing technical support to the SWRCB by conducting literature review and studies to refine estuarine water column dissolved oxygen objectives and to develop NNE thresholds for macroalgal blooms in mudflats. Final deliverables for this statewide estuarine NNE project will be available in the spring of 2012, but a preliminary assessment framework will be available in the spring of 2011.

This project will build on these existing efforts by reviewing, with stakeholders, the available data for selection of a macroalgal NNE target, and calibrating and validating the estuarine water quality model in order to estimate the "maximum sustainable load" of N and P. This work will form the basis for selecting N and P WQOs for the estuary and will inform the river nutrient WQOs by determining nutrient concentrations required to protect downstream (i.e. estuarine) beneficial uses.

Linkages and Synergies between Projects

The Implementing Nutrient Management in the Santa Margarita River Watershed project is also linked to the following:

- Santa Margarita River Conjunctive Use Project (receiving Prop 50 funding through the San Diego IRWMP)
- San Diego Lagoon TMDL Project (receiving 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 Upper Santa Margarita IRWMP funding)
- Murrieta Creek Phase II (proposed by RCFCWCD for Upper Santa Margarita IRWMP funding)
- Murrieta Creek Phases III and IV (proposed by RCFCWCD for Upper Santa Margarita IRWMP funding)
- San Mateo Creek Fish Habitat Restoration (proposed EMARCD partnered with Trout Unlimited for Upper Santa Margarita IRWMP funding)
- Reclaim and Recycled Anza Farming Irrigation Runoff Water and Other Nearby Contaminated Water (proposed by Anza/Aguanga IRWMP community for Upper Santa Margarita IRWMP funding)
- Agricultural Waiver Project (proposed by RCWD for Upper Santa Margarita IRWMP funding)
- Sustainable Agriculture (proposed by RCWD for Upper Santa Margarita IRWMP funding)
- Salt and Nutrient Groundwater Management Plan (proposed by RCWD for Upper Santa Margarita IRWMP Funding)
- Implementation of Wildomar Master Drainage Plan (proposed by RCFCWCD for Upper Santa Margarita IRWMP funding)
- Retrofit Public Property with Water Quality Measures (proposed by RCFCWCD for Upper Santa Margarita IRWMP funding)
- Stream Restoration (Santa Margarita Watershed) for Steelhead Trout (proposed by Trout Unlimited for Upper Santa Margarita IRWMP funding)
- Agricultural Lands Stewardship (proposed by EMARCD for Upper Santa Margarita IRWMP funding)

Existing Data and Studies

This project type, scope and focus and, in some instances, location type is also identified specifically in the following watershed and TMDL implementation plans:

• 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.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

The project is a multi-phased project:

- Phase I (*the subject of this Work Plan*) will involve forming and facilitating discussions among a Santa Margarita River watershed stakeholder group to guide project activities, review technical work products, and achieve consensus. This Phase will include modeling of the Santa Margarita Estuary using existing data and developing WQOs for the estuary. The group will identify key study questions, outline the conceptual approach, evaluate existing data, identify data gaps, and determine specific technical activities and information required. Based on this, the group will develop a monitoring program that will include the monitoring plan and QAPP.
- Phase II will involve conducting additional monitoring and special studies to address data gaps identified by stakeholders, and develop proposed nutrient WQOs for Santa Margarita River based on the NNE approach using local data.

Phase I of the project can operate on standalone basis because once the consensus is reached, data gaps are identified and required activities are determined, they may be used as guidance for future studies. Additionally, data are already available to conduct the nutrient modeling of the Santa Margarita River estuary. This will be documented in the work products: monitoring plan and QAPP.

Phase II of the project can also operate on standalone basis because it focuses on the developing the WQOs of nutrients in the Santa Margarita River watershed. Additional monitoring may be required to develop the Santa Margarita River WQOs and that will be determined in consultation with the stakeholder group.

Project Map

Figure 3-7 provides a project site map for the *Implementing Nutrient Management in the Santa Margarita River Watershed*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

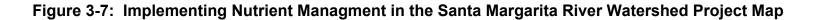
SDCWA will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR.

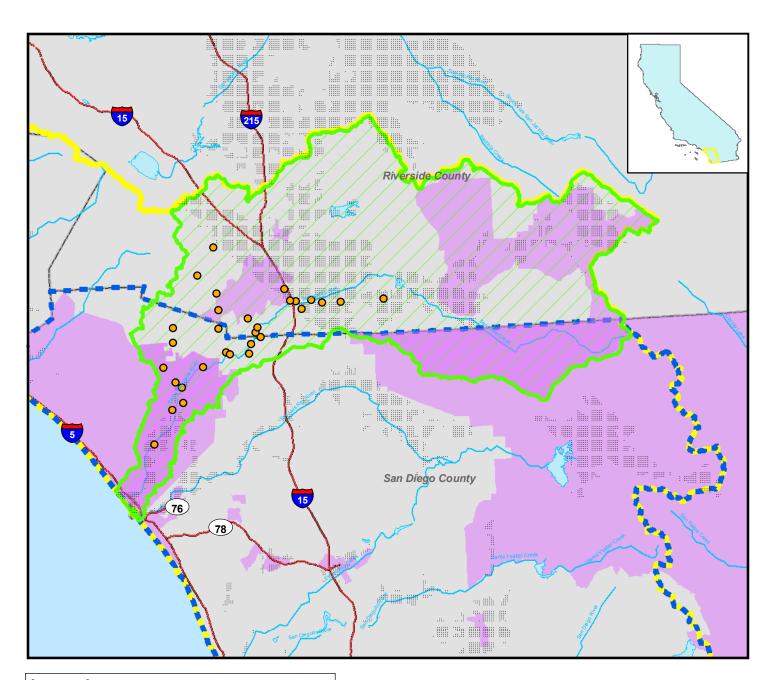
A. Direct Project Administration Costs

Task 1 – Project Administration: This task involves project administration, coordination, and review of all following project tasks. This task is not included within the budget for this project, because funds to support this task will come from the County of San Diego's General Fund.

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: In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.





Proposed Monitoring Sites Groundwater Basins Santa Margarita River Watershed Boundary Median Household Income <\$38,000 San Diego IRWM Region Funding Area Boundary Ocean Waterbody River Freeway County

N





U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm

Project Administration Submittals	Date	Status
BEFORE June 1, 2011		
Sample and Analysis Plan	May 31, 2011	Not started.
Quality Assurance Project Plan (QAPP)	May 31, 2011	Not started.
Project Assessment Evaluation Plan (PAEP)	May 31, 2011	Not started.
AFTER June 1, 2011		
Quarterly Reports and Invoices	Quarterly as determined by Start	Not started.
Project Completion Report	October 1, 2014	Not started.

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: Subtasks 4A, 4B, and 4C listed within the Budget for this project (refer to Attachment 4) include the following assessments and/or evaluations. Note that portions of Subtask 4C Develop Nutrient WQOs for Santa Margarita River Estuary, and the entirety of Subtask 4A Form and Facilitate Stakeholder Advisory Group will be completed prior to initiation of the Grant Agreement (June 1, 2011). Deliverables that will result from this task include Monitoring and Special Studies Report (draft and final), and Proposed Nutrient WQOs for Santa Margarita Estuary Report (draft and final).

• **Subtask 4A: Form and Facilitate Stakeholder Advisory Group:** This task will be completed by May 31, 2011, and will involve forming and facilitating a stakeholder advisory group. The stakeholder group will guide project activities, and review and provide feedback on technical and policy elements of the project. Stakeholders will also identify key questions and a conceptual approach, and determine specific technical activities and information required to carry out that approach. The group will also evaluate existing data and identify any current data gaps.

The group will develop a monitoring program to support the development of nutrient water quality objectives (WQOs), the products of which will be a Sample and Analysis Plan, QAPP, and PAEP as outlined in Task 3 above.

Data collected during this process include technical evaluations and feedback from stakeholders, which were used to identify data gaps. In addition, stakeholders will provide input on the modeling effort to develop WQOs and assist in development of the QAPP and PAEP.

- **Task 4B: Conduct Field and Special Studies:** This task will be completed after initiation of the Grant Agreement, by October 1, 2014. The studies conducted for this task will address site-specific factors controlling algal response. Approximately 10 to 15 sites will be sampled 3 times per year for one year's time. Data generated will include an 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 4A) necessary to achieve project objectives. Potential studies will include core field data collection and other special studies.
- **Task 4C: Develop Nutrient WQOs for Santa Margarita River Estuary**: Before the Grant Agreement, the project team completed the *Santa Margarita River Estuary Investigation* (June 2009). In response to Order 13267 from the San Diego Regional Water Quality Control Board, a Santa Margarita River Estuary Investigation was conducted by a subgroup of stakeholders between 2008 and 2009. The data collected during this time will be used to conduct estuary modeling.

The Southern California Coastal Water Research Project (SCCWRP), under a Proposition 50 grant, collected additional information from the Santa Margarita River Estuary to address nitrogen sources within the lagoon. Additionally, the San Diego Municipal Stormwater Co-Permittees

contributed funds to the field equipment and data collection of information for the *Bight '08 Estuaries and Coastal Wetlands Eutrophication Study* (December 2008, attached) that included extensive work done at the Santa Margarita River Estuary. The results of that study are currently being analyzed and will be considered for the modeling of estuary processes below.

Proposed future work tasks will be completed by October 1, 2014. These tasks will involve using existing data mentioned above, as well as data collected from the Bioassessment Program, which includes algal and benthic macroinvertebrate bioassessment data, water quality measurements, flow measurements, and other site specific data.

The approach for developing nutrient WQOs for the Santa Margarita River estuary leverages two major activities:

- 1) data collection to support modeling in the estuary and watershed to develop Total Maximum Daily Loads (TMDLs) and
- 2) ongoing research to develop the estuarine nutrient numeric endpoints (NNE) framework, based on dissolved oxygen and macroalgae as endpoints.

Based on the NNE approach and local data, the nutrient WQOs for the Estuary will be developed by staff of the San Diego RWQCB, as appropriate.

Study Performed	Date	Status		
BEFORE June 1, 2011				
4A: Form and Facilitate Stakeholder Advisory Group	May 31, 2011	In process		
4C: Santa Margarita River Estuary Investigation	May 31 2011	Complete		
4C: Bight '08 Estuaries and Coastal Wetlands Study (Santa Margarita River Estuary data collection)	May 31, 2011	Complete		
AFTER June 1, 2011	·			
4B: Monitoring and Special Studies Report	October 1, 2014	Not started		
4C: Proposed Nutrient WQOs for Santa Margarita River Estuary Report	October 1, 2014	Not started		

Task 5 – Final Design: Not applicable.

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 of the participating agencies. As such, this project was issued a CEQA Categorical Exemption in May 2011. This project does not require NEPA-related analysis.

Environmental Documentation	Submittal	Status	
CEQA Categorical Exemption	May 31, 2011	Not Started	

Task 7 – Permitting: This project will not involve construction, and was issued a CEQA Categorical Exemption. Therefore, permitting is not applicable to this project.

D. Construction/Implementation

Task 8 – Construction Contracting: This project will not require construction contracting.

Task 9 – Construction: This project will not involve construction.

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.



F. Construction Administration

Task 11 – Construction Administration: Construction administration will not be completed as part of this project.

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

I. Introduction

Project Sponsor

The City of San Diego is the project sponsor for the *Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project.

Project Need

The Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection (Project #92) project is located in central San Diego in the Tecolote Creek Watershed, which encompasses approximately 5,992 acres of predominately of urbanized land located and area discharges to the southern portion of Mission Bay. The Regional Water Quality Control Board has identified Tecolote Creek as an impaired water body on the 2008 Clean Water Act Section 303(d) List for bacteria. The project is part of the City of San Diego's tiered and phased storm water best management practices (BMP) implementation approach, which targets runoff reduction and includes components for watershed stewardship, education and outreach, and community enhancements in capital projects. Properly engineered and designed infiltration may prove to be a cost effective alternative to building costly and land intensive end-of pipe treatment facilities.

This project will directly further the protection of the recreational uses of Mission Bay, which is a regional recreational asset that is directly impacted by pollutant-laden urban runoff discharged via the storm drain system through Tecolote Creek. In reducing urban runoff that carries pollutants into Tecolote Creek, the potential for contact and non-contact recreational uses are enhanced regionally.

Project Purpose

The goal of the Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection project is to reduce the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek Watershed. The load reduction goal will be achieved by diverting stormwater from the street to bioretention and treatment planters through curb cutouts. Enhanced streets will infiltrate storm flows through pervious pavement, which will reduce storm flows. These goals will also be achieved by diverting flows through a trash segregation unit and a series of AbTech (Bacterial Treatment System) units within the watershed.

This project will enhance the surrounding residential area by integrating low impact development (LID)type storm water BMPs to reduce storm water pollutant loads, primarily indicator bacteria, and help the City meet stringent Municipal Separate Storm Sewer System (MS4) Permit and Total Maximum Dailey Load (TMDL) requirements for Tecolote Creek. The project will also include additional community enhancements, such as a displays, literature and signage, to raise community awareness of the project and identify the water quality improvement benefits of the project and the direct linkages between the project's improvements and the nearby Tecolote Canyon Natural Park and Mission Bay Park. By implementing this project, the City can further assess, evaluate and fine-tune cost effective solutions to excessive bacteria in urban runoff. This will allow the City to accomplish bacteria reduction before resorting to more expensive and invasive types of treatment controls.



Project Objectives

The Bannock Avenue Streetscape Enhancements for Tecolote Creek Watershed Protection project seeks to accomplish the following objectives:

- Reduce the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek Watershed.
- Capture and infiltrate storm water runoff in the paved street sections of the Bannock Avenue neighborhood.
- Increase community awareness of stormwater management through a variety of community enhancements.

Table 3-10 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project.

 Table 3-10: Contribution to IRWM Plan Objectives

Proposal Projects		Contribution to IRWM Plan Objectives									
	Α	В	С	D	E	F	G	Н	I		
Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	•		•	0		•	•		0		

• = directly related; • = indirectly related

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

- A: Maximize stakeholder/community involvement and stewardship. The proposed project will include community enhancements, such as a displays, literature and signage, to raise community awareness of the project and identify the water quality improvement benefits of the project and the direct linkages between the project's improvements and the nearby Tecolote Canyon Natural Park and Mission Bay Park. The project shall serve as a demonstration of the efficient and beneficial use of a) storm water as a source of irrigation in the streetscape and b) the use of vegetation in storm water treatment.
- C: Further the scientific and technical foundation of water quality management. The storm water pollutant removal efficiency and effectiveness of the project will be monitored and assessed, both for pollutant load reduction and cost effectiveness. These analyses will include sampling and monitoring, tracking of maintenance costs, and monitoring of the vegetation establishment, maintenance, and irrigation to assess the overall effectiveness of this type of public infrastructure LID as a potential widely deployable BMP for storm water pollutant reduction. Based on the results of this effectiveness assessment, the City may apply similar designs, strategies, and BMPs throughout Tecolote and other watersheds as applicable to improve overall pollutant loads.
- **D:** Develop and maintain a diverse mix of water resources. Capture and infiltration of storm water runoff will provide a source of irrigation water supply for the Bannock Avenue streetscape.
- F: Minimize the negative effects on waterways and watershed health caused by hydromodification and flooding. Tecolote Creek watershed has been heavily hydro-modified due to urbanization and the installation of large areas of impervious pavement, with the greatest impacts on the mesas where urbanization decreases infiltration and the time-to-concentration of precipitation to runoff. This project provides for increasing infiltration from street impervious surfaces in areas adjacent to the street, rather than directing all of that runoff to the storm drain system and then Tecolote Creek.
- **G:** Effectively reduce sources of pollutants and environmental stressors. The porous pavement, bioretention planter cells, and AbTech units will capture and treat precipitation on adjacent streets, which will reduce the volume of storm runoff entering the storm sewer system



and thus reduce a corresponding volume of targeted pollutants directed into Tecolote Creek. There will also be a bacterial load reducing component to storm water flows from both treatment and filtration. It is anticipated that these improvements will achieve a 95% or greater efficiency of the 85th percentile storm (SUSUMP) event.

• *I: Optimize water-based recreational opportunities.* The bacteria load reduction of this project directly impacts Mission Bay, which is the most widely used aquatic resource in the region. Reducing the impact of bacteria in this project will reduce indicator bacteria loads in Tecolote Creek, which will allow for wider and more continuous use of the Tecolote Creek Natural Park and the receiving water body Mission Bay. Nuisance pollutant loads, in particular bacteria, from Tecolote Creek have been the grounds for beach closings and postings in the past. Mission Bay Park consists of 4,235 acres and has over 15 million visitors annually. Mission Bay features nearly 27 miles of shoreline, 19 of which are soft, sandy beaches with swimming areas, several marinas and fishing piers.

Project Partners

Not applicable.

Project Abstract

Currently, the project is at 10% design, and 30% design for the project is anticipated prior to the grant award date (by May 2011). The Bannock Avenue Streetscape Enhancements for Tecolote Creek Watershed Protection project includes the following activities:

Concept Design: This project was initiated in July 2007 as part of the City of San Diego Storm Water Department's Fiscal Year 2008 Watershed Capital Projects Concept Design Process. The City's Storm Water Pollution Prevention Division contracted Weston Solutions, Inc. (Weston) to prepare the conceptual designs for a set of BMPs that address these regulatory requirements and the City's 5-Year Strategic Plan for Watershed Activity Implementation. This project is part of the City's tiered and phased BMP implementation non-structural source control and pollution prevention BMPs, as well as structural BMPs. This project includes several elements of Tier II of this approach, which is focused on structural LID BMPs which target runoff reduction and include components for watershed stewardship, education and outreach, and community enhancements in capital projects. The scope of this BMP conceptual design project was based on the recommendations on the type, number, location, and timeline presented in the 5-Year Strategic Plan for Watershed Activity Implementation. The Concept Design has been completed.

Pre-Engineering Report (10% Design): This study builds on the *Tier II & Tier III Storm Water Best Management Practices Conceptual Designs Final Report* prepared by Weston Solutions. The purpose of the Preliminary Engineering Report is to detail the scope of work, evaluate the clients' CIP project requests for adequacy of provided funds against the proposed scope of work, establish a cash loaded project schedule and get concurrence on the scope, cost, schedule and goals, identify the project risks and accounting for them in the scope, schedule and cost estimates. The Preliminary Engineering Report has been completed.

30% Design: Initial Design Effort – Fatal Flaw Analysis was performed and project performance modeled estimated and verified. Geotechnical Reports prepared Final Design Hydrology and Hydraulic Studies, including flow drainage area calculations, Water Quality Technical Report, estimates of the project construction and materials costs , and estimated construction schedule. During review of the project design, detailed performance analysis is performed to determine if the proposed design meets the performance specifications.

Environmental Permits & Compliance: Based on the scope of work, this project has been determined to be Categorically Exempt from CEQA under 15301(b) 'Existing Facilities' where there is negligible expansion of the storm drain conveyance system; 15303(d) 'New Construction' that would serve the existing area and treat storm water run-off; and 15304 'Minor Alterations to Land' where there would be minor improvements and the grade would be returned back to normal. A Water Pollution Control Plan, a traffic control plan, and ADA review will be required. These permits are issued under ministerial review.

60% Design & Specifications: Detailed design review is performed at this point to ensure for the incorporation of design changes made at the 30% Design submission and check for conflicts in the design with current infrastructure uses, performance and potential conflicts with other stakeholder such as other City Departments and outside agencies.

90% & 100% Design & Specifications: Draft Final design package is verified and circulated for review and approval from outside agencies and submitted as the permit package application for all required permits. Specification are finalized and put into a bid package with all bid quantities and measures and final contract terms.

Construction Contract Bid & Award: City Council approval of construction contract, certification of CEQA process and documents and authorization to advertize and award the contract. Purchasing department award process and approval. Final permit issuances, development of the construction scheduling and phasing and

Construction Operations: Construction, inspection, verification, warranty monitoring, and testing of site improvements. Project closeout and As-built preparation.

Water Quality Effectiveness Assessment and Monitoring: Water Quality Sampling, Monitoring and Analysis, laboratory testing and analysis, comparison to the WQTR estimates and calculations, quantification of pollutant load reductions, maintenance and site improvement monitoring and conditions assessment, tracking of costs for maintenance, damage, repair, vandalism, etc.

Linkages and Synergies between Projects

The City's Storm Water Department anticipates implementing approximately 72 infiltration and runoff reduction projects (such as green lots, green malls, rain barrels) in watersheds throughout the City as part of the MS4 Permit, TMDLs, and Areas of Special Biological Significance (ASBS) compliance in future fiscal years. These conceptual projects are identified in the City's 5-Year Strategic Plan for Watershed Activity Implementation (July 2007) and in the 2008 Stormwater Best Management Practices Conceptual Designs. This project is directly linked to another Tecolote Creek Bactria TMDL compliance project: Mt Abernathy Green Street infiltration Project for Tecolote Creek (Project #116). The implementation of approximately 72 projects similar in scope to the Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection will substantially improve water quality in the receiving water bodies. Each project will remove asphalt or other impervious surfaces of parking lots in various watersheds throughout the City and replace it with porous pavement and other storm water infiltration and treatment infrastructure designed for the target watershed and pollutants. The porous paving will allow urban runoff and any pollutants carried with it to infiltrate into the ground instead of discharging the pollutant-laden runoff directly to the storm drain system and adjacent receiving water body. The City has named this model approach for low LID in parking areas a "Green Lot" or "Green Street" depending on the application.

Existing Data and Studies

This project type, scope, and focus is identified in the following plans and studies:

- City of San Diego Storm Water Pollution Prevention Division. November 2007. The Strategic Plan for Watershed Activity Implementation.
- City of San Diego. July 2008. Tier II and Tier III Storm Water Best Management Practices Conceptual Designs (Pages 59-74).
- Storm Water Department, Storm Water Pollution Prevention Division. October 2009. Preliminary Engineering Report (10% Pre-Design Report): Bannock Avenue Neighborhood Streetscape Enhancements and Bannock Avenue Bacteria Treatment for Tecolote Creek Watershed Protection.
- CVALDO Corporation Civil Engineering. 2008. Bannock Ave Neighborhood Streetscape Enhancements and Bacteria Treatment for Tecolote Creek Watershed Protection Concept Plan.



These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

This is not a multi-phased project. It can be implemented as a stand-alone project and achieve the full project benefits.

Project Map

Figure 3-8 provides a project site map for the *Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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.

A. Direct Project Administration

Task 1 – Project Administration: This task involves project administration, coordination, and review of all following project tasks. This task is not included within the budget for this project, because funds to support this task will come from the City of San Diego's General Fund.

Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program in accordance with CCR §16421-16439. The City of San Diego currently has an approved Labor Compliance Program (LCP) in place – *City of San Diego, Purchasing & Contracting Department, LCP ID LCP ID: 2003.00323.* The LCP has been approved by the California Department of Industrial Relations: <u>http://www.dir.ca.gov/lcp/lcplist.asp?lcptype=apprcur</u>. As such, no additional effort associated with the LCP will be conducted as part of this proposed Work Plan.

Task 3 – Reporting: In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly as determined by Start	Not started
Project Completion Report	December 2014	Not started

B. Land Purchase Easement

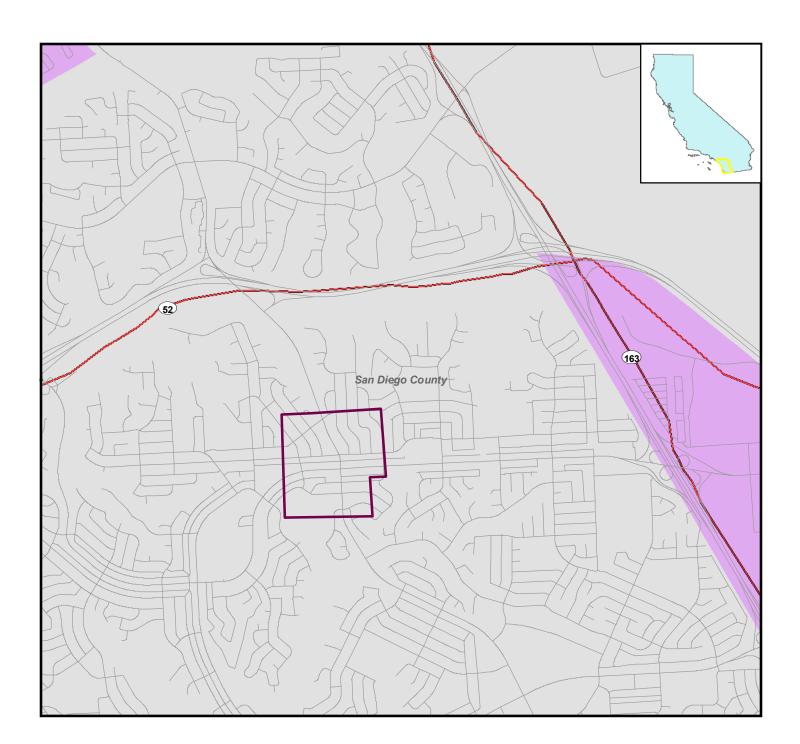
A land purchase easement is not required for implementation of this project.

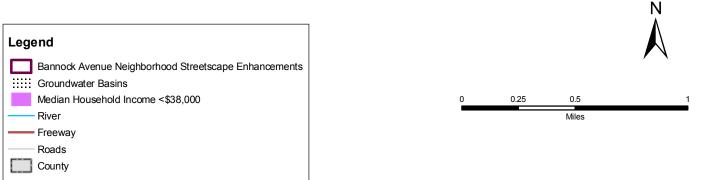
C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: The following provides a list of necessary studies that have been completed in order to assess and evaluate the project.

• The Strategic Plan for Watershed Activity Implementation was completed in November 2007. This plan describes the strategy the City of San Diego is undertaking to implementing an integrated tiered and phased approach to storm water BMP's. The integrated approach considers the current and potential future priority water quality problems and TMDL load reductions in the design and implementation of BMPs. BMPs therefore need to address multiple pollutants to meet current and future load reduction goals.









U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm



- The tiered approach includes the initial focus on the implementation and effectiveness assessment of Tier I non-structural pollution prevention and source control BMPs. The tiered approach is then implemented in phases in order to assess the effectiveness of the BMPs in meeting the pollutant load reduction goals. In this initial phase, Tier II structural BMPs are also implemented and assessed. Tier II BMPs target the reduction of the volume of runoff and/or a portion of the pollutant load through runoff diversion/capture and infiltration and evaporation (low impact development (LID) techniques) as well as aggressive street sweeping.
- Tier III treatment BMPs are then implemented in a second phase where the Tier I and II BMPs are not sufficiently effective in meeting target load reductions. Tier I and II BMPs are implemented before Tier III BMPs because they address the source and cause of the pollutants which is more cost effective and sustainable than capital and land-intensive treatment BMPs. As part of this initial phase, "pilot" Tier III treatment BMPs will be implemented on City-owned properties to assess their effectiveness in combination with Tier II runoff reduction techniques. Full scale Tier III BMPs will then be implemented in subsequent phases based on the effectiveness of the pilot projects.
- The *Tier II and Tier III Storm Water Best Management Practices Conceptual Designs* (Weston 2008) is a feasibility study and concept design that was completed in 2008. This study collected existing hydrologic data, prescription weather data, topographic data, and information on existing improvements within the study area.
- The *Bannock Avenue Concept Design Drawings (10%)* was completed in 2008. This study consists of conceptual design components for the project.
- The Bannock Avenue Streetscape Enhancements Preliminary Engineering Report is an engineering report for the project, which was completed in 2009. This report utilized a right-of-way analysis, utility as-built studies, a site topographical survey, and a preliminary Environmental Assessment to determine the practicality, priority funding mechanisms, permits, resource requirements, and the CEQA status of the project.

Study Performed	Date	Status
BEFORE June 1, 2011		
The Strategic Plan for Watershed Activity Implementation	November 2007	Complete
2008 Tier II and Tier III Storm Water Best Management Practices Conceptual Designs (Weston)	July 27, 2008	Complete
Bannock Avenue Concept Design Drawings (10%)	August 2008	Complete
Bannock Avenue Streetscape Enhancements Preliminary Engineering Report	October 5, 2009	Complete

This task is not included within the proposed budget, because funds to support this task have been provided through other funding sources.

Task 5 – Final Design: As of June 1, 2011 the project will be at a 30% design status. The 10% design for this project was completed in August 2008. The 30% design for this project will be completed in May 2011; the 60% design will be completed in July 2011; the 90% pre-final design will be completed in December 2011; and the 100% final design will be completed in March 2012.

This task is not included within the proposed budget, because funds to support this task will be sourced from the City of San Diego's Watershed Capital Improvement Projects budget.

Task 6 – Environmental Documentation: The City's Development Services Department has prepared Mitigated Negative Declaration (MND) #134590 to address impacts from the City's Jurisdictional, Watershed, and Regional Urban Runoff Management Plans (these plans have been revised per the City's Municipal Storm Water NPDES permit, issued in January 2007). In particular, the MND addresses potential environmental impacts associated with infiltration projects citywide. The MND was approved by the San Diego City Council, conjunction with approval of the City's updated Urban Runoff Management Plans, in January 2008.



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

This task is not included within the proposed budget, because funds to support this task will be sourced from the City of San Diego's Watershed Capital Improvement Projects budget.

Task 7 – Permitting: No permitting will be required for this project prior to initiation of the Grant Agreement (June 1, 2011). Prior to construction, a Water Pollution Control Plan will be prepared by September 2010 to ensure compliance with the municipal stormwater permit construction mandates. A Traffic Control Plan will also be prepared by September 2012 to ensure the compliance with City of San Diego Right-of-Way Construction Ordinances and regulations and to mitigate potential traffic impacts and conflicts. This task is not included within the proposed budget, because funds to support this task will be sourced from the City of San Diego's Watershed Capital Improvement Projects budget.

D. Construction/Implementation

Task 8 – Construction Contracting: Construction contracting for this project will include advertisement for bids in May 2012, awarding the final contract award in September 2012, and finalizing the Notice to Proceed in September 2012. This task is not included within the proposed budget, because funds to support this task will be sourced from the City of San Diego's Watershed Capital Improvement Projects budget.

Task 9 – Construction:

Building Materials and/or Computational Methods

Project components shall be designed to remove pollutants and priority constituents of concern in the Tecolote Creek Watershed, including bacteria, heavy metals, nutrients, pesticides, and sediment. The system shall be designed to achieve a 99% reduction in bacteria for the treated flow, in accordance with the final wet weather objective in the TMDL for Indicator Bacteria in Tecolote Creek Tributary to Mission Bay.

Within the tributary watershed of the Bannock Avenue Neighborhood, vegetated planter areas will be constructed between the existing curb and the sidewalk. Cuts will be made in the existing curbs to allow flow to exit the street paved section, as well as enter and exit the planter areas. The planter areas will be filled with cobbles and/or gravel to a depth of approximately 1 foot and planted with landscaping to be determined during final design. The cobbles and/or gravel must be prevented from spilling into the street through the curb cut by a metal screen. Where shown on the concept plans, existing sidewalks will be replaced with new pervious concrete sidewalks.

Within North Clairemont Park, a diversion structure will divert flows to a trash segregation unit, followed in series by an AbTech (Bacterial Treatment System) unit. From the AbTech unit, flows will be returned to the natural drainage course at the location of the existing storm drain system outlet headwall. The diversion structure will be sized to divert the 85th percentile storm event in order for it to be treated by the trash segregation and AbTech units. This size storm was selected because this treatment BMP is a pilot project to assess the effectiveness of this treatment technology. The larger storm event would result in a significantly larger system and higher project cost. Should this technology prove cost effective for storm flows, the system may be expanded for a larger design storm in future designs.

The project goal is to capture and infiltrate a volume from approximately the first quarter inch of rainfall landing in the tributary paved street section adjacent to each planter area. The purpose of green sidewalks is to reduce bacterial load reductions by removing trash and capturing and treating design flows in bioretention planter systems. Storm water will be diverted to bioretention and treatment planter systems from the street through curb cutouts. Diverted stormwater will be treated in the planter systems in order to achieve a 99% reduction in bacteria concentration for the treated flow and in order to significantly

reduce other priority constituents of concern. Pervious pavement will be designed to reduce the peak storm flow. Bioretention planter systems installed in the project shall consist of (1) a debris collection pad (inflow and outflow systems), (2) a crushed rock reservoir, (3) amended soils, and (4) geosynthetic lining on the street side of the bioretention planter. Pervious sidewalks shall also be installed so as to reduce the volume of storm runoff entering the storm drain and reduce the bacterial pollutant load to the storm drain. Locations and text of neighborhood educational signage regarding green streets and green sidewalks shall be incorporated into final design. The pervious pavement shall consist of (1) new ADA access routes and sidewalk, (2) pervious concrete, and (3) amended soils (base).

The treatment goal for the hydrodynamic separator and AbTech units is the 85th percentile flow rate. This system shall also consist of a hydrodynamic separator, a storm drain bypass system and storm drain clean outs. The purpose of the AbTech unit is to treat design flow to reduce the bacterial load. The AbTech unit shall have a hydraulic capacity sufficient to capture an 85th percentile SUSUMP storm event and have a footprint of at least 25-feet wide and 20-feet long (flow direction) (unit dimensions shall be determined during the final engineering design). The unit shall be designed to the design flow (approximately 9 cfs) to achieve a 99% load reduction of bacteria for the treated flow and designed for gravity flow such that the system does not cause flooding.

The hydrodynamic separator is a flow-through structure with a separation unit which removes trash and coarse sediment. Therefore, the purpose of the hydrodynamic separator is to remove trash and sediment before the design flow enters the AbTech (unit. The hydrodynamic separator shall have a hydraulic capacity sufficient to capture an 85th percentile SUSUMP storm event and connect to upstream curb storm drain cleanout and downstream ABTech unit *via* reinforced concrete pipe and be designed for gravity flow (the central separation unit will result in significant head loss, therefore the hydraulic design of the hydrodynamic separator shall incorporate sufficient head to allow gravity flow.

The purpose of the storm drain bypass is to redirect flow from a design storm exceeding the design capacity of the AbTech unit to the main branch of the storm drain. The purpose of this storm drain cleanout is to provide maintenance access to the hydrodynamic separator and storm drain bypass. The storm drain bypass shall be designed with a hydraulic capacity capable of accommodating a 100-year watershed storm event, and designed for gravity flow such that the system does not cause flooding. The storm drain cleanouts shall be designed for gravity flow in order to avoid system flooding and back up (objective shall be achieved through the incorporation of sufficient pipe offsets, diversion structures, or other structural solutions).

Construction Standards, Health and Safety Standards, Laboratory Analysis, and/or Accepted Classification Methods

Constituents selected for this Effectiveness Assessment study to be constructed for these BMPs are prioritized into Tier 1 and Tier 2 categories. Tier 1 constituents are considered a priority for water quality monitoring in this study because they are:

- consistent with other BMP monitoring guidance to address street runoff such as the Caltrans Guidance Manual: Storm Water Monitoring Protocols (Caltrans, July 2000);
- specifically identified as constituents of concern in the Tecolote Creek watersheds and/or subject to a TMDL; or
- consistent with other City monitoring efforts currently underway in the watershed, such as the San Diego Bay Watershed Urban Runoff Management Program, and the Chollas Creek Storm Drain Characterization Study.

Tier 2 constituents may also have been identified as pollutants of concern in the subject watersheds; however, adding these constituents may need to be considered in light of the available budget for sampling and analyses. Evaluation of pollutant removal effectiveness of Tier 2 constituents may also be of interest if implementation of these BMPs is being considered in other watersheds with specific water quality concerns.

Estimates of the number of samples required to yield statistically valid monitoring results are necessary for making decisions about the nature and extent of monitoring efforts. For this study, the appropriate number of samples is the number required to discern a significant difference between the influent and effluent. The sample size will depend on the specified mean percent constituent removal rate desired. Because of the variability of rainfall and runoff quality, it is necessary to sample a number of storms to generate statistically reliable answers to the study questions. The number of samples needed depends upon the variability in the data, the magnitude of the effect being studied, and the degree of confidence desired in the answer.

However, in most cases, new BMPs would not be implemented if they did not remove a significant fraction of the constituent of concern. The most commonly used confidence level in scientific studies is 95 percent. However, due to the high variability in storm water data, use of a 95 percent confidence level results in an impractical number of samples, or masks the effectiveness of BMPs known to remove pollutants. For this reason, a 90 percent confidence level is appropriate for BMP pilot studies and is the confidence level chosen for this study. The statistical procedure used to estimate the number of samples required is described in the Caltrans BMP Pilot Study Guidance Manual.

Storm selection criteria described for this Effectiveness assessment studies will likely entail a minimum 0.25 inch of rainfall and 72 hour antecedent dry period, an average of 8 storms per year can be expected.

From the statistical analysis conducted for this study, a minimum of 8 samples are required. Consideration must also be given to the number of unproductive monitoring events that are likely to occur. Rainfall may not happen as predicted, or may be of insufficient quantity (i.e., a "false start").

When planning a study, it is reasonable to assume that one out of four sampling events will be unsuccessful because samples can also be missed due to problems with auto-samplers. In addition an operational assessment of the BMPs will be conducted during the first two storm events to ensure that the BMPs and the monitoring equipment are functioning properly. Field crews will observe and document any operational issues at the filtration units and the bioretention cells. Flows will be measured during these first two events; however, water quality samples will not be collected until it can be verified by on-site field crews that all equipment is operating properly. Therefore, considering two storm events for the operational assessment and assuming two unproductive sampling events for the required minimum 8 storms, the anticipated duration of the study would be a total of 12 storm events. Therefore it is anticipated that the study period will be 2 years.

Construction Tasks

Construction tasks for this project will include Mobilization and Site Preparation, Project Construction, and Performance Testing and Demobilization. These subtasks are described in detail below.

• Subtask 9.1 Mobilization and Site Preparation: This subtask includes mobilization and site preparation. This subtask envisions a payment to the contractor to reimburse upfront and onetime costs including, but not limited, to items such as insurance, time spent on employee and/or subcontractor coordination, equipment rental, and material purchases. The subtask could include all costs and activities that must be undertaken in order to make sure that construction progresses quickly and efficiently before construction actually begins. Site preparation will include demolition of the concrete (AC) pavement and base and concrete and gutter. Disposal and hauling activities are also included.

Subtask 9.2 Project Construction/Implementation: This subtask includes installation of porous pavement, which includes laying the base and concrete. Portland Concrete Cement (PCC) sidewalk, curb and gutters will also be installed, as well as the vegetated planter areas in the public right-of-way and the storm drain by-pass, storm drain clean-out hydrodynamic separator and AbTech units in the North Clairemont Park. This subtask also includes activities for erosion and traffic control. The contractor will be required to submit for approval and implement during construction erosion and traffic control measures in order to comply with City of San Diego standards and minimize water quality impacts and traffic hazards to include but not limited to an approved Traffic Control Plan and Storm Water Pollution Prevention Plans.



• **Subtask 9.3 Performance Testing and Demobilization:** Materials and install devices and equipment as well as improvements in the right-of-way will be tested prior to acceptance. The storm water treatment and infiltration systems shall be tested and verified for proper operation and installation during the warranty period over one winter storm cycle prior to acceptance. Planted vegetation shall be maintained and verified established before acceptance and full construction site demobilization.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Before construction of this project, CEQA review will be conducted by the City (see Task 6) and mitigation measures will be determined and incorporated into the project, if necessary.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. This task is not included within the proposed budget, because funds to support this task will be sourced from the City of San Diego's Watershed Capital Improvement Projects budget.

Project 8: Pilot Concrete Channel Infiltration Project

I. Introduction

Project Sponsor

The City of Santee is the project sponsor for the Pilot Concrete Channel Infiltration Project.

Project Need

The City of Santee has restored the length of the unchannelized portion of the Woodglen Vista Creek. However, it is not possible to restore the channelized portion of the creek due to the proximity of residences and lack of right-of-way in this portion of the creek. An alternative way to allow urban runoff infiltration needs to be developed without compromising flood control capacity. Facilitating infiltration of dry weather flows will reduce the discharge of pollutants to receiving waters.

The San Diego River has a TMDL for bacteria and bacteria spikes have been noted in the Woodglen Vista Creek Channel, a location proposed for this pilot project. The proposed *Pilot Concrete Channel Infiltration Project* is expected to reduce bacteria levels through infiltration.

If this project is successful, then this technique can be used at other similar locations throughout the San Diego River watershed, resulting in a cumulative benefit to water quality and augmenting groundwater supplies.

Project Purpose

The *Pilot Concrete Channel Infiltration Project* will convert a portion of the concrete channel in Woodglen Vista Creek (and other channels as budget/logistics permit) to a more porous base, facilitating infiltration of dry weather flows without compromising flood control capacity.

Project Objectives

Objectives of the *Pilot Concrete Channel Infiltration* Project include:

- Garnering community participation in preparing the upstream drainage area for the project and educating the community on the benefits of this project.
- Converting a portion of the concrete channel in Woodglen Vista Creek (and other channels as budget/logistics permit) to a more porous base.
- Assisting in the attainment of bacteria TMDL waste loading allocations.

Table 3-11 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through the *Pilot Concrete Channel Infiltration Project*.

Table 3-11: Contribution to II	RWM Plan Objectives
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Proposal Projects Contribution to IRWM Plan Objectives					ves			
Α	В	С	D	Ε	F	G	Н	I
	٠	•	0		•	•		
	A	Co A B •	Contribut	Contribution to A B C D • • • •	Contribution to IRWM A B C D E • • • ○	Contribution to IRWM Plan C A B C D E F • • • o • •	Contribution to IRWM Plan Objection A B C D E F G •	Contribution to IRWM Plan Objectives A B C D E F G H • • o •

• = directly related; • = indirectly related

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

- **B:** Effectively obtain, manage, and assess water resources data and information. Data collected during the project will be incorporated into relevant jurisdictional, watershed, and regional urban runoff management plans. This information will be publically available so that the value of the project can be assessed and the idea implemented elsewhere.
- **C:** Further the scientific and technical foundation of water management. This project will be conducted as a feasibility study to demonstrate how downstream water quality objectives and TMDL requirements can be met. Based on the findings of this study, it could be replicated elsewhere in the watershed.
- **D:** Develop and maintain a diverse mix of water resources. This project will promote infiltration into the ground augementing the aquifer. The introduction of the pervious base allows infiltration along the channel, mimicking pre-development hydrology. The additional groundwater could potentially be used in water supply.
- *F:* Reduce the negative effects on waterways and watershed health caused by hydromodification and flooding. This project eliminates some of the disadvantages associated with a concrete channel without losing the flood control benefits of the channel. Infiltration will reduce the volume of flows from the concrete channel and promote growth of plantlife within the channel.
- **G:** Effectively reduce sources of pollutants and environmental stressors. This project will assist in the attainment of bacteria TMDL waste loading allocations. Nutrients in runoff are absorbed by plants growing in the base of the channel. Sediment loads and turbidity in runoff are also reduced.

Project Partners

The City of Santee participates in the San Diego River Urban Watershed Management Program which incorporates the County of San Diego, and cities of El Cajon, La Mesa and San Diego.

Project Abstract

The project will be implemented as part of an overall flood control and water quality improvement program which incorporates the surveying of corrugated metal pipe (CMP) in the storm drain system, prioritization and replacement of the CMP with reinforced concrete pipe, and introduction of stormwater best management practices (BMPs) where appropriate.

The scope of this project includes the design, siting and construction of pervious areas in concrete channels within Santee. Monitoring will be conducted to assess if these pervious areas result in flow reduction and lower pollutant loads, and monitoring will be conducted to assess the impact of the CMP project on water quality, if feasible.

A primary pilot location will be the Woodglen Vista Creek channel, although other locations will be included where budget and other constraints allow. The project is being conducted as a pilot, therefore a range of techniques (Armorloc or porous concrete for example) may be used. Other jurisdictions within the watershed will be consulted to ensure that the techniques used are feasible and desirable for application throughout the entire watershed. This pilot project is currently at 5% design status.



Linkages and Synergies between Projects

The project directly links with both the Woodglen Vista Creek and Forester Creek restoration projects. These projects restored two unlined channel segments in Santee to accommodate larger storm volumes, avoiding flooding; planting the channels with native species providing additional riparian habitat, and allowing the natural functions of this habitat to restore water quality. Infiltration areas will be introduced upstream of the restored segment of Woodglen Vista Creek, to treat water prior to entering the restored segments extending the water quality and habitat benefits of the restoration without compromising capacity.

The project has synergies with the Bannock Avenue Neighborhood project as it incorporates the introduction of impervious areas and promotes infiltration within the storm drain system. Synergies can also be drawn with the sustainable landscapes program as it incorporates retrofitting existing infrastructure, reducing watershed pollutants and dry weather flows, and educating the public about the project and how they can help reduce polluted runoff.

Existing Data and Studies

This project type, scope, and focus is identified in the following plans and studies:

- City of Santee. 2009. Dry Weather Field Screening and Analytical Monitoring Program.
- City of Santee. 2009. 2009 Additional Study, Rivers and Creeks.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

This project is not a multi-phased project.

Project Map

Figure 3-9 provides a project site map for the *Pilot Concrete Channel Infiltration Project*, showing boundary of project, surface waters, groundwater basins, locations of concrete channels, DACs layer, and existing monitoring locations.

II. Proposed Tasks

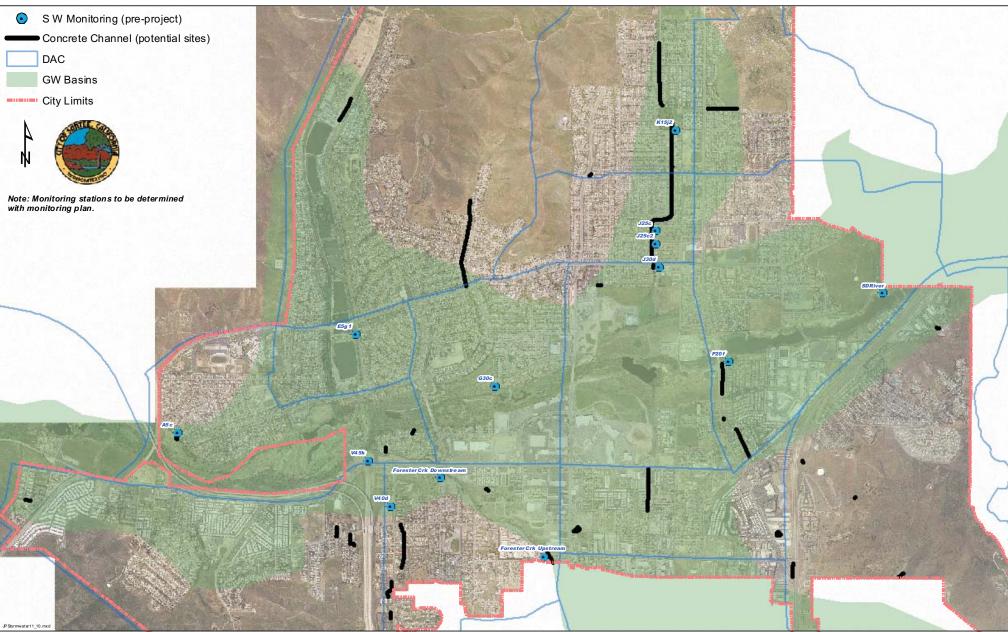
Grant Administration (GA)

SDCWA 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.

A. Direct Project Administration Costs

Task 1 – Project Administration: Prior to initiation of the Grant Agreement (June 1, 2011), project administration will be required to secure approval of the 2007 San Diego IRWM Plan by the Santee City Council in December 2010. The project will be added as a standing item on the agenda for watershed meetings with other jurisdictions within the San Diego River. Attendees will be briefed on the status of the project and encouraged to provide feedback on the project design. Fulfilling this task will require labor from a Principal Civil Engineer and the Stormwater Program Manager.

Following initiation of the Grant Agreement (after June 1, 2011), this task will involve project administration, coordination, and review of all project tasks. In addition, the project will continue as a standing item on the agenda for watershed meetings with other jurisdictions within the San Diego River. Attendees will be briefed on the status of the project and encouraged to provide feedback on the project design. The City will also make the data available for other jurisdictions within the San Diego Region and beyond to assist them in determining if this method could be used in their watersheds. Fulfilling this task will require labor from a Principal Civil Engineer and the Stormwater Program Manager. Deliverables for this task will include invoices and quarterly reports that will be provided every three months, with the first submittal being issued precisely three months after the date of the grant award.



Project 181 (City of Santee) Potential Project Locations



Labor Category	Level of effort	Status
BEFORE June 1, 2011		
Principal Engineer	5 hours	Underway
Stormwater Program Manager	10 hours	
AFTER June 1, 2011		
Principal Engineer	21 hours	Not started
Stormwater Program Manager	82 hours	

Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program in accordance with CCR §16421-16439. The City of Santee Third Party Labor Compliance Program (LCP) is currently under development. The City plans to contract with a technical expert who will ensure compliance. Deliverables will be consistent with the compliance requirements of the LCP.

Task 3 – Reporting: All reporting for this project will occur after the Implementation Grant Agreement is formalized (after June 1, 2011). In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	Upon project completion	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: The following provides a list of necessary studies that have been completed in order to assess and evaluate the project.

- *Review of Prior Monitoring Data* (Dry Weather Monitoring Report 2009, 2010; Additional Study Report 2009, 2010)) was carried out for channels to be covered in the pilot study for the project. The City of Santee has conducted dry weather monitoring twice-a-year in the storm drain system over the past decade. Recent data (from 2008-2010) from this monitoring has been collated to be used as a baseline for the project pilot study. The collated data includes information regarding flow, pH, conductivity, turbidity, bacteria, nitrate-nitrogen and orthophosphate.
- During July to December 2011, a *Literature Review* will be conducted to review the variety of options available for introducing pervious layers into lined channels. Data on these options was researched to evaluate their relative effectiveness, including data on water quality or flow.
- Community Consultation and Education. A variety of methods will be used including website updates, articles in the Santee Review (community magazine), letters to residents immediately in the vicinity of the project, and community clean-ups of the project locations.
- Geotechnical Recommendations. Pervious layers will be introduced into concrete channels, whose structural integrity need to be maintained. Also, little is known about the subsurface conditions and how these will impact the integrity of the channels. A registered geotechnical engineer is required to review the project locations, subsurface conditions, and preliminary design to ensure that the integrity of the channels is maintained.

The following provides a list of necessary studies that will be completed after the Implementation Grant Agreement is in place, in order to assess and evaluate the project.



- Project Monitoring Work Plan consistent with the Final Design will be completed six months after the Grant Agreement. These documents will include incorporation of literature review, engineering information, design and quantities.
- The *Final Report on Project Implementation* will be completed eighteen months after the Grant Agreement. This report will include data on changes in flow rate and water quality in channel(s) within the project area as well as an assessment of function in flood conditions.

Study Performed	Date	Status
BEFORE June 1, 2011	·	
Review of Prior Monitoring Data	2008-2010	Underway
Literature Review	May 2011	Underway
Community Consultation and Education	Ongoing	Underway
Geotechnical Recommendations	December 2011	Not started
AFTER June 1, 2011		
Project Monitoring Work Plan	December 2011	Not started
Final Report on Project Implementation	December 2012	Not started

Task 5 – Final Design: As of June 1, 2011 the project will be at 10% conceptual design status. The 10% conceptual design for the project was completed on May 1, 2011.

Completion of the project design is anticipated to occur as follows: 30% concept design will occur by December 2011, 60% design will be completed by March 2012, 90% pre-final design will be finalized by April 2012, and 100% final design is anticipated to occur by May 2012.

Solicitation efforts will include a request for proposals for geotechnical consulting services in September 2011. Final design documents will include the final project design.

Design Submittals	Date	Status
BEFORE June 1, 2011		
10% (conceptual) Design	May 1, 2011	Underway
AFTER June 1, 2011		
30% (concept) Design	December 2011	Not started
60% Design	March 2012	Not started
90% (pre-final) Design	April 2012	Not started
100% (Final) Design	May 2012	Not started

Task 6 – Environmental Documentation: The City of Santee will finalize CEQA Documentation in May 2011. This documentation included a preliminary assessment, and documentation of that the project is compliant with CEQA. This process is required prior to the approval of any City of Santee project.

Environmental Documentation	Submittal	Status
BEFORE June 1, 2011		
CEQA Documentation	May 2011	Underway

Task 7 – Permitting: This project will not require any permits.

D. Construction/Implementation

Task 8 – Construction Contracting: A preliminary request for proposals will be prepared so that it can be finalized and issued immediately on award of the grant. After June 1, 2011 (initiation of Grant Agreement), construction contracting for this project will include advertisement for bids, preparation of bid documents, issue of bid, evaluation of bids, and award of construction contract. Formalization of the Notice to Proceed will occur in July 2012.

Task 9 – Construction: All construction for this project will occur after formalization of the Implementation Grant Agreement (after June 1, 2011).

Building Materials and/or Construction Standards

The building materials will have been chosen during final design, and will have reference to the Construction Standards Manual, where applicable. Porous paving, articulated block, and/or other porous base will be designed and built to allow infiltration of runoff into the subgrade.

Laboratory analysis will be conducted by an Environmental Laboratory Accreditation Program (ELAP)certified laboratory. In addition, the City of Santee Injury and Illness Prevention Program Procedures will be followed.

Construction Tasks

Construction tasks for this project will include Mobilization and Site Preparation, Project Construction, and Performance Testing and Demobilization. These subtasks are described in detail below.

- **Subtask 9.1: Mobilization and Site Preparation:** This subtask will involve: notifying adjacent property owners and providing information in other City media; surveying and marking out the project area; removing trash and debris from the access route and construction area; redirecting dry weather discharges around the work area and installing stormwater BMPs as required; and mobilizing equipment to the project site.
- **Subtask 9.2: Project Construction:** Project construction will involve: cutting and removing concrete areas; preparing exposed subgrade for introduction of the pervious area, which may include introducing or enriching the soil subgrade; installing finished pervious surface in the channel; and removing debris, equipment and other materials from the channel.
- **Subtask 9.3: Performance Testing and Demobilization**: Project performance testing and demobilization will include: conducting performance evaluations of various types of pervious areas; preparing a final report, installing information sign boards; preparing outreach information for the community on the project and its successes; and providing information on the project (tours, papers, presentations, project summaries) to peers in other jurisdictions.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: No environmental mitigation or enhancement is required as the project does not remove any environmental resources. The project is solely located within City infrastructure.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. This task will require labor from a Principal Engineer, the Stormwater Program Manager, an Associate Engineer, and an Engineering Inspector.

Labor Category	Level of effort	Status
Principal Engineer	30	Not started
Stormwater Program Manager	55	Not started
Associate Engineer	70	Not started
Engineering Inspector	55	Not started



Project 9: San Diego Regional Water Quality Assessment and Outreach Project

I. Introduction

Project Sponsor

San Diego Coastkeeper is the project sponsor for the San Diego Regional Water Quality Assessment and Outreach Project.

Goals, Objectives, Purpose, and Needs

The San Diego Regional Water Quality Assessment and Outreach Project brings together community members to understand and actively participate in the monitoring of their watershed health. Critical funding through Proposition 84 builds on San Diego Coastkeeper's established citizen volunteer water quality monitoring program and continues important regional water quality assessment, baseline data acquisition, and analysis to support effective water quality management and source and non-point source pollution identification and reduction.

Project Need

While recent regulatory programs (e.g., MS4 Stormwater Permit R9-2007-0001) and the Surface Water Ambient Monitoring Program (SWAMP) have increased the monitoring efforts and availability of surface water quality data in the County's watersheds, there is still insufficient information to adequately assess the status of many local rivers and streams. Additional ambient water quality data is needed to establish a baseline of water quality conditions in San Diego County watersheds, identify impaired water bodies, and provide focus for non-point source pollution prevention efforts. This data can also be used for Clean Water Act 305(b) assessment purposes and 303(d) listings.

The project continues important regional water quality assessment work completed by San Diego Coastkeeper through funding provided under Proposition 50. The funds provided by Proposition 50 will be largely spent down by year-end 2011. In order to continue the work that Proposition 50 made possible, this Proposition 84 grant, commencing January 2012, is essential. Proposition 84 funds will leverage partnerships we have built with other organizations and funders and a trained core of citizen water monitoring volunteers.

Project Purpose

The San Diego Regional Water Quality Assessment and Outreach Project addresses the growing information and involvement gap between water agencies and the community. The project will close this gap by promoting volunteer monitoring that uses accepted monitoring and analytical methodologies, increasing public awareness and understanding of water quality data, and conducting youth and community events such as World Water Monitoring Day. The San Diego Regional Water Quality Assessment and Outreach Project will:

- Conduct monthly volunteer water quality monitoring to develop a baseline for water quality in the county;
- Provide every other month water quality monitoring trainings that introduce and discuss current water quality topics, data access, analysis and interpretation for community groups;
- Add two years of volunteer monitoring results to the existing on-line publicly accessible data repositories;
- Educate stakeholders and community members about the importance of maintaining water quality and how to interpret data;
- Develop and distribute annual Watershed Reports that address pollutants of concern and identify
 opportunities for more effective monitoring to inform pollution prevention efforts



Project Objectives

The San Diego Regional Water Quality Assessment and Outreach Project seeks to accomplish the following objectives:

- Assess water quality in San Diego County Watersheds using trained volunteers to collect and analyze samples.
 - Continue existing efforts by San Diego Coastkeeper to educate and engage community members on water quality issues and to monitor water quality in local watersheds
 - Conduct monitoring at regular intervals (6 12 times a year, conditions permitting) at locations that are currently monitored by Coastkeeper under a Proposition 50 grant, as defined in that project's Monitoring Plan.
 - Provide data to fill in the spatial and temporal data gaps (increasing the number of samples in a water body or hydrological unit for better representation). The data may also be useful in increasing the amount of surface water data for a particular constituent in order to help determine an appropriate water quality standard where none currently exists.
- Share collected water quality data. Data collected through this project will be incorporated into two web-based, publicly-accessible data portals: the water quality page on the San Diego Coastkeeper web site (http://www.sdwatersheds.org/wiki/Main_Page) and the state California Environmental Data Exchange Network (CEDEN).
- Establish Regional Water Monitoring Training and Resource Center. Coastkeeper and its partners will teach a minimum of 100 members of the community citizens, decision makers, tribal members, and other stakeholders –how to collect and analyze water quality samples, as well as access and interpret publicly available water quality data to identify water quality impacts on a watershed level.
- Develop Outreach Materials to Inform the Public and address Non-Point Source Pollution. Coastkeeper will work with community members to develop annual Watershed Reports that address pollutants of concern as tangible products of the monitoring effort.
- *Reduce amount of gross pollutants (trash) in local waterways.* Trash removal events will be conducted in five locations in different watersheds. Trash will be quantified using SWAMP comparable Rapid Trash Assessment Worksheets.

Table 3-12 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the San Diego Regional Water Quality Assessment and Outreach Project.

Proposal Projects	Contribution to IRWM Plan Objectives									
	Α	В	С	D	Ε	F	G	Н	I	
San Diego Regional Water Quality Assessment and Outreach Project	•	•	•				•	0		

Table 3-12: Contribution to IRWM Plan Objectives

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

- A: Maximize stakeholder/community involvement and stewardship. This project will engage community members to receive training in and perform water quality sample collection and analyses, as well as participate in outreach events to promote understanding of water quality issues and how to access data.
- **B: Effectively obtain, manage, and assess water resource data and information**. This project will manage and report data in a SWAMP compatible format, and send data to the state CEDEN data portal for public access and viewing. Samples will be collected and analyzed in accordance with the project sponsor's Quality Assurance Project Plan.



- **C:** Further the scientific and technical foundation of water quality management. This project will build on data generated in the 2007 project to characterize water quality in the county's watersheds. Samples will be analyzed for ambient, nutrient, bacterial, toxicity, dissolved metal and bioassessment indicators. Data will be provided to regulatory decision makers.
- **G:** Effectively reduce sources of pollutants and environmental stressors. This project will include trash removal events from inland waterways by I Love A Clean San Diego. Data will be collected during events to support strategic planning to reduce the need for pollutant removal by addressing the causes of pollution, e.g. commercial practices and behavioral changes.
- *H: Protect, restore, and maintain habitat and open space*. The project will generate data and remove trash from county watersheds. Both components are vital for watershed management in protecting and preserving surface water quality. Pollutant removal will take place in natural habitats, thereby restoring to some degree these open spaces to their natural state.

Project Partners

Project partners in the San Diego Regional Water Quality Assessment and Outreach Project include: Surfrider Foundation-San Diego Chapter, I Love A Clean San Diego, San Diego State University Foundation, Golden State Flycasters, Batiquitos Lagoon Foundation, San Diego Canyonlands, Southwest Wetlands Interpretive Association, and the Jacobs Center for Neighborhood Innovation.

Project Abstract

The San Diego Regional Water Quality Assessment and Outreach Project continues critical work conducted by San Diego Coastkeeper through 2011 as part of the Proposition 50 funding cycle. The project will engage community stakeholders to collect and analyze surface water samples in eight to nine watersheds throughout San Diego County and conduct trash removal in these areas. Samples will be analyzed for physical, chemical, bacterial, dissolved metals and nutrient constituents, as well as toxicity and bioassessment indicators. Resultant water quality data will be publically accessible to support public involvement in water resource conservation and stewardship of watershed function and health.

Completion of design is not relevant to this project, because it will not include final design efforts.

Linkages and Synergies between Projects

This project demonstrates significant linkages and synergies with other regional projects. It builds capacity for regional efforts through volunteer training that will benefit other regional projects. Education and outreach efforts integrate objectives of other projects, and data sharing increases the overall goal to generate robust regional data.

Other regional projects that benefit include:

- Lake Hodges Water Quality and Quagga Mitigation Measures (Project 5)
- Chollas Creek Integration Project (Project 10)
- Regional Water Data Management Program (Project 11)

Larger projects and/or entities in the region that benefit include:

- Batiquitos Lagoon Foundation
- County of San Diego Project Clean Water
- Escondido Creek Conservancy
- Friends of Famosa Slough
- Friends of the River (<u>http://www.friendsoftheriver.org</u>)
- Golden State Flycasters water quality monitoring and habitat enhancement
- Los Penasquitos Research Reserve Project (Water Monitoring & Volunteers)
- Preserve Calavera



- San Diego River Conservancy and/or The San Diego River Park Foundation and/or San Diego River Watershed Workgroup
- San Diego River Watershed Monitoring Workgroup
- San Diego Surfrider Blue Water Task Force Project
- San Dieguito River Park
- San Elijo Lagoon Conservancy
- THINK BLUE's Chollas Creek Water Quality Protection & Habitat Enhancement Project
- Tijuana National Estuarine Research Reserve Projects (Water Monitoring & Volunteers)

Existing Data and Studies

This project type, scope, and focus is identified in the following plans and studies:

• San Diego Coastkeeper. Annual Watershed Reports.

Please note that the aforementioned document is not contained as part of this Implementation Grant Proposal, because it is not yet finalized. This document is anticipated to be finalized in March 2011.

Project Timing and Phasing

The San Diego Regional Water Quality Assessment and Outreach Project is a continuation of water quality monitoring, community outreach, and trash removal objectives that were initiated by a project of the same name funded by Proposition 50. However, this project is not dependent upon work started under Proposition 50; all of the required data management and display tools, sample analyses protocols and quality controls, and partnerships for both the Proposition 50 work and the proposed Work Plan are in place. The necessary groundwork for the implementation of this project has already been laid. Collection of data and trash removal in the proposed Work Plan are not contingent upon the same work conducted under the Proposition 50 grant.

Project Map

Figure 3-10 provides a project site map for the *San Diego Regional Water Quality Assessment and Outreach Project*, showing boundary of project, surface waters, groundwater basins, DACs layer, and proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

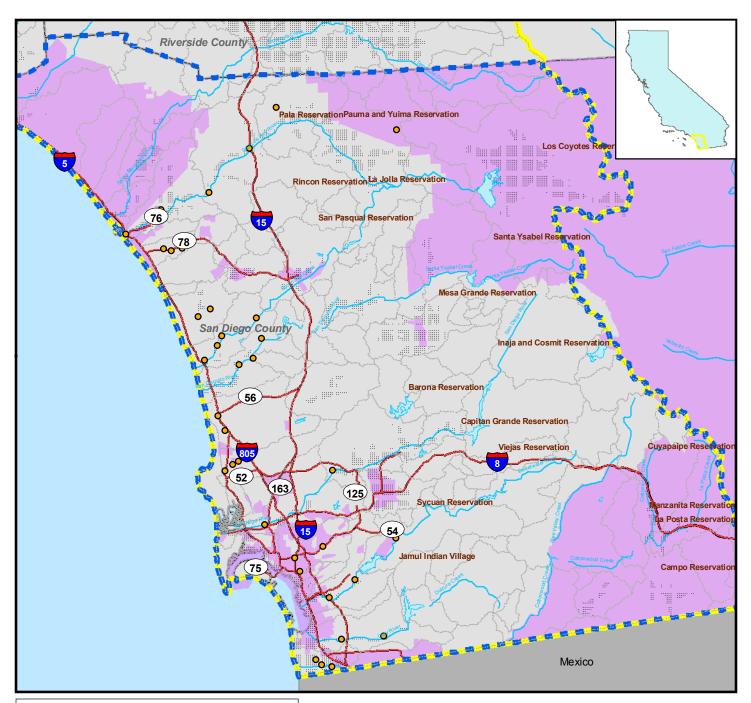
SDCWA will be responsible for administration and processing of the Implementation Grant contract, including tasks associated with compiling and submitting project invoices, quarterly reports, and completion reports for DWR.

A. Direct Project Administration Costs

Task 1 – Project Administration: This project will involve project administration after the Implementation Grant Agreement is formalized (after June 1, 2011). Project administration will involve coordinating various project elements with project partners. Such coordination efforts will require preparing contracts for dissolved metal analysis, toxicity, trash removal, and bio-assessment. In addition, if needed, Memorandums of Understanding (MOUs) may be formed with the City of San Diego, San Dieguito Watershed Council, and Groundwork San Diego to integrate monitoring efforts. In addition, project administration will involve administration, coordination, and review of all project tasks. Completing this task will require Coastkeeper staff time as follows:

Labor Category	Level of effort	Status
AFTER June 1, 2011		
Project Manager	60 hours	Not started
Lab Coordinator	39 hours	Not started
Data Coordinator	33 hours	Not started

Figure 3-10: San Diego Regional Water Quality Assessment and Outreach Project Map





3	
\mathbf{I}	Regional Water Quality Assessment and Outreach Project
0	Monitoring Locations
	Watersheds
	Groundwater Basins
	Median Household Income <\$38,000
	San Diego IRWM Region
	Funding Area Boundary
	Ocean
	Waterbody
	River
	Freeway
	Mexico
	County

N





U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm **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: In order to assess progress and accomplishments of the project, the following submittals will be completed by each indicated date.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	January 2014	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation: This task will involve the actions necessary to complete Subtask 4.1: Regional Water Monitoring Training and Resource Center. These actions include:

- Subtask 4.1 Establish Regional Water Monitoring Training and Resource Center. This
 task involves the following activities necessary to establish the Regional Water Monitoring
 Training and Resource Center at Coastkeeper:
 - Establish Technical Advisory Committee: Coastkeeper will convene the project Technical Advisory Committee (TAC) that was previously formed during Proposition 50 work. The TAC will periodically meet to review project progress. Coastkeeper will attend TAC meetings and other meetings with regional watershed groups and local agencies. From these meetings, Coastkeeper will collect notes regarding implementation of monitoring and data display.
 - Confirm Sampling and Analysis Methodologies: Coastkeeper will build and implement consensus of the stakeholder panel (including Watershed Urban Runoff Management Program groups) with regards to sampling methodologies that will be most helpful to the San Diego region. From this process, Coastkeeper will obtain input regarding sampling and analysis methodologies listed in the Coastkeeper Quality Assurance Project Plan.
 - Water Quality Training Workshops: Coastkeeper will conduct water quality training workshops for volunteers every other month. From these workshops, Coastkeeper will collect sign-in sheets in order to track attendance and participation.

Study Performed	Date	Status
AFTER June 1, 2011		
Establish Technical Advisory Committee	Jan 2012 - Sept 2013	Not started
Confirm Sampling and Analysis Methodologies	June 2011 - Dec 2011	Not started
Water Quality Training Workshops	Every other month from Jan 2012 - Dec 2013	Not started

Task 5 – Final Design: Not applicable.

Task 6 – Environmental Documentation: Environmental documentation for this project is not required as this is a conceptual design project.

Task 7 – Permitting: Not applicable.

D. Construction/Implementation

Task 8 – Construction Contracting: This project will not involve construction contracting.



Task 9 – Construction: Implementation of the San Diego Regional Water Quality Assessment and Outreach Project will involve two tasks:

- Subtask 9.1 Develop and Implement Public Outreach and Education Campaign: Coastkeeper's public outreach campaign will focus on teaching the general public about the importance of surface water quality and understanding the monitoring data within the region's watershed. Empowered by this knowledge and hands-on experience in the watersheds and laboratory, residents will have the ability to protect their local water quality through advocacy and direct action. Outreach activities will include the following:
 - Conduct monthly water monitoring events covering watersheds throughout the County
 - Conduct trash removal events five times per year at locations throughout the County
 - Analyze, manage and present water quality data for 28 33 sites per month. Data will be posted on <u>www.sdwatersheds.org</u>
 - Develop and distribute outreach materials via web site and various meetings and events, including World Water Monitoring Day and Data Management Summit
- Subtask 9.2 Manage Data, Analyze Data, and Develop Regional Watershed Reports. Coastkeeper will analyze the collected data and develop regional Watershed Reports that address pollutants of concern and identify opportunities for more effective monitoring to inform pollution prevention efforts.

This project continues work currently performed with funding from Proposition 50. In order to ensure successful implementation of the project, it is imperative that monthly water monitoring and trash removal events take place throughout San Diego County during all of 2010 and 2011. Funding that commences in January 2012 will enable San Diego Coastkeeper to ensure continuous data collection and management. This, in turn, will make it possible to achieve the overall goal of establishing baseline data and validity of the overall regional data set.

San Diego Coastkeeper volunteers will perform 1,680 hours of work and non-state grant funding will be used to fund employee salaries to coordinate and implement monthly monitoring and trash removal events.

Activity	Date	Status
AFTER June 1, 2011		
Conduct monthly water monitoring events covering watersheds throughout San Diego County	Monthly from Jan 2012 - Dec 2013	Not started
Conduct monthly trash removal events at locations throughout San Diego County	Five times each in 2012 and 2013	Not started
Analyze, manage and present water quality data for 28 – 33 sites per month. Data will be posted on www.sdwatersheds.org	Monthly from Jan 2012 - Dec 2013	Not started
Watershed Reports	Fall 2012 and Fall 2013	Not started
Develop and distribute outreach materials via web site and various meetings and events, including World Water Monitoring Day and Data Management Summit	Fall 2012 and Fall 2013	Not started

All samples will be collected and analyzed in accordance with Coastkeeper standard operating procedures for sample collection and Coastkeeper Laboratory Monitoring Plan and Quality Assurance Project Plan (QAPP). The QAPP was approved by San Diego Regional Water Quality Control Board in Sept 2010.

E. Environmental Compliance/Mitigation/Enhancement

Task 10- Environmental Compliance/Mitigation/Enhancement: This project does not involve construction, development or pollution generating activities. This project involves volunteers collecting and analyzing water quality samples. Efforts are made to place volunteers in watersheds near their homes to minimize carbon foot prints associated with driving to monitoring sites.



F. Construction Administration

Task 11- Construction Administration: Not applicable.

Project 10: Chollas Creek Integration Project

I. Introduction

Project Sponsor

The Jacobs Center for Neighborhood Innovation is the project sponsor for the *Chollas Creek Integration Project.*

Project Need

The *Chollas Creek Integration Project* (Projects #159 and 186 in the San Diego IRWM online project database) is needed to address water quality, flooding, and habitat protection concerns within the disadvantaged communities surrounding Chollas Creek (Pueblo Hydrologic Unit). The Chollas Creek watershed has been subject to urban runoff pollution and hydromodification by adjacent landowners and poor maintenance over the past few decades. Through analysis of hydrologic conditions and identification of pollution prevention strategies, these concerns will be addresses. Further, development of a stakeholder-driven water management process will benefit the disadvantaged communities by engaging them in the identification of key watershed issues and priorities.

This project will also restore riparian habitat and improve flood management in Chollas Creek Section 2A in order to improve environmental health/safety, surface water quality, and availability of green open space for the Encanto area, a disadvantaged urban community.

Project Purpose

The purpose of the *Chollas Creek Integration Project* is to gather and generate scientific data and stakeholder input to form an integrated planning process for the Pueblo Hydrologic Unit that will update the Chollas Creek Enhancement Program and establish implementation strategies. Further, this project will restore native habitat and reduce flooding hazards within Chollas Creek (Section 2A), which will provide baseline data for future water quality and habitat improvements in the Pueblo watershed. The project improves and maintains Chollas Creek as a natural urban drainage system that serves as a major conduit for stormwater runoff from its headwaters in La Mesa and Lemon Grove to San Diego Bay.

Project Objectives

The Chollas Creek Integration Project seeks to accomplish the following objectives:

- Develop a stakeholder-driven watershed management process that will benefit the disadvantaged communities surrounding Chollas Creek;
- Develop an Opportunities Assessment that improves water quality, reduces flooding, and identifies land use opportunities for preserving open green space and habitat; and
- Restore habitat and improve flood management of Chollas Creek Section 2A to improve environmental health/safety, surface water quality, and availability of green open space for the Encanto area, a disadvantaged urban community.

Table 3-13 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through implementation of the *Chollas Creek Integration Project*.

Proposal Project	Contribution to IRWM Plan Goals and Objectives								
	Α	В	С	D	Е	F	G	Н	I
Chollas Creek Integration Project	٠	•				•	•	٠	

Table 3-13: Contribution to IRWM Plan Objectives

• = directly related; • = indirectly related



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

- A: Maximize stakeholder/community involvement and stewardship. Utilize a stakeholderdriven process to develop a conceptual watershed management work plan, prioritize restoration and maintenance needs, develop funding strategies, and institutionalize community-based water and habitat conservation and stewardship. Chollas Creek communities will be engaged in stakeholder-driven meetings to understand neighborhood creek problems and opportunities in the context of the watershed-wide steps necessary to resolve problems.
- **B: Effectively obtain, manage, and assess water resource data and information**. Complete a comprehensive analysis of existing conditions, constraints and opportunities for habitat protection/restoration, flood control, water quality, hydrology, climate, soils, topography, geology, biological resources, invasive species, floods, land use, impervious surfaces, and public access/recreation. The data will drive the recommendations, and will be widely shared.
- F: Minimize the negative effects on waterways and watershed health caused by hydromodification and flooding. Based on hydrological data, this project will identify flooding problems and locations where flood plain widening and flood containment through habitat restoration is feasible. Within Chollas Creek Section 2A, this project will reduce flooding caused by channelization, soil erosion/sedimentation, and dumping of trash and construction debris into the creek through structural modifications and habitat restoration.
- **G: Effectively reduce sources of pollutants and environmental stressors**. The Opportunities Assessment will compile/generate the watershed hydrological data needed to recommend and prioritize water quality improvement strategies, including pollution control projects and low impact development structural approaches. This project will also reduce storm water contamination and sedimentation in Chollas Creek Section 2A through replacement of non-native plants with native vegetation (biofiltering), cleanup of the creek bed, pollution prevention outreach/education and monitoring/maintenance (stewardship).
- *H: Protect, restore and maintain habitat and open space*. The Opportunities Assessment will identify and prioritize location and types of upland and wetland restoration projects in the Pueblo watershed. This project will also restore naive habitat within Chollas Creek Section 2A by replacing non-native plants with native riparian vegetation (including Laurel Sumac, California Holly, Coastal Sagebrush, and willows), removing debris, and protecting seasonal nesting areas within the creek.

Project Partners

The following organizations are project partners: Groundwork San Diego-Chollas Creek; San Diego Coastkeeper; City of San Diego Planning Department; Encanto Planning Group; City of San Diego Parks and Recreation; Urban Corps; Jackie Robinson YMCA; and City of San Diego Stormwater Division.

Project Abstract

The *Chollas Creek Integration Project* will prepare the Chollas Creek Enhancement Program for full-scale implementation by providing a comprehensive analysis of creek conditions, opportunities and constraints for habitat protection, restoration, enhancement, preventing pollution and reducing storm water TMDLs. The Opportunities Assessment will then prioritize projects and match them to funding opportunities.

Within Chollas Creek Section 2A, the project partners will restore creek habitat, prevent surface water pollution, and reduce erosion and flooding associated with channelization. Through the removal of concrete and debris from the creek, widening creek bank slopes (treatment of hydraulic problem), and soil erosion prevention measures, flooding contributors such as velocity and sedimentation will be reduced and Section 2A will be stabilized for 100-year design flows. Through cultivation of native plant species, removal of debris and trash, and maintenance of a soil creek bottom to promote biofiltration, the project will reduce toxic metals and bacteria in the creek steam and other environmental stressors. The creek restoration conceptual design has been initiated. 10% conceptual design has been completed to date.



Linkages and Synergies between Projects

San Diego CoastKeeper's *Regional Water Quality Assessment and Outreach Project* (Project #26 in the San Diego IRWM online project database) is linked with the *Chollas Creek Integration Project* by providing scientific data on water quality within the Pueblo watershed and engaging community stakeholders. Water quality data collected will be accessible to support ongoing public involvement and stewardship, including *Chollas Creek Integration Project* community stakeholder outreach, education and engagement activities.

The Opportunities Assessment will address the implementation of specific projects identified in the Chollas Creek Enhancement Program (City of San Diego 2002). The Opportunities Assessment will build on the work completed in that planning effort.

Chollas Creek Section 2A Restoration expands upon habitat restoration completed in the connecting Encanto tributary and provides baseline data for the Opportunities Assessment for learning about Chollas Creek Enhancement Program implementation opportunities and challenges.

Existing Data and Studies

This project builds upon the following existing plans and studies:

- City of San Diego. September 2006. Chollas Creek TMDL Source Loading, Best Management Practices, and Monitoring Strategy Assessment.
- City of San Diego. May 2002. Chollas Creek Enhancement Program.
- Jacobs Center. October 2008. Chollas Creek Section 2A Restoration Biology Study.
- Jacobs Center. October 2008. Chollas Creek Section 2A Restoration Hydrology Study.

These documents are contained on a supplementary CD that was submitted as part of this Implementation Grant Proposal.

Project Timing and Phasing

The Opportunities Assessment will operate in parallel with the Chollas Creek Section 2A Restoration, which will inform the analysis and planning for implementation of the Chollas Creek Enhancement Program throughout the larger watershed. The Chollas Creek Section 2A Restoration represents the continuation and completion of habitat restoration, water quality improvements, and flood hazards reduction within an 8-acre segment of South Chollas Creek specific to the smart-growth Village at Market Creek. It will operate on a design, permitting, and construction schedule in parallel with the Opportunities Assessment, with nexus points for data sharing, meetings, and community involvement. As the restoration activities progress on this creek segment, the data generated and issues addressed will inform the Opportunities Assessment portion of this integrated project, benefiting future efforts to improve the Pueblo Hydrologic Unit.

Project Map

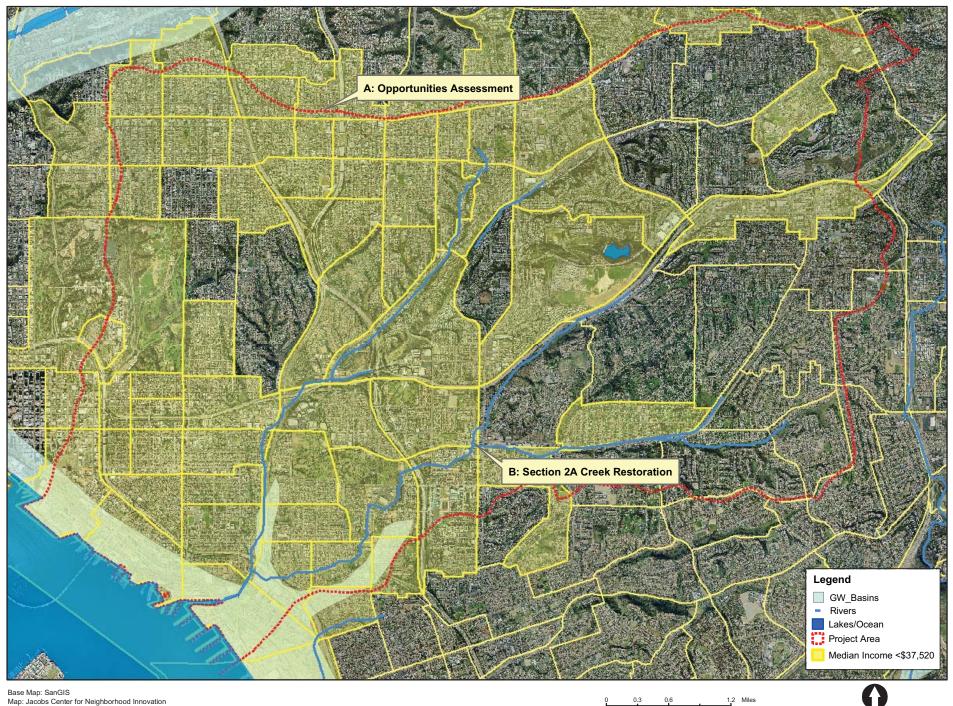
Figure 3-11 provides a project site map for the *Chollas Creek Integration Project*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 *Chollas Creek Integration Project* will contribute \$27,000 to these administrative fees.

Chollas Creek Project Area



A. Direct Project Administration Costs

Task 1 – Project Administration: A contracting agreement (e.g., Memorandum of Understanding) between the Jacobs Center for Neighborhood Innovation (the project lead) and Groundworks San Diego-Chollas Creek (a project partner) will be in place before the Implementation Grant Agreement is in place (before June 1, 2011).

The following table lists the project administration costs that are anticipated after the Implementation Grant Agreement is initiated (after June 1, 2011). These project administration costs will be incurred in order to complete procedures for coordination with Groundworks San Diego-Chollas Creek, including project status update reports and communications, monthly and/or as needed meetings, and data sharing of technical data and stakeholder input. In addition, this task involves other project administration costs associated with project administration, coordination, and review of all following project tasks.

Labor Category	Level of effort	Status
AFTER June 1, 2011		
Administration Support	60	Not started
Grants Administration	140	Not started
Program Management (GWSDCC)	54	Not started

Task 2 – Labor Compliance Program: This task includes the work necessary to establish and adopt a Labor Compliance Program (LCP) in accordance with CCR §16421-16439. This LCP will be approved by the California Department of Industrial Relations, and details of the LCP will be included within the project's Annual Report.

JCNI will recruit and hire a State-certified/approved consultant to assist in developing the LCP for the Section 2A Creek Restoration construction subcontractor work, to monitor vendor compliance and identify any deviations, and to provide information for the project's Annual Report. JCNI has developed LCPs for past creek restoration and construction work and has experience implementing an LCP.

Task 3 – Reporting: In order to assess progress and accomplishments of the project, the following submittals will be completed after the Implementation Grant Agreement is in place (after June 1, 2011).

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	June 30, 2013	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

C. Planning/Design/Engineering/Environmental Documentation

Task 4 – Assessment and Evaluation : The following provides a description of necessary studies that have been completed or will be completed prior to June 1, 2011 for the project.

- The *Chollas Creek Section 2A Hydrology Study* was completed in October 2008, and utilized flood management calculations to identify the movement, distribution, and quality of water in portions of Chollas Creek that are relevant to the project.
- Chollas Creek Section 2A Hydrology Study Update. This document will consist of design and technical evaluations pursuant to CEQA, and will be complete by March 15, 2011.
- The Chollas Creek Section 2A Biology Study was completed in October 2008, and involved an inventory of all plants and animal species in portions of Chollas Creek that are relevant to the project.



- Chollas Creek Section 2A Biology Study Update. This document will consist of design and technical evaluations pursuant to CEQA, and will be complete by March 15, 2011.
- The following provides a description of studies that will be completed after June 1, 2011 in order to assess and evaluate the project.
- The *Pueblo Watershed Stakeholders Needs Assessment* will be completed by February 2012. This study will be comprised of initial data sets and data needs for the Pueblo Watershed (project area), which will be obtained from regularly held stakeholder agency meetings. In addition, the study will utilize data collected from interviews and surveys of local community organizations. Stakeholder agencies and community organizations will provide information regarding the initial conditions, data search, and field investigations with regard to hydrology (erosion and flooding), trail repair opportunities, and invasive species identification and eradication needs.
- The *Pueblo Watershed Hydrology Study* will be completed by June 2012, and will gather all existing water quality and hydrology data and map impermeable surfaces within the project area. This study will be utilized to identify data gaps in precipitation run-off and water quality monitoring, and recommend specific hydrology and sedimentation transport models to be used once data gaps are filled.
- The *Pueblo Watershed Habitat Characterization Study* will involve an initial data search of all plant and animal surveys within the project area, will identify and fill biological survey gaps, and will involve a field investigation of existing and potential habitat restoration sites. The purpose of this study is to generate a comprehensive list of potential wetland, upland creation, restoration sites, de-channelization sites, and potential wildlife corridors within the project area.

Study Performed	Date	Status
BEFORE June 1, 2011		
Chollas Creek Section 2A Hydrology Study	October 2008	Complete
Chollas Creek Section 2A Hydrology Study Update	March 2011	Initiated
Chollas Creek Section 2A Biology Study	October 2008	Complete
Chollas Creek Section 2A Biology Study Update	March 2011	Initiated
AFTER June 1, 2011		
Pueblo Watershed Stakeholders Needs Assessment	February 2012	Not started
Pueblo Watershed Hydrology Study	June 2012	Not started
Pueblo Watershed Habitat Characterization Study	October 2012	Not started

Task 5 – Final Design: All design for this project will be completed prior to the initiation of the Implementation Grant Agreement (before June 1, 2011). Project plans and specifications at the 90% level will be completed in October 2011, and final design will be completed in February 2012. Deliverables for this project will include a report entitled *100% (Final) Creek Restoration Design.*

Selection of design engineering firms for Chollas Creek Section 2A restoration was initiated in August 2008 and completed in September 2008, based on competitive technical and cost proposals from qualified consultants located in the San Diego region and who demonstrated experience with creek restoration of similar scope in the Pueblo watershed performed in compliance with the guidelines specified in the Chollas Creek Enhancement Program.

Design Submittals	Date	Status
AFTER June 1, 2011		
90% Design Submittal	October 2011	Not started
100% (Final) Creek Restoration Design	February 2012	Not started

Task 6 – Environmental Documentation: Environmental documentation will consist of preparation of a *Chollas Creek Section 2A Initial Study/Mitigated Negative Declaration*. This document will consist of an Initial Study in accordance with CEQA requirements, which will be initiated in June, 2011.

The City of San Diego will initiate environmental review upon award of funding (when the project formally becomes a project subject to CEQA). Once the project is approved and funding is awarded, the project will be submitted to the City of San Diego's Development Services Department for review in conformance with CEQA. A Mitigated Negative Declaration is anticipated for the creek restoration project. The City of San Diego City Council will certify the CEQA document and approve construction.

Environmental Documentation	Date	Status
AFTER June 1, 2011		
Mitigated Negative Declaration	June 2011	City Letter

Task 7 – Permitting: No permitting will be conducted for this project prior to initiation of the Implementation Grant Agreement (June 1, 2011). Prior to construction, all the necessary permits required for the project will be secured as demonstrated in the table below.

Permit	Approval Date	Status
AFTER June 1, 2011		
San Diego Regional Water Quality Control Board – CWA Section 401 Water Quality Certification	April 2012	Not started.
California Department of Fish & Game – Streambed Alteration Agreement. Notification of Lake or Streambed Alteration	May 2012	Not started.
U.S. Army Corp of Engineers – CWA Section 404 Permit Nationwide Permit (Will authorize Construction in wetland)	June 2012	Not started.
City of San Diego – Grading Permit	June 2012	Not started.

D. Construction/Implementation

Task 8 – Construction Contracting: Construction contracting for this project has not yet been completed. The Construction Contracting process will include: a Request for Pricing, Screening and Evaluation of Bids, Contractor Interviews and Selection, and Contract Awards. The submittals for this task will include a Construction Specifications Package, which will be submitted on March 31, 2012.

Construction Submittals	Date	Status
Construction Specifications Package	March 2012	Not started

Task 9 – Construction: All construction for the project will occur after the grant award takes place (after June 1, 2011).

Building Materials and/or Computational Methods

The Jacobs Center for Neighborhood Innovation will hire a reputable biological restoration firm who specializes in stream restoration and is familiar with the Chollas Creek Enhancement Program and Pueblo watershed.

Construction Tasks

Construction tasks for this project will include three subtasks:

 Subtask 9.1 Mobilization and Site Preparation: This subtask includes all actions necessary for mobilization and site preparation, including: mobilization, clearing and grubbing, rough grading, and onsite cut and fill. Actions under this subtask will be performed by the selected contractor, who will be managed by the Jacobs Center for Neighborhood Innovation. This subtask could also include all costs and activities necessary to make sure that construction progresses quickly and



efficiently. Mobilization shall include all activities and associated costs for transportation of contractor's personnel, equipment, and operating supplies to the site; establishment of offices, buildings, and other necessary general facilities for the contractor's operations at the site. Of the site preparation scope of our plan, we will be clearing and grubbing approximately 32,000 square feet, rough and final grading 10,000 cubic yards, and cut and fill of approximately 500 cubic yards.

- **Subtask 9.2 Project Construction**: This subtask includes construction activities necessary for restoration of Chollas Creek, including installation of drainage, installation of bioswales, construction of creek bed stabilization components, and habitat restoration.
- **Subtask 9.3 Performance Testing and Demobilization**: This subtask includes as-needed performance testing and demobilization for compliance with plans and specifications. Performance testing will include soils testing and water quality sampling, analysis, and reporting. Demobilization will include all actions necessary to finalize construction.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Environmental compliance for this project will take place upon project construction. Buffering of threatened and/or endangered species habitat is not anticipated based on a biological survey of the creek project area in which no listed species were found. Likely environmental mitigation and enhancement activities that will be associated with project implementation include restoration of existing habitat, erosion control, and invasive plant removal.

All Environmental Compliance/Mitigation/Enhancement will be completed in compliance with the findings and/or Mitigation Monitoring Program determined within the environmental document, which is anticipated to be an Initial Study/Mitigated Negative Declaration for this project.

F. Construction Administration

Task 11 – Construction Administration: This task involves administration, coordination, and review of the construction contract and all other related construction tasks. This task will be carried out by a Construction Administrator and a Construction Manager, who will respectively spend 250 hours and 300 hours on construction administration-related tasks.

Labor Category	Level of effort	Status
Construction Administration	280 hours	Not started
Labor Compliance	48 hours	Not started
Construction Manager	300 hours	Not started

Project 11: Regional Water Data Management Program

I. Introduction

Project Sponsor

The County of San Diego is the project sponsor for the Regional Water Data Management Program.

Project Need

During the development of the 2007 San Diego IRWM Plan, stakeholders identified that establishing a regional, web-based data management system was a short-term priority that was necessary to address immediate needs of the region. It was recognized that there is a multitude of monitoring and sampling programs in place throughout the Region, the degree to which data generated by such efforts is shared varies. The result can be duplication of data collection efforts or the failure to identify and address significant gaps in data collection and analysis. The idea is that a web-based system will make data instantly available to interested stakeholders and will facilitate data sharing by transmitting data through user-friendly features. Rather than relying on agency-to-agency data transfers, the web-based system can act as a central clearinghouse for information.



Project Purpose

The goal of the *Regional Water Data Management Program* is to provide a snapshot of current data management efforts and prioritize data needs and lay them out in a basic design parameters recommendations document for the future development of a regional, web-based system for sharing, disseminating and supporting the analysis of water management data and information.

Project Objectives

The Regional Water Data Management Program seeks to accomplish the following objectives:

- Establish a regional stakeholder-driven Workgroup to guide development of the Regional Water Data Management Program recommendations.
- Provide a snapshot of current data management efforts and priority data needs.
- Establish basic design parameters recommendations document for the future development of a regional, web-based system for sharing, disseminating and supporting the analysis of water management data and information.

Table 3-14 provides an overview of the San Diego IRWM Plan objectives that are expected to be indirectly (\circ) or directly (\bullet) achieved through the *Regional Water Data Management Program.*

Proposal Projects Contributio		on to IRWM Plan Objectives							
		В	С	D	Е	F	G	Н	1
Regional Water Data Management Program	•	•	•						

Table 3-14: Contribution to IRWM Plan Objectives

• = directly related; • = indirectly related

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

- A: Maximize stakeholder and community involvement and stewardship. The development of the web-based data management program would involve active input from water management stakeholders and would provide a platform for the water managers and the general public to access and use data for management and planning.
- **B:** *Effectively obtain, manage, and assess water resources data and information.* This project would develop a web-based system to make water supply and water quality data instantly available through user-friendly features. For some data sets, the system will pull local datasets from other existing data management systems used for data reporting and include data submittal functions.
- **C:** *Further the scientific and technical foundation of water management*. The system would assist in eliminating duplicative efforts and reveal any gaps in data collection and analysis. Data analysis tools can assist in the assessment of water management issues assisting in the identification of future projects to further the goals of the IRWM Plan.

Project Partners

Project partners for the *Regional Water Data Management Program* include the City of San Diego, San Diego County Water Authority, and San Diego Regional Water Quality Control Board, as well as the larger San Diego IRWM stakeholder group.

Project Abstract

The *Regional Water Data Management Program* will provide a snapshot of current data management efforts and priority data needs and lay them out in a basic design parameters recommendations document for the future development of a regional, web-based system for sharing, disseminating and supporting the analysis of water management data and information. No design work has been completed to date for this project.



Facilitate Data Management System Advisory Workgroup

A Data Management System (DMS) Advisory Workgroup will be convened to identify target stakeholder groups, guide the development of assessment approaches and provide input and oversight of the Final Data Management System Basic Design Recommendations. The DMS Advisory Workgroup will be composed of representatives from the County of San Diego, City of San Diego, County Water Authority, San Diego Regional Water Quality Control Board, San Diego Coastkeeper, a groundwater quality manager, a surface water quality manager, a wastewater/recycled water manager, and two watershed representatives. The Regional Water Management Group (RWMG) will facilitate six DMS Advisory Workgroup meetings, over the duration of the project, with the assistance of a technical consultant who will provide working materials, content for assessment approaches and methodologies, as well as summaries results of the needs assessments and develop resulting Data Management System Basic Design Recommendations.

Develop Assessment Approaches and Methods

The technical consultant will prepare a summary of assessment approaches and methods to be considered for assessing the needs of various stakeholders within the San Diego region. The assessment approaches and methodologies will be focused on gathering information to understand the relevant existing, planned, or past efforts related to web-based accessibility of watershed and water quality data and information. Methods need to be able to gather information needs and preferences, technology needs and preferences, functionality needs and preferences and any special characteristics or challenges related to each identified stakeholder group. The summary will be presented to the DMS Advisory Workgroup along with an overview of current State efforts for collection and dissemination for water quality data, for input and approval.

Stakeholder Needs Assessment

The RWMG Staff (County of San Diego, City of San Diego, and County Water Authority) will participate in a series of meetings for up to 5 stakeholder groups identified by the DMS Advisory Workgroup. Three meetings will be held for each stakeholder group; two meetings for the assessment of needs followed by a third meeting to review and approve content of assessment results report. Each meeting will be led by a consultant with the sole responsibility of facilitating and managing the discussions for each group. The assessment itself will be conducted by a technical consultant who will gather the provided information and consolidate it into a needs assessment report, one for each stakeholder group. Upon completion of all the stakeholder group needs assessment reports the technical consultant will present a summary of the results to the DMS Advisory Workgroup and facilitate discussion on how to bring all the results together into a Basic Design Parameters Recommendations document suitable for the subsequent technical development of a web-based data management system.

Basic Design Parameters Recommendations

The technical consultant will prepare a draft Basic Design Parameters Recommendations document based on direction from the DMS Advisory Workgroup. The draft document will be presented to the DMS Advisory Workgroup for first review and comment. The technical consultant will incorporate these comments and develop the draft Final Basic Design Parameters Recommendations document and bring back to the DMS Advisory Workgroup for approval prior to release to the public. Two public workshops, facilitated by the facilitation consultant, will be conducted to solicit public input into the recommendations document. The technical consultant will consolidate comments and bring them back to the DMS Advisory Workgroup for review. Comments will be discussed and appropriate responses decided by the Advisory Workgroup. The final content of the Basic Design Parameters Recommendations document will be approved and the next step towards implementing a web-based data management system discussed.



Linkages and Synergies between Projects

As described above, establishment of the *Regional Water Data Management Program* was identified by stakeholders in the 2007 San Diego IRWM Plan. Once complete, it is likely that all project performance data subsequently collected by the San Diego IRWM program will be entered and stored in the *Regional Water Data Management Program*.

Project Timing and Phasing

The project is a multi-phased project. This proposed Work Plan involves establishment of a data framework for the *Regional Water Data Management Program* using a collaborative stakeholder-driven process. The next phase of the project involves actual development of the online software to host the *Regional Water Data Management Program*.

Existing Data and Studies

Not applicable.

Project Map

Figure 3-12 provides a project site map for the *Regional Water Data Management Program*, showing boundary of project, surface waters, groundwater basins, DACs layer, and any proposed monitoring locations.

II. Proposed Tasks

Grant Administration (GA)

SDCWA 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 *Regional Water Data Management Program* will contribute \$4,500 to this administrative cost.

A. Direct Project Administration Costs

Task 1 – Project Administration: This task involves general oversight from a Project Manager, who will oversee and coordinate activities shared by County of San Diego, City of San Diego, County Water Authority, and consultant support. This project will require 174 hours of labor from the Project Manager after June 1, 2011.

Labor Category	Level of effort	Status
AFTER June 1, 2011		
Project Manager	174 hours	Not started

Task 2 - Labor Compliance Program: This project will not require a Labor Compliance Program (LCP), because it will not involve construction activities.

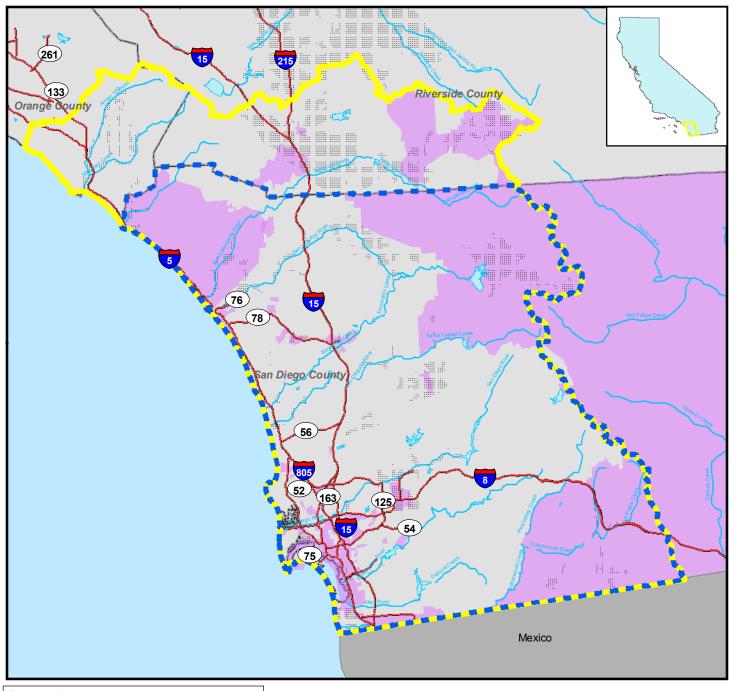
Task 3 - Reporting: The identified Project Manager will complete all necessary reporting, including quarterly reports and invoices, a Project Assessment and Evaluation Plan (PAEP), and a Project Completion Report.

Project Administration Submittals	Date	Status
AFTER June 1, 2011		
Project Assessment and Evaluation Plan (PAEP)	December 1, 2011	Not started
Quarterly Progress Reports and Invoices	Quarterly based on Start	Not started
Project Completion Report	Upon project completion	Not started

B. Land Purchase Easement

A land purchase easement is not required for implementation of this project.

Figure 3-12: Regional Water Data Management Program Map





1	Regional Water Data Management Program
	Groundwater Basins
	Median Household Income <\$38,000
13	San Diego IRWM Region
	Funding Area Boundary
	Ocean
	Waterbody
	River
	Freeway
	Mexico
	County

N





U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm

C. Planning/Design/Engineering/Environmental Documentation

Task 4 - Assessment and Evaluation: Subtasks 4.1, 4.2, 4.3, 4.4, and 4.5 listed within the Budget for this project (refer to Attachment 4) include the following assessments and/or evaluations. Note that each of these subtasks will be completed following initiation of the Grant Agreement (June 1, 2011).

- Subtask 4.1 Convene a Data Management System (DMS) Advisory Workgroup: This subtask will be completed by June 2011, and includes identifying and inviting participation in the Data Management System (DMS) Advisory Workgroup. This task will require County of San Diego staff time to prepare invitations and conduct correspondence. Deliverables for this task will be Invitation letter and list of Data Management System (DMS) Advisory Workgroup members.
- Subtask 4.2 Identify and Segment Stakeholder Groups: This subtask will be completed by June July 2011, and includes a portion of one meeting of the Data Management System (DMS) Advisory Workgroup to identify and segment stakeholder groups into five groups for conducting detailed needs assessments. Completing this task will require time from County of San Diego staff, County Water Authority staff, City of San Diego staff, consultant(s), and nongovernmental agency staff (up to three, supported with a grant funded stipend). Deliverables for this task will be a meeting summary, sign-in sheet, any materials distributed during the meeting, a list of five stakeholder groups and associated contacts.
- Subtask 4.3 Develop Assessment Approaches and Methodologies: This subtask will be completed by September 2011, and includes two meetings of the Data Management System (DMS) Advisory Workgroup in conjunction with a technical consultant to develop approaches and methods to assess needs of stakeholder groups. This subtask also includes the development of assessment materials to collect information on priority data sets, data acquisition options, desired system functionality, data presentation options, and other information as identified by the DMS Advisory Workgroup. This task will require staff time from County of San Diego staff, County Water Authority staff, City of San Diego staff, consultant(s), and nongovernmental agency staff (supported with a grant funded stipend). Deliverables for this task will be meeting agendas, signin sheets, draft and final meeting notes, working materials and handouts, and all assessment materials developed by the workgroup.
- Subtask 4.4 Conduct Needs Assessment of Stakeholder Groups: This subtask will be completed by September 2012, and includes three meetings each for the five stakeholder groups to conduct assessments and produce a detailed needs assessment report for each stakeholder group. The objective of the final meeting for each of the groups will be to review and approve the content representing their existing and, or past, data management efforts and planned data management needs. This task will require time from County of San Diego staff, County Water Authority staff, City of San Diego staff, two consultants (one facilitator, one technical), and nongovernmental agency staff (supported with a grant funded stipend). Deliverables for this task will be meeting agendas, sign-in sheets, draft and final meeting notes, working materials and handouts, and detailed needs assessment reports for each of the five stakeholder groups.
- Subtask 4.5 Develop Vision for Data Management System Basic Design Recommendation: This subtask will be completed by December 2012, and includes one meeting of the DMS Advisory Workgroup to review the results of the needs assessment to provide input on the consolidation of the assessment results into a Basin Design Recommendations document. This task requires time spent by County of San Diego staff, County Water Authority staff, City of San Diego staff, two consultants (one facilitator, one technical), and nongovernmental agency staff (supported with a grant funded stipend). Deliverables for this task will be meeting agendas, sign-in sheets, draft and final meeting notes, working materials and handouts.

Study Performed	Date	Status
AFTER June 1, 2011		
Convene a Data Management System (DMS) Advisory Workgroup	June 2011	Started
Identify and Segment Stakeholder Groups	July 2011	Not Started
Develop Assessment Approaches and Methodologies	September 2011	Not Started
Conduct Needs Assessment of Stakeholder Groups	September 2012	Not Started
Develop vision for Data Management System Basic Design Recommendation	December 2012	Not Started

Task 5 – Final Design: Design for this project has not yet been completed, therefore all design will occur after initiation of the Grant Agreement, and will include Subtasks 5.1, 5.2, and 5.3 described in further detail below.

- Subtask 5.1 Develop Draft Data Management System Basic Design Recommendations: This subtask will be completed by January 2013, and includes the development of design recommendations. Draft recommendations will be presented to the DMS Advisory Workgroup for review and comment. This task will require staff time from County of San Diego staff, County Water Authority staff, City of San Diego staff, a technical consultant, and nongovernmental agency staff (supported with a grant funded stipend). Deliverables for this task include meeting agenda, sign-in sheet, draft and final meeting note, working materials and handouts, and draft Data Management System Basic Design Recommendations document.
- Subtask 5.2 Develop Draft Final Data Management System Basic Design Recommendations: This subtask will be completed by April 2013, and includes the development of the draft final design recommendations. The draft final recommendations will be presented at two public workshops, during which staff and/or the consultant team will solicit review and comments on the recommendations. This task will require staff time from County of San Diego staff and two consultants (one facilitator, one technical). Deliverables for this task include public workshop agendas, sign-in sheets, presentation material and handouts, and solicitation notice for comments on final.
- Subtask 5.3 Develop Final Data Management System Basic Design Recommendations: This subtask will be completed by June 2013, and includes consolidation of the public comments received. The public comments will be presented at one meeting of the DMS Advisory Workgroup. The workgroup will provide guidance on addressing comments, finalizing the recommendations document, and establishing the next step in the development of a Regional Data Management System. This task will require time spent by County of San Diego staff, County Water Authority staff, City of San Diego staff, a technical consultant, and nongovernmental agency staff (supported with a grant funded stipend). Deliverables for this task include comments received on the draft Data Management System Basic Design Recommendations document, and final Data Management System Basic Design Recommendations document.

Design Task	Date	Status
AFTER June 1, 2011		
Develop Draft Data Management System Basic Design Recommendations	January 2013	Not Started
Develop Draft Final Data Management System Basic Design Recommendations	April 2013	Not Started
Develop Final Data Management System Basic Design Recommendations	June 2013	Not Started

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 may possibly identify programs and projects for possible future actions, but does not have a legally binding effect of the

participating agencies. As such, programmatic environmental analysis under CEQA is not required, and the project does not require NEPA-related analysis.

Task 7 – Permitting: Permitting is not applicable to this project.

D. Construction/Implementation

Task 8 - Construction Contracting: This project will not require construction contracting.

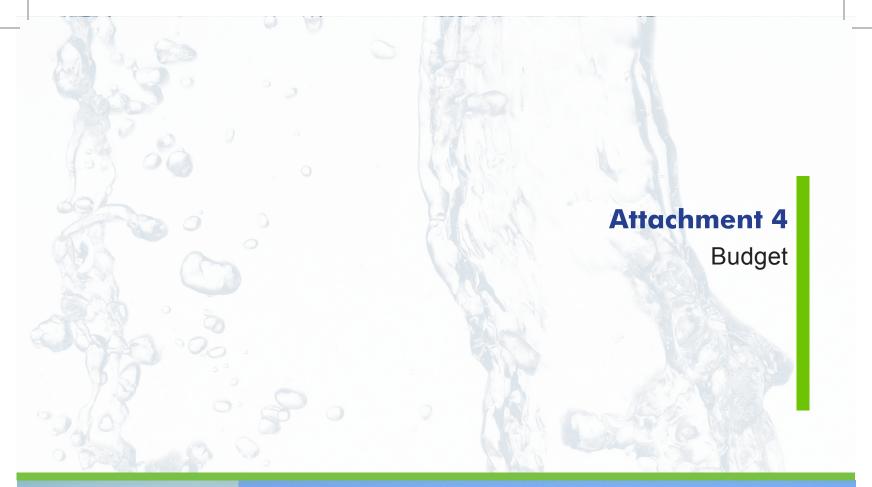
Task 9 – Construction: This project will not involve construction.

E. Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: This project does not require CEQA or NEPA-related analysis. All tasks carried out for this project will be conducted in a manner that ensures environmental compliance with any other relevant environmental statutes.

F. Construction Administration

Task 11 – Construction Administration: Construction administration will not be completed as part of this project.





Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Budget

Attachment 4 consists of the following items:

Proposal Budget(s). The Summary Budget Table 8 (Table 4-1) provides a budget estimate for each budget category row of each project within this Implementation Grant Proposal, as well as summary budget for the entire proposal. Each section following includes the proposed budget for each individual project in this proposal.

The proposal budget provides detailed budget documentation to support each cost shown in the tables below under the section entitled Detailed Proposal Work Item Budgets. Please note that for many of the budget categories shown in Tables 4-2 through 4-67, there may be several tasks and sub-tasks. Tables 4-2 through 4-67 also present the proposed funding match for each project within the Proposal, including information that describes how each project will meet their funding match of at least 25 percent of the total project costs. As shown in Attachment 12, the *Chollas Creek Integration Project* and the *Rural Disadvantaged Community (DAC) Partnership Project* have both applied for a funding match waiver, because these projects have demonstrated that they will address critical water supply and/or water quality issues for a DAC.

Total Proposal Cost Estimate

As described in Attachment 3, the San Diego IRWM Implementation Grant Proposal involves implementation of four high priority programs to meet the region's water management needs including:

- Water Supply / Water Recycling includes Sustainable Landscapes Program, North San Diego County Regional Recycled Water Program, North San Diego County Cooperative Demineralization Project, and Rural Disadvantaged Community (DAC) Partnership Project.
- Water Quality / Stormwater includes Lake Hodges Water Quality and Quagga Mitigation Measures, Implementing Nutrient Management in the Santa Margarita River Watershed, Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection, Pilot Concrete Channel Infiltration Project, and San Diego Regional Water Quality Assessment and Outreach Project.
- Natural Resources and Watersheds includes Chollas Creek Integration Project.
- Data Management includes Regional Water Data Management Program.

The total budget for this proposal is \$16,946,327. Of this amount, \$5,988,454 (35 percent) is being provided as funding match and \$7,900,000 (47 percent) is being requested from DWR through the IRWM Grant Program.

During project selection, the RAC agreed that all project proponents shall set aside three percent of their recommended grant allocation for the San Diego County Water Authority (SDCWA) to administer the grant contract with DWR. This amount totals \$237,000, and is based on one Management Analyst at SDCWA (\$56.45 hourly rate) working 50 hours per month and one Senior Water Resources Specialist (\$68.78 hourly rate) working 17 hours per month for five years (2011 – 2015). Project administration costs for individual projects are described in detail in the individual project budgets.

Table 4-1 presents the overall cost of proposal implementation. Detailed cost estimates for each project contained in the proposal follow. The specific work items outlined in Attachment 3 are reflected in the detailed cost estimates.

Table 4-1: Summary Budget (\$2009)
San Diego IRWM Implementation Grant Proposal

Budget Category		Non-State Share (Funding Match)	Requested Grant Funding	Other State Funds Being Used ⁽¹⁾	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$237,000	\$2,025	\$239,025	0%
(a)	Direct Project Administration Costs	\$134,764	\$73,000	\$0	\$207,764	65%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$1,833,263	\$3,116,827	\$65,475	\$5,015,565	37%
(d)	Construction/Implementation	\$3,846,427	\$4,123,717	\$2,219,373	\$10,189,517	38%
(e)	Environmental Compliance/ Mitigation/ Enhancement	\$0	\$15,000	\$27,000	\$42,000	0%
(f)	Construction Administration	\$54,980	\$88,100	\$108,000	\$251,080	22%
(g)	Other Costs	\$119,020	\$65,361	\$0	\$184,381	65%
(h)	Construction/Implementation Contingency	\$0	\$180,995	\$636,000	\$816,995	0%
(i)	Grand Total	\$5,988,454	\$7,900,000	\$3,057,873	\$16,946,327	35%
(j)	Calculation of Funding Match %	\$5,988,454			\$16,946,327	35%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds: See Individual Project Cost Estimates						

1) "Other State Funds" may be presented in Table 8 to demonstrate the full funding picture for the proposal and, if presented, must be included in the total costs of the proposal, which will be used to determine the percentage for the Funding Match Scoring Criterion.

Detailed Proposal Work Item Budgets

Detailed budgets for each of the projects included within this proposal, including a summary budget and supporting cost information are provided in the following sections.

Project 1: Sustainable Landscapes Program

The *Sustainable Landscapes Program* will consist of activities designed to increase water efficiency and reduce pollutants from entering waterways and watersheds throughout the San Diego IRWM region. Funding for this project involves the following aspects of project implementation: grant administration, project administration, and construction/implementation.

The total cost associated with the *Sustainable Landscapes Program* is \$1,400,000. Of these total costs, \$1,050,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$350,000 will be funded by the project partners, including the San Diego County Water Authority, the County of San Diego, the City of San Diego, Surfrider Foundation, California Center for Sustainable Energy, Association of Compost Producers, and California American Water. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-2 below provides a more detailed break-down of the total project budget.

Table 4-2: Total Project BudgetSustainable Landscapes Program

		(a)	(b)	(c)	(d)	(e)
Budg	et Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$31,500	\$0	\$31,500	100%
(a)	Direct Project Administration Costs	\$42,900	\$23,100	\$0	\$66,000	68%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	0%
(d)	Construction/Implementation	\$307,100	\$995,400	\$0	\$1,302,500	23%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	0%
(i)	Grand Total	\$350,000	\$1,050,000	\$0	\$1,400,000	25%

This Implementation Grant Proposal is requesting funding for four project tasks identified within the *Sustainable Landscapes Program* Work Plan (refer to Attachment 3).

Table 4-3: Cost Breakdown by Work Plan Task and Subtask Sustainable Landscapes Program

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$31,500
Row (a)	Direct Project Administration Costs	\$66,000
Task 1	Project Administration	\$66,000
Row (d)	Construction/Implementation	\$1,302,500
Task 9	Construction	\$1,302,500
Row (i)	Grand Total	\$1,400,000

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Sustainable Landscapes Program* will contribute \$31,500 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$66,000. Table 4-4 provides a detailed listing of the allocation of these costs. The total Direct Project Administration Costs of \$66,000 include \$23,100 in grant request (2% of total grant request) and \$42,900 in matching funds provided by the project partners in in-kind services.

Task 1 – Project Administration: This includes the cost for all administration efforts required to implement the project, including labor for a Project Schedule/Management Analyst, Water Resources

Specialist (Project Manager), Senior Water Resources Specialist, and Principal Water Resources Specialist. This is based on agency experience managing a similar grant program.

Task 2 – Labor Compliance Program : This task includes all efforts required to establish and adopt a Labor Compliance Program (LCP), including producing annual reports (if necessary). It is anticipated that because of its programmatic nature, this project will <u>not</u> trigger labor compliance requirements. Therefore, only \$1,320 has been allocated in Task 1: Project Administration above for labor compliance review only. Should it later be determined that additional LCP work is necessary, funding from Task 9 (Implementation) would be reallocated to cover any LCP costs.

Task 3 – Reporting: This task includes preparing the Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. This is based on agency experience managing a similar grant program. All grant reporting costs have been incorporated into Task 1: Project Administration above.

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Project Scheduler/ Management Analyst	\$56.45	250	\$5,645	\$12,037	\$6,481
Water Resources Specialist	\$56.45	540	\$30,459	\$19,798	\$10,661
Senior Water Resources Specialist	\$68.78	100	\$11,377	\$3,670	\$1,976
Principal Water Resources Specialist	\$74.07	165	\$18,518	\$7,395	\$3982
	•	Total	\$66,000	\$42,900	\$23,100

Table 4-4: Row (a) Direct Project Administration Budget Sustainable Landscapes Program

Row (b) Land Purchase/Easement

Not applicable.

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

The project will not require planning, design, engineering or environmental documentation. Therefore, these tasks are not applicable to the project and are not included within the Work Plan or Budget.

Task 4 – Assessment and Evaluation: Not applicable.

Task 5 – Final Design: Not applicable.

Task 6 – Environmental Documentation: Not applicable.

Task 7 – Permitting: Not applicable.

Row (d) Construction/Implementation

Implementation costs for the project are estimated to be \$1,302,500. Table 4-5 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8 – Construction Contracting: The San Diego County Water Authority has implemented necessary construction contracting tasks under a previous project. Those staff costs are not included within the proposed Budget.

Task 9 – Construction: Implementation costs for this project are divided between three categories: materials, incentives, and labor. These costs, which are summarized below, are designed to support the *Sustainable Landscapes Program*, and produce other deliverables described within Task 9 of the Work Plan (refer to Attachment 3).

- **Materials:** Materials for the project include various retrofit-related materials, education and training materials, technical resources, and marketing and outreach materials for a total of \$122,750.
- Incentives: Incentives for the project include retrofit incentives for a total of \$457,500.



• Labor: Labor required to fulfill the implementation task (Task 9 of the Work Plan) includes guidelines and specifications, education and training, technical resources, marketing and outreach, evaluation, incentive administration, and materials administration for a total of \$722,250. This is based on an estimate of in-kind and consultant services to be provided by SDCWA or project partners.

Implementation costs for the *Sustainable Landscapes Program* were calculated based on anticipated activity and estimated average hourly rates or unit costs derived from past experience. All components are necessary to the execution of the project and the preservation of the project's purpose; however, these are estimated averages and may need to be modified in the future.

Materials					
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request
Landscape Guidelines and Specifications	Lump	Sum	\$5,000	\$0	\$5,000
Education and Training	\$10	5,000	\$50,000	\$15,000	\$35,000
Technical Assistance	\$50	300	\$15,000	\$0	\$15,000
Landscape Materials	\$4	3,188	\$12,750	\$12,750	\$0
Outreach and Marketing	Lump	Sum	\$25,000	\$20,000	\$5,000
Evaluation	\$375	40	\$15,000	\$2,500	\$12,500
		Subtotal	\$122,750	\$50,250	\$72,500
	Incent	ives			
Retrofit Incentives	\$2,400	191	\$457,500	\$0	\$457,500
		Subtotal	\$457,500	\$0	\$457,500
	Lab	or			
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request
Landscape Guidelines and Specifications	\$125	787	\$98,357	\$58,000	\$40,357
Education and Training	\$125	2,300	\$287,561	\$50,000	\$237,561
Technical Assistance	\$125	1,236	\$154,536	\$38,000	\$116,536
Incentives Administration	\$100	825	\$78,000	\$78,000	\$0
Outreach and Marketing	\$100	669	\$38,321	\$2,500	\$35,821
Evaluation	\$150	333	\$65,475	\$30,350	\$35,125
		Subtotal	\$722,250	\$256,850	\$465,400
		Total	\$1,302,500	\$307,100	\$995,400

Table 4-5: Row (d) Construction/Implementation Costs Sustainable Landscapes Program

Row (e) Environmental Compliance/Mitigation/Enhancement

This project will not require environmental compliance/mitigation/enhancement. Therefore, no environmental mitigation is included within the Work Plan or Budget.

Task 10- Environmental Compliance/Mitigation/Enhancement: Not applicable.

Row (f) Construction Administration

Construction will not be performed as part of this project, therefore construction administration is not applicable to this project and is not included within the Work Plan or Budget.

Task 11- Construction Administration: Not applicable.

Row (g) Other Costs

Other costs are not required for this project.



Row (h) Construction/Implementation Contingency

Construction/Implementation contingency are not required for this project.

Row (i) Grand Total

The Grand Total for the project (\$1,400,000) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-6: Row (i) Grand Total CostsSustainable Landscapes Program

Row	Budget Category	Total Costs
GA	Grant Administration	\$31,500
(a)	Direct Project Administration Costs	\$66,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$0
(d)	Construction/Implementation	\$1,302,500
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	\$0
(i)	Grand Total	\$1,400,000

Project 2: North San Diego County Regional Recycled Water Project

The North San Diego County Regional Recycled Water Project will involve efforts to regionalize recycled water systems in northern San Diego County in order increase the role of recycled water in meeting future water needs. Funding for this project involves the following aspects of project implementation: grant administration, project administration costs, and planning/design/engineering/environmental documentation.

The total cost associated with the *North San Diego County Regional Recycled Water Project* is \$2,000,000. Of these total costs, \$1,500,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$500,000 will be funded by non-State funding sources, which will come from the general funds of the participating project partners. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-7 below provides a more detailed break-down of the total project budget.

Table 4-7: Total Project Budget
North San Diego County Regional Recycled Water Project

		(a)	(b)	(c)	(d)	(e)
Budg	jet Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$45,000	\$0	\$45,000	0%
(a)	Direct Project Administration Costs	\$55,000	\$0	\$0	\$55,000	100%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$445,000	\$1,455,000	\$0	\$1,900,000	23%
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	0%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	0%
(i)	Grand Total	\$500,000	\$1,500,000	\$0	\$2,000,000	25%
* Sou	* Sources of funding: General funds of participating project partners.					

This Implementation Grant Proposal is requesting funding for five project tasks identified within the *North San Diego County Regional Recycled Water Project* Work Plan (refer to Attachment 3).

Table 4-8: Co	st Breakdown by Work Plan Task and Subtask
North San D	ego County Regional Recycled Water Project

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$45,000
Row (a)	Direct Project Administration Costs	\$55,000
Task 1	Project Administration	\$55,000
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$1,900,000
Task 4	Assessment and Evaluation	\$580,000
Task 5	Final Design	\$900,000
Task 6	Environmental Documentation	\$420,000
Row (i)	Grand Total	\$2,000,000

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *North San Diego County Regional Recycled Water Project* will contribute \$45,000 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$55,000. Table 4-9 provides a detailed listing of all applicable costs.

Task 1 – Project Administration: This includes the cost for all administration of the project, including labor costs for a Project Director, a Project Manager, and supporting staff members. These costs were determined based on estimated level of effort to manage each of Tasks 4 through 6.

Task 2 – Labor Compliance Program: OMWD is in the process of contracting with an approved third party Labor Compliance Program, and will implement a labor compliance program for the North San Diego County Regional Recycled Water Project. However, those staff costs are not included within the proposed Budget.

Task 3 – Reporting: This task includes preparing the Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. Costs for grant reporting have been included in staff labor estimated under Task 1: Project Administration above.

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Project Director	\$200.00	60	\$12,000	\$12,000	\$0
Project Manager	\$150.00	180	\$27,000	\$27,000	\$0
Support	\$100.00	160	\$16,000	\$16,000	\$0
		Total	\$55,000	\$55,000	\$0

Table 4-9: Row (a) Direct Project Administration Budget North San Diego County Regional Recycled Water Project

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$1,900,000. Table 4-10 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4 – Assessment and Evaluation: This task includes cost for the following engineering studies:

- A Recycled Water Facilities Plan, and
- An Engineering Study for Regional Seasonal Recycled Water Storage.

This cost was determined based on the estimated level of effort associated with conceptual study of two regional seasonal recycled water storage sites.

Task 5 – Final Design: This task includes the cost for completing design for the project up through the 50% design phase. This cost was determined based on the estimated level of effort associated with preliminary design of a recycled water distribution system for 5,000 AFY delivery.

Task 6 – Environmental Documentation: This task includes the cost for preparation of a joint CEQA Initial Study/NEPA Environmental Assessment to determine the level of environmental compliance needed. These costs were determined based on the estimated level of effort associated with performing assessments necessary for the review of two regional seasonal recycled water storage sites.

Task 7 – Permitting: Not applicable.

Row (d) Construction/Implementation

Construction will not be performed as part of this project, therefore construction contracting and construction are not included within the Work Plan or Budget.

Task 8 – Construction Contracting: Not applicable.

Task 9 – Construction: Not applicable.



Table 4-10: Row (c) Planning/Design/Environmental Documentation Costs North San Diego County Regional Recycled Water Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request		
Recycled Water Facilities Plan							
Engineering	\$200.00	750	\$150,000	\$150,000	\$0		
Engineering Study for Regional Season	al Recycled Wat	er Storage					
Engineering	\$200.00	2,150	\$430,000	\$295,000	\$135,000		
Final Design							
Engineering	\$200.00	4,500	\$900,000	\$0	\$900,000		
CEQA/NEPA Documentation	CEQA/NEPA Documentation						
Environmental	\$200.00	2,100	\$420,000	\$0	\$420,000		
		Total	\$1,900,000	\$445,000	\$1,455,000		

Row (e) Environmental Compliance/Mitigation/Enhancement

This project will not require environmental compliance/mitigation/enhancement. Therefore, no environmental mitigation is included within the Work Plan or Budget.

Task 10 – Environmental Compliance/Mitigation/Enhancement: Not applicable.

Row (f) Construction Administration

Construction will not be performed as part of this project, therefore construction administration is not applicable to this project and is not included within the Work Plan or Budget.

Task 11 – Construction Administration: Not applicable.

Row (g) Other Costs

No other costs are required for this project.

Row (h) Construction/Implementation Contingency

Construction/Implementation contingency are not required for this project.

Row (i) Grand Total

The Grand Total for the *North San Diego County Regional Recycled Water Project* (\$2,000,000) was calculated as the sum of rows (GA) through (h) for each column.

Row	Budget Category	Total Costs
GA	Grant Administration	\$45,000
(a)	Direct Project Administration Costs	\$55,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$1,900,000
(d)	Construction/Implementation	\$0
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	\$0
(i)	Grand Total	\$2,000,000

Table 4-11: Row (i) Grand Total Costs North San Diego County Regional Recycled Water Project



Project 3: North San Diego County Cooperative Demineralization Project

This project will involve constructing advanced water treatment facilities at the San Elijo Water Reclamation Facility (SEWRF) in order to develop new local water supplies and manage water quality issues within North San Diego County. Funding for this project involves all aspects of project implementation including project administration, planning, design, engineering, environmental documentation, construction/implementation, environmental compliance/mitigation, construction administration contingency.

The total cost associated with the *North San Diego County Cooperative Demineralization Project* is \$5,384,800. Of these total costs, \$1,050,000 is being requested for grant funding through the IRWM Implementation Grant Program. Approximately \$2,990,373 will be funded with other State funds that will be sourced from the State Revolving Fund (SRF) Loan Program. Approximately \$1,344,427 will be funded by non-State funding sources, which will come from the Water Reclamation Fund of the San Elijo Joint Powers Authority (SEJPA) and from the general fund(s) of other project partners. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-12 below provides a more detailed break-down of the total project budget.

		(a)	(b)	(c)	(d)	(e)	
Budg	jet Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match	
GA	SDCWA Grant Administration	\$0	\$31,500	\$0	\$31,500	0%	
(a)	Direct Project Administration Costs	\$0	\$3,500	\$0	\$3,500	0%	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%	
(C)	Planning/Design/Engineering/ Environmental Documentation	\$878,300	\$196,500	\$0	\$1,074,800	82%	
(d)	Construction/Implementation	\$466,127	\$818,500	\$2,219,373	\$3,504,000	13%	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$27,000	\$27,000	0%	
(f)	Construction Administration	\$0	\$0	\$108,000	\$108,000	0%	
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%	
(h)	Construction/Implementation Contingency	\$0	\$0	\$636,000	\$636,000	0%	
(i)	Grand Total	\$1,344,427	\$1,050,000	\$2,990,373	\$5,384,800	25%	
	* Sources of funding: Non-State Share (Funding Match) Sources include cash from SEJPA Water Reclamation Fund and general funds of other project partners; Other State Funds include an SRF Loan.						

 Table 4-12: Total Project Budget

 North San Diego County Cooperative Demineralization Project

This Implementation Grant Proposal is requesting funding for nine of the eleven project tasks identified within *North San Diego County Cooperative Demineralization Project* Work Plan (refer to Attachment 3).

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$31,500
Row (a)	Direct Project Administration Costs	\$3,500
Task 1	Project Administration	\$3,500
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$1,074,800
Task 4	Assessment and Evaluation	\$508,100
Task 5	Final Design	\$527,110
Task 6	Environmental Documentation	\$29,600
Task 7	Permitting	\$9,990
Row (d)	Construction/Implementation	\$3,504,000
Task 9	Construction	\$3,504,000
Row (e)	Environmental Compliance/Mitigation/Enhancement	\$27,000
Task 10	Environmental Compliance/Mitigation/Enhancement	\$27,000
Row (f)	Construction Administration	\$108,000
Task 11	Construction Administration	\$108,000
Row (g)	Other Costs	\$10,000
Row (h)	Construction/Implementation Contingency	\$636,000
Row (i)	Grand Total	\$5,384,800

 Table 4-13: Cost Breakdown by Work Plan Task and Subtask

 North San Diego County Cooperative Demineralization Project

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *North San Diego County Cooperative Demineralization Project* will contribute \$31,500 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$3,500. Table 4-14 provides a detailed listing of all applicable costs.

Task 1 Project Administration: This includes the cost for project management, including coordinating with various partner agencies. SEJPA will implement other necessary project administration tasks; however, those staff costs are not included within the proposed Budget.

Task 2: Labor Compliance Program: SEJPA will implement a labor compliance program for the *North San Diego County Cooperative Demineralization Project.* However, those staff costs are not included within the proposed Budget.

Task 3: Reporting: This task includes preparing the Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. However, those staff costs are not included within the proposed Budget.

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Project Manager	\$100.00	35	\$3,500	\$0	\$3,500
		Total	\$3,500	\$0	\$3,500

Table 4-14: Row (a) Direct Project Administration Budget North San Diego County Cooperative Demineralization Project



Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$1,064,810. Table 4-15 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4 - Initial Design, Engineering, and Environmental Documentation: This task includes cost for the following:

- Conceptual and Preliminary Design Reports,
- Financial Assessment,
- Opportunities and Constraints Analysis,
- Chlorine Contact Basin Tracer Report,
- North County Brackish-to-potable Water Feasibility Study, and
- San Elijo Lagoon Water Quality Study.

This cost was determined based on the value of existing professional contracts.

Task 5 - Final Design: This task includes the cost for finalizing design of the project. This cost was determined based on existing professional contracts and estimates prepared by the City of Solana Beach Engineering Department and the SEJPA Engineering Department. Costs for early phases of design are shown in Task 4 above.

Task 6- Environmental Documentation: This task includes the cost for the Initial Study/Mitigated Negative Declaration (CEQA-Plus). The Biological Survey Report will be completed and funded under Task 10. These costs were determined based on existing professional contracts and estimates by OMWD and the San Elijo Lagoon Conservancy.

Task 7- Permitting: A coastal development permit is required for this project. The City of Encinitas Planning Commission has jurisdiction for coastal development and is expected to approve the project at a local level. The costs to obtain a coastal development permit from the City of Encinitas include an application fee (\$1600), an environmental review fee (\$50), staff labor, and ancillary fees associated with the process (approximately \$1,000 in stamps, envelopes, and labels to mail notifications to residents within 500 feet of the property). Additionally, SEJPA staff must obtain a Revised Master Recycled Water Permit for the SEWRF to ensure that the plant's recycled water treatment train conforms to Title 22. A total of \$9,900 is estimated for permitting.

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$3,504,000. Table 4-16 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8 - Construction Contracting: SEJPA will implement necessary construction contracting tasks. However, those staff costs are not included within the proposed Budget.

Task 9 - Construction: Construction costs for this project are divided between three categories: Materials, Equipment, and Labor. These costs, which are summarized below, are necessary to construct the demineralization facility, urban runoff structures, and produce other deliverables described within Task 9 (Construction) of the Work Plan (refer to Attachment 3).

- **Materials:** materials for the project include site work and yard piping, structures, mechanical tools and piping, and electrical and instrumentation materials for a total of \$675,000.
- **Equipment:** equipment for the project include process equipment and pumps.

Table 4-15: Row (c) Planning/Design/Environmental Documentation Costs
North San Diego County Cooperative Demineralization Project

Stage	Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match & Other	Grant Request
Assessment and Evaluation						
Conceptual Design (10%) Report	Civil Engineer	\$185.00	325	\$60,125	\$60,125	\$0
Financial Assessment	Finance	\$135.00	100	\$13,500	\$13,500	\$0
Preliminary Design (30%) Report – Includes Geotechnical Investigation	Civil/ Electrical Engineer	\$185.00	775	\$143,375	\$143,375	\$0
SEWRF Chlorine Contact Basin Tracer Study Final Report	Civil Engineer	\$185.00	200	\$37,000	\$37,000	\$0
Opportunities and Constraints Analysis	Civil Engineer	\$185.00	270	\$50,000	\$28,000	\$22,000
Loan Assistance	Civil Engineer	\$185.00	160	\$29,600	\$29,600	\$0
North County Brackish-to-potable Water Feasibility Study	Civil/ Environmental	\$185.00	750	\$139,500	\$0	\$139,500
SE Lagoon Water Quality Study	Biologist	\$134.00	260	\$35,000	\$0	\$35,000
			Subtotal	\$508,100	\$390,975	\$196,500
Final Design						
Final Design (100%)	Civil/ Electrical Engineer	\$185.00	2850	\$527,110	\$527,110	\$0
			Subtotal	\$527,110	\$527,110	\$0
Environmental Documentation						
Initial Study/Mitigated Negative Declaration (CEQA-Plus)	Environmental Engineer	\$185.00	160	\$29,600	\$29,600	\$0
		•	Subtotal	\$29,600	\$29,600	\$0
Permitting						
Coastal Development Permit	Environmental Engineer	\$185.00	27	\$4,995	\$4,995	\$0
Master Recycled Water Permit No. 2000-10	Environmental Engineer	\$185.00	27	\$4,995	\$4,995	\$0
			Subtotal	\$9,990	\$9,990	\$0
			Total	\$1,074,800	\$878,300	\$196,500

- **Labor:** labor required to fulfill the construction task (Task 9 of the Work Plan) include site work and yard piping labor, canopy structure labor, process equipment labor, process mechanical and piping labor, and electrical and instrumentation labor.
- **Other Costs:** Additional costs for the demineralization facility include taxes on equipment and materials, contractor mobilization, and contractor overhead and profit.

Construction costs for the demineralization facility were prepared as part of the Preliminary Design Report of the Recycled Water Demineralization Project by Kennedy/Jenks Consultants. Costs for the urban runoff structures were estimated by the City of Solana Beach Engineering Department and the SEJPA engineering departments.

Cost estimates relating to Other Costs were estimated as percentages of the construction costs. Taxes were estimated to be 8.75% on equipment and materials (\$187,000), contractor mobilization was estimated to be 6% of equipment, materials, and labor (\$164,000), and contractor overhead and profit were estimated to be 15% of equipment, materials, and labor (\$411,000).

Table 4-16: Row (d) Construction/Implementation Costs North San Diego County Cooperative Demineralization Project

Materials							
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match & Other	Grant Request		
Site Work & Yard Piping	\$91,000	1	\$91,000	\$45,500	\$45,500		
Structures	\$224,00	1	\$224,000	\$112,000	\$112,000		
Mechanical & Piping	\$97,000	1	\$97,000	\$97,000	\$0		
Electrical & Instrumentation	\$263,000	1	\$263,000	\$263,000	\$0		
		Subtotal	\$675,000	\$517,500	\$157,500		
	Equip	oment					
Process Equipment	\$1,457,000	1	\$1,457,000	\$917,000	\$540,000		
Pumps	\$5,000	2	\$10,000	\$10,000			
		Subtotal	\$1,467,000	\$927,000	\$540,000		
	Lal	bor					
Discipline	Hourly Wage (\$)	Number of Hours	Total (\$)	Funding Match & Other	Grant Request Funds		
Site Work & Yard Piping	\$80	1000	\$80,000	\$40,000	\$40,000		
Canopy Structure	\$90	1800	\$162,000	\$81,000	\$81,000		
Process Equipment	\$90	1722	\$155,000	\$155,000	\$0		
Process Mechanical & Piping	\$80	350	\$28,000	\$28,000	\$0		
Electrical & Instrumentation	\$125	1400	\$175,000	\$175,000	\$0		
	\$600,000	\$479,000	\$121,000				
	All Other Costs				\$0		
		Total Cost	\$3,504,000	\$2,685,500	\$818,500		

Row (e) Environmental Compliance/Mitigation/Enhancement

The Environmental Compliance/Mitigation/Enhancement costs for the project are \$27,000, which were paid for with State Revolving Fund (SRF) Loan Program funds. Table 4-17 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 10 - Environmental Compliance/Mitigation/Enhancement: The IS/MND (CEQA-Plus) documentation prepared for this project found that two biological mitigation efforts, two noise mitigation efforts, and site best management practices (BMPs) were required. The biological mitigation efforts can be reasonably accomplished within 180 man hours (including survey and reporting) at an average wage of \$150/hour. The noise mitigation efforts and site BMPs are a standard part of the SEJPA's construction documents and practices and will not cost additional monies.

 Table 4-17: Row (e) Environmental Compliance/Mitigation/Enhancement Costs

 North San Diego County Cooperative Demineralization Project

Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match & Other	Grant Request
Environmental Engineering	\$150.00	180	\$27,000	\$27,000	\$0
		Total	\$27,000	\$27,000	\$0

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be \$108,000. This cost total is based on the following:

Task 11 - Construction Administration: During preliminary design, the final engineering, construction management, and construction administration costs were estimated by Kennedy/Jenks Consultants to be



approximately 14% of the total construction costs (\$558,000), which is an estimate based on their prior experience. Since completion of the preliminary design report, the SEJPA has entered into contracts for Final Engineering totaling approximately \$450,000. Deducting the estimated actual final engineering costs of \$450,000 from the original estimate of \$558,000 results in an estimated cost of \$108,000 for construction management and construction administration. Construction administration will be paid for with State Revolving Fund (SRF) Loan Program funds.

Row (g) Other Costs

Not applicable.

Row (h) Construction/Implementation Contingency

The Construction/Implementation Contingency for the Recycled Water Demineralization Facility is estimated to be \$636,000. This was estimated to be approximately 18% of the total construction cost of \$3,504,000. Construction/Implementation Contingency will be paid for with State Revolving Fund (SRF) Loan Program funds.

Row (i) Grand Total

The Grand Total for the *North San Diego County Cooperative Demineralization Project* (\$5,384,800) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-18: Row (i) Grand Total Costs North San Diego County Cooperative Demineralization Project Budget Category Total Co

Row	Budget Category	Total Costs
GA	Grant Administration	\$31,500
(a)	Direct Project Administration Costs	\$3,500
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$1,074,800
(d)	Construction/Implementation	\$3,504,000
(e)	Environmental Compliance/ Mitigation/Enhancement	\$27,000
(f)	Construction Administration	\$108,000
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$10,000
(h)	Construction/Implementation Contingency	\$636,000
(i)	Grand Total	\$5,384,800

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The *Rural DAC Partnership Project* will involve actions to provide funding to address inadequate water supply and water quality issues affecting rural DACs, including tribal communities in the San Diego IRWM region. Funding for this project involves many aspects of project implementation including grant administration, project administration, planning/design/engineering/environmental documentation, construction/implementation, and construction administration. Table 4-19 below provides a more detailed break-down of the total project budget.

The total cost associated with the *Rural DAC Partnership Project* is \$530,000. Of these total costs, \$500,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$30,000 will be funded by other available federal funding programs, such as U.S. Department of Health and Human Services, U.S. Department of Agriculture Rural Development, Indian Health Services, and the U.S. Environmental Protection Agency (Region 9). The RCAC will make every effort to leverage these programs to meet the needs of the community which may result in a funding match equal or greater to 25% of the total project cost for each DAC project that is selected, however the current \$30,000 funding match represents 6% of the total project cost. Because this project will not meet its 25% funding match requirement, and it will be serving disadvantaged communities (DACs), this project is requesting a funding waiver match (refer to Attachment 12).

Table 4-19: Total Project Budget Rural DAC Partnership Project

		(a)	(b)	(C)	(d)	(e)
Budg	jet Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$15,000	\$0	\$15,000	0%
(a)	Direct Project Administration Costs	\$0	\$10,000	\$0	\$10,000	0%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$15,000	\$125,000	\$0	\$140,000	12%
(d)	Construction/Implementation	\$15,000	\$324,000	\$0	\$339,000	5%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$26,000	\$0	\$26,000	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	0%
(i)	Grand Total	\$30,000	\$500,000	\$0	\$530,000	6%

The Implementation Grant Proposal is requesting funding for nine project tasks identified within the *Rural DAC Partnership Project* Work Plan (refer to Attachment 3).

 Table 4-20: Cost Breakdown by Work Plan Task and Subtask

 Rural DAC Partnership Project

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$15,000
Row (a)	Direct Project Administration Costs	\$10,000
Task 1	Project Administration	\$10,000
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$140,000
Task 4	Assessment and Evaluation	\$84,000
Task 5	Final Design	\$52,000
Task 6	Environmental Documentation	\$4,000
Row (d)	Construction/Implementation	\$339,000
Task 9	Construction	\$339,000
Row (f)	Construction Administration	\$26,000
Task 11	Construction Administration	\$26,000
Row (i)	Grand Total	\$530,000

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Rural DAC Partnership Project* will contribute \$15,000 to this administration cost.



Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$10,000. Table 4-21 provides a list of all applicable costs.

Task 1 – Project Administration: This includes the cost for overall contract management, including labor costs for a Project Manager, Project Support, and Supervisor. The costs were determined based on a percentage (2%) of the total grant request (\$500,000) with hours estimated for each discipline.

Task 2 – Labor Compliance Program: RCAC will implement a Labor Compliance Program (LCP) for the *Rural DAC Partnership Project* if necessary. However, because it is still unknown if an LCP will be required, costs related to administering the LCP are not included within the proposed Budget at this time.

Task 3 – Reporting: This task includes preparing a Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. All grant reporting costs have been included within Task 1: Project Administration above.

Table 4-21: Row (a) Direct Project Administration Budget Rural DAC Partnership Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
RCAC Project Manager	73.00	95	\$6,935	\$0	\$6,935
RCAC Project Support	61.00	29	\$1,769	\$0	\$1,769
RCAC Supervisor	108.00	12	\$1,296	\$0	\$1,296
		Total	\$10,000	\$0	\$10,000

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$140,000. Table 4-22 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4 – Assessment and Evaluation: This task includes cost for the following:

- A Disadvantaged Communities Project Assessment and Selection Study, and
- Disadvantaged Community Project Planning (as required).

The cost for the Assessment and Selection task was determined based on an estimated 300 hours to conduct the task effort including two meetings with the selection committee and a minimum of two trips to each selected DAC. The cost for the DAC Project Planning effort was estimated using 11% of the funds going to DAC Construction estimated at \$320,000 to \$330,000.

Task 5 – Final Design: This task includes the cost for preparing final design drawings and specifications for the selected project(s). The Work Plan (see Attachment 3) provides detail on the design needs for several example projects. This cost was estimated using 16% of the estimated DAC Construction costs.

Task 6 – Environmental Documentation: This task includes the costs anticipated for future environmental documents that will be determined based upon DAC project selection. These costs were estimated at approximately 1% of the estimated DAC Construction costs.

Task 7 – Permitting: Environmental permitting costs are not anticipated for this project at this time.



Table 4-22: Row (c) Planning/Design/Environmental Documentation Costs Rural DAC Partnership Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Disadvantaged Communities Project Assessment and Selection Study	Lump Sum		\$48,000	\$10,000	\$38,000
Disadvantaged Community Project Planning	Lump Sum		\$36,000	\$5,000	\$31,000
Final Design	Lump Sum		\$52,000	\$0	\$52,000
Environmental Documentation	Lump Sum		\$4,000	\$0	\$4,000
		Total	\$140,000	\$15,000	\$125,000

Row (d) Construction/Implementation

The Construction and Implementation costs for the project are estimated to be \$339,000. Table 4-23 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8 – Construction Contracting: Costs related to construction contracting for the DAC projects are estimated to be \$4,000 which is based on approximately 1% of a construction cost of \$320,000 to \$330,000. These costs are incorporated into Task 9: Construction below.

Task 9 – Construction: Construction costs for this project are divided between three categories: materials, labor, and other costs. These costs, which are summarized below, are anticipated for construction/implementation of the selected DAC projects.

- **Materials:** Materials for the sample projects defined in the Work Plan (Attachment 3) may include turn-out piping, flow control valve, filtration package, disinfection chamber, wellhead treatment facilities, pipelines, booster pumps and housing, and other equipment, Although materials for the DAC projects are currently unknown, it is anticipated that these costs will total \$257,500.
- Labor: Labor costs associated with the selected projects will be generated by the construction contractor. Although labor costs for the DAC projects are currently unknown, it is anticipated that these costs will total \$77,500.
- Other Costs: There are no other costs estimated for the project.

Construction costs were estimated at \$339,000 to fund a minimum of two DAC projects based on similar water supply and wastewater projects completed recently in rural San Diego County. If the selected DAC project requires less planning dollars than estimated, the difference would be added to the DAC construction estimate.

Row (e) Environmental Compliance/Mitigation/Enhancement

Task 10 – Environmental Compliance/Mitigation/Enhancement: Environmental compliance costs are not anticipated for this project at this time.

Table 4-23: Row (d) Construction/Implementation Costs Rural DAC Partnership Project

Materials								
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request			
To be determined based on project selection	Lump Sum		\$260,000	\$10,000	\$250,000			
		Subtotal	\$260,000	\$10,000	\$250,000			
	Labor							
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request			
To be determined based on project selection	Lump	o Sum	\$75,000	\$5,000	\$70,000			
	Subtotal							
	\$4,000	\$0	\$4,000					
		Total Cost	\$339,000	\$15,000	\$324,000			

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be \$26,000. This cost total is summarized in Table 4-24 and is based on the following:

Task 11 – Construction Administration: Construction administration will involve labor costs associated with project management, including a DAC Construction Management (for the specific project(s)) and a RCAC Project Manager. These costs were estimated based on community needs and the estimated size and type of project(s) as 8% of the construction cost estimated between \$320,000 to \$330,000.

Table 4-24: Row (f) Construction Administration Rural DAC Partnership Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
RCAC Project Manager	73.00	192	\$12,000	\$0	\$12,000
DAC Construction Management	100.00	120	\$14,000	\$0	\$14,000
	\$26,000	\$0	\$26,000		

Row (g) Other Costs

Not applicable.

Row (h) Construction/Implementation Contingency

Not applicable.



Row (i) Grand Total

The Grand Total for the *Rural DAC Partnership Project* (\$530,000) was calculated as the sum of rows (GA) through (h) for each column.

Row	Budget Category	Total Costs
GA	Grant Administration	\$15,000
(a)	Direct Project Administration Costs	\$10,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$140,000
(d)	Construction/Implementation	\$339,000
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$26,000
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	\$0
(i)	Grand Total	\$530,000

Table 4-25: Row (i) Grand Total CostsRural DAC Partnership Project

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The Lake Hodges Water Quality and Quagga Mitigation Measures Project will involve evaluation of the methods available to improve water quality within Lake Hodges. The project will also assess potential vulnerabilities Lake Hodges faces from quagga mussels, and will prioritize the implementation, design, and construction of limited control measures to address this invasive species. Funding for the project involves all aspects of project implementation, construction/implementation, design, engineering, environmental documentation, construction/implementation, construction administration, other costs, and construction/implementation contingency.

The total cost associated with the *Lake Hodges Water Quality and Quagga Mitigation Measures* Project is \$1,200,000. Of these total costs, \$900,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$300,000 will be funded by non-state funding sources, of which approximately \$90,000 will be provided by the Santa Fe Irrigation District (SFID) for equipment purchase and a water quality consultant, approximately \$10,000 will be from staff time at SFID and the City of San Diego, and approximately \$200,000 will be provided from San Diego County Water Authority (SDCWA) operating and/or capital improvement program (CIP) funds. In total, this amount constitutes 25% of the total project cost, meaning that the non-state share of the total project cost (funding match) is 25% for this project. Table 4-26 below provides a more detailed break-down of the total project budget.

		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$27,000	\$0	\$27,000	0%
(a)	Direct Project Administration Costs	\$7,500	\$10,500	\$0	18,000	42%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$219,500	\$303,060	\$0	\$522,560	43%
(d)	Construction/Implementation	\$0	\$384,400	\$0	\$384,400	0%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$62,100	\$0	\$62,100	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$73,000	\$0	\$0	\$73,000	100%
(h)	Construction/Implementation Contingency	\$0	\$112,940	\$0	\$112,940	0%
(i)	Grand Total	\$300,000	\$900,000	\$0	\$1,200,000	25%

Table 4-26: Total Project Budget Lake Hodges Water Quality and Quagga Mitigation Measures

consultant. Approximately \$10,000 from staff time at SFID and City of San Diego. Remaining \$200,000 from SDCWA Operating/Capital Improvement Program funds.

The Implementation Grant Proposal is requesting funding for seven project tasks identified within the Lake Hodges Water Quality and Quagga Mitigation Measures Project Work Plan (refer to Attachment 3).

Table 4-27: Cost Breakdown by Work Plan Task and Subtask Lake Hodges Water Quality and Quagga Mitigation Measures

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$27,000
Row A	Direct Project Administration	\$18,000
Task 1	Project Administration	\$18,000
Row C	Planning/Design/Engineering/Environmental Documentation	\$522,560
Task 4	Assessment and Evaluation	\$172,700
Task 5	Final Design	\$199,860
Task 6	Environmental Documentation	\$150,000
Row D	Construction/Implementation	\$384,400
Task 9	Construction	\$384,400
Row F	Construction Administration	\$62,100
Task 11	Construction Administration	\$62,100
Row G	Other Costs	\$73,000
Row H	Construction/Implementation Contingency	\$112,940
Row I	Grand Total	\$1,200,000

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.



Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Lake Hodges Water Quality and Quagga Mitigation Measures Project* will contribute \$27,000 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$18,000. Table 4-28 provides a detailed listing of all applicable costs.

Task 1 – Project Administration: This includes labor costs for a Project Manager, Project Support, and a Manager to conduct meetings, assemble project documentation, and monitor progress as compared to the project work plan, schedule, and budget. This task also includes staff time necessary to implement the Labor Compliance Program and complete grant reporting.

Task 2 – Labor Compliance Program: SDCWA has an active Labor Compliance Program (LCP), which will be utilized for implementation of this project. Staff and consultant fees associated with the LCP have been incorporated into Task 1: Project Administration.

Task 3 – Reporting: This task includes preparing a Project Assessment and Evaluation Plan (PAEP), Quarterly Progress Reports and Invoices, and Project Completion Report. Staff labor costs associated with reporting tasks have been included within Task 1: Project Administration.

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Project Manager	\$80.00	124	\$9,920	\$4,440	\$5,480
Administration Support	\$51.00	40	\$2,040	\$1,020	\$1,020
Interagency Project Coordination	\$102.00	20	\$2,040	\$2,040	\$0
Labor Compliance Program	Lump Sum (based on construction value)		\$4,000	\$0	\$4,000
		Total	\$18,000	\$7,500	\$10,500

Table 4-28: Row (a) Direct Project Administration BudgetLake Hodges Water Quality and Quagga Mitigation Measures

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$522,560. Table 4-29 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4 – Assessment and Evaluation: The total cost for this task is \$172,700 and includes costs for the SFID Water Quality Assessment, Quagga Mussel Vulnerability Assessment, and Water Quality Improvement Measures Feasibility Study. This cost was determined based on the expected labor costs associated with producing these documents, which were based on cost estimates formed from industry standards, prior similar work, or actual quotations from potential consultants.

Task 5 – Final Design: This task includes the total cost for preparation of the Preliminary Design Report through Final 100% Design of the project, which is expected to be \$199,860. This cost was determined based on the expected labor costs associated with producing final design estimates and deliverables, and undertaking solicitation efforts. These estimates are based on prior agency experience.

Task 6 – Environmental Documentation: This task includes the cost for the CEQA determination process, and possibly an Environmental Impact Report (EIR) or other necessary documentation. These costs were estimated to be \$150,000, which will be utilized to pay for staff labor and consulting costs associated with creating environmental documentation for the project. These cost estimates were based on typical costs for an EIR as provided by SDCWA Environmental staff.

Task 7 – Permitting: No permitting will be required for the project at this time. The need for permits may arise throughout development of this project; however, permits are not included within the Work Plan or Budget.

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request		
Planning/Feasibility							
Vulnerability Analysis Consultant (Quagga)	varies	varies	\$23,200	\$23,200	\$0		
Water Quality Data Consultant	varies	varies	\$15,000	\$15,000	\$0		
Water Quality Planning Consultant	varies	varies	\$105,000	\$105,000	\$0		
Project Management	\$80.00	80	\$6,400	\$6,400	\$0		
Project Partner Support	\$102.00	50	\$5,100	\$5,100	\$0		
Other Project Support	\$75.00	240	\$18,000	\$18,000	\$0		
		Subtotal	\$172,700	\$172,700	\$0		
Final Design				•	•		
Quagga Mussel Control Design Consultant	varies	varies	\$135,000	\$40,000	\$95,000		
Project Management	\$80.00	200	\$16,000	\$4,000	\$12,000		
Interagency Project Coordinator	\$102.00	60	\$6,120	\$1,800	\$4,320		
Technical and Other Project Support	\$75.00	570	\$42,740	\$1,000	\$41,740		
		Subtotal	\$199,860	\$46,800	\$153,060		
Environmental				•	•		
Public Affairs	\$60.00	100	\$6,000	\$0	\$6,000		
Water Resources Specialist	\$75.00	160	\$12,000	\$0	\$12,000		
Water Resources Manager	\$100.00	20	\$2,000	\$0	\$2,000		
Environmental Consultant	varies	varies	\$130,000	\$0	\$130,000		
	•	Subtotal	\$150,000	\$0	\$150,000		
		TOTAL	\$522,560	\$219,500	\$303,060		

Table 4-29: Row (c) Planning/Design/Environmental Documentation Costs Lake Hodges Water Quality and Quagga Mitigation Measures

Row (d) Construction/Implementation

The Construction and Implementation costs for the project are estimated to be \$384,400. Table 4-30 provides a detailed listing of all applicable costs, all of which are being requested as part of the IRWM Grant Program and will therefore not be provided as matching funds. This cost total is based on the following:

Task 8 – Construction Contracting: SDCWA will carry out all necessary construction contracting activities. Staff labor costs associated with construction contracting tasks have been included within Task 5: Final Design.

Task 9 – Construction: Construction costs for the Quagga control system are estimated, because actual construction items are yet to be determined. A prioritization process will be completed following the vulnerability analysis and feasibility study listed above in Task 4 to determine actual items for construction. Monetary estimates listed below represent estimated costs to incorporate cooling system filtration within the Lake Hodges Pumped Storage Facility. These costs are based on recent expenses required to implement a similar project on Hoover Dam, which was executed by the U.S. Bureau of Reclamation.

- **Materials:** materials for the project may include, but are not limited to: self-cleaning strainer, inactivation unit(s), filtration unit(s), pump(s), and steel piping.
- **Labor:** labor required to install, re-pipe and fit up, and test will be contracted to a general contractor specializing in the type of equipment to be installed.

Table 4-30: Row (d) Construction/Implementation Costs Lake Hodges Water Quality and Quagga Mitigation Measures

Materials							
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request		
Quagga mussel control equipment and existing facility reconfiguration	Estimated from USBR's Hoover Dam project		\$192,200	\$0	\$192,200		
	\$192,200	\$0	\$192,200				
Labor							
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request		
General Contractor experienced in installation of Quagga mussel control systems	Estimated from USBR's Hoover Dam project		\$192,200	\$0	\$192,200		
	\$192,200	\$0	\$192,200				
	Total Cost	\$384,400	\$0	\$384,400			

Row (e) Environmental Compliance/Mitigation/Enhancement

Environmental mitigation has not yet been determined and may not be required if work is contained within an existing facility. Therefore, no environmental mitigation is included within the Work Plan or Budget at this time.

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be \$62,100 as summarized in Table 4-31.

Task 11 – Construction Administration: The total construction administration costs consist of labor costs for construction management and project management. Construction management was estimated based on prior agency experience.

Table 4-31: Row (f) Construction Administration Lake Hodges Water Quality and Quagga Mitigation Measures

Discipline	Hours	Unit Cost (\$)	Total Costs (\$)	Funding Match	Grant Request
Construction Management	360	\$100.00	\$36,000	\$0	\$36,000
Construction Administration	220	\$75.00	\$16,500		\$16,500
Project Manager	120	\$80.00	\$9,600	\$0	\$9,600
		Total	\$62,100	\$0	\$62,100

Row (g) Other Costs

Other Costs for the project are \$73,000. These costs comprise a part of SDCWA's non-State funding match. These costs are associated with purchase of water quality monitoring equipment, which has been procured by SFID to collect water quality data.

Row (h) Construction/Implementation Contingency

The Construction/Implementation Contingency for the project is estimated to be \$112,940. These costs comprise a part of SDCWA's grant request. This was calculated based on recommendations from the Association for the Advancement of Cost Engineering International (AACEI), which shows 50% contingency recommendations based on construction costs for projects at the same feasibility stage as the *Lake Hodges Water Quality and Quagga Mitigation Measures Project*. Contingency estimates for this project were instead estimated at approximately 30% of the listed construction costs (\$384,400) which is based on available project dollars.



Row (i) Grand Total

The Grand Total for the *Lake Hodges Water Quality and Quagga Mitigation Measures Project* (\$1,200,000) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-32: Row (i) Grand Total Costs Lake Hodges Water Quality and Quagga Mitigation Measures

Row	Budget Category	Total Costs
GA	Grant Administration	\$27,000
(a)	Direct Project Administration Costs	\$18,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$522,560
(d)	Construction/Implementation	\$384,400
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$62,100
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$73,000
(h)	Construction/Implementation Contingency	\$112,940
(i)	Grand Total	\$1,200,000

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

This project will involve establishing nutrient water quality objectives for the Santa Margarita River estuary (Phase 1), which will be used in subsequent phases to reduce nutrients and implement water conservation practices throughout the Santa Margarita River watershed. Funding for the project involves two aspects of project implementation: grant administration and planning/design/engineering/environmental documentation.

The total cost associated with the *Implementing Nutrient Management in the Santa Margarita River Watershed* project is \$600,000. Of these total costs, \$450,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$112,500 will be funded by non-State funding sources, of which \$7,500 will be provided by Camp Pendleton MCB, \$70,000 will be provided from San Diego County Co-permitees to the Stormwater NPDES Permit no. 97-001, and \$72,500 will be provided from the Santa Margarita River Estuary Monitoring Project. In total, this amount constitutes 20% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-33 below provides a more detailed break-down of the total project budget.



Table 4-33: Total Project Budget Implementing Nutrient Management in the Santa Margarita River Watershed

		(a)	(b)	(C)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used**	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$13,500	\$2,025	\$15,525	0%
(a)	Direct Project Administration Costs	\$0	\$0	\$0	\$0	0%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$172,500	\$436,500	\$65,475	\$674,475	26%
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	0%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	0%	0%
(i)	Grand Total	\$172,500	\$450,000	\$67,500	\$690,000	25%

* Sources of funding: Match of \$30,000, with \$7,500 for the San Diego Proposal and \$22,500 to the Upper Santa Margarita Proposal, for the preparation of the Sample and Analysis Plan, QAPP, Project Assessment and Evaluation Plan (PAEP), and CEQA/ NEPA documentation from MCB Camp Pendleton

Match of \$70,000 for Bight '08 Estuaries and Coastal Wetlands Study from San Diego County Copermittes to the Stormwater NPDES Permit no. 97-0001

Match of \$72,500 from Santa Margarita River Estuary Investigation from project proponents in response to Investigative Order No R9-2006-0076.

** Other State Funds are assumed to include IRWM grant funding made available to the Upper Santa Margarita IRWM Region for this shared project.

The Implementation Grant Proposal is requesting funding for one project tasks identified within the *Implementing Nutrient Management in the Santa Margarita River Watershed* project Work Plan (refer to Attachment 3).

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$15,525
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$674,475
Task 4	Assessment and Evaluation	\$674,475
Task 4A	Form and Facilitate Stakeholder Advisory Group	\$76,737
Task 4B	Conduct Field and Special Studies	\$170,239
Task 4C	Task 4C Develop Nutrient WQOs for SMR Estuary	
Row (i)	Grand Total	\$690,000

 Table 4-34: Cost Breakdown by Work Plan Task and Subtask

 Implementing Nutrient Management in the Santa Margarita River Watershed

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.



Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Implementing Nutrient Management in the Santa Margarita River Watershed* project will contribute \$13,500 to this administration cost.

In addition, the Upper Santa Margarita IRWM Implementation Grant Proposal, submitted by our Tri-County FACC partner Rancho California Water District, also includes \$2,025 in grant request for grant administration of this shared project.

Row (a) Direct Project Administration Costs

Task 1: Project Administration: The County of San Diego will carry out project administration tasks relating to direct project administration and reporting for this project. However, staff costs for those tasks are not included within the proposed Budget.

Task 2: Labor Compliance Program: Not applicable

Task 3: Reporting: The County of San Diego will carry out project administration tasks relating to direct project administration and reporting for this project. However, staff costs for those tasks are not included within the proposed Budget.

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$676,500. Table 4-35 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4: Assessment and Evaluation: The total cost for this task is \$676,500 and includes costs for the following:

- **Task 4A:** Form and Facilitate Stakeholder Advisory Group: This task has been mostly paid for in full by the County of San Diego and other stakeholder, and expenses include all funds necessary to form and facilitate a stakeholder advisory group. Costs for a scientist from Southern California Coastal Water Research Project (SCCWRP) to attend are included in the budget.
- **Task 4B: Conduct Field and Special Studies:** Costs for this task include labor costs necessary to conduct field and special studies, as well as a lump sum for laboratory analysis, supplies, and travel. These costs were estimated by SCCWRP for conducting the monitoring special studies.
- **Task 4C: Develop Nutrient WQOs for Santa Margarita River Estuary:** Costs for this task include labor costs necessary to conduct technical modeling of the Santa Margarita River Estuary that will lead to the development of nutrient water quality objectives for the SMR estuary. These costs were estimated by SCCWRP.
- Task 5: Final Design: Not applicable.

Task 6: Not applicable.

Task 7: Permitting: Not applicable.

Row (d) Construction/Implementation

The project will not involve construction and will therefore not require funds relating to construction contracting, construction, implementation, or construction administration.

Task 8: Construction Contracting: Not applicable.

Task 9: Construction: Not applicable.

Task 11: Construction Administration: Not applicable.

Table 4-35: Row (d) Planning/Design/Engineering/Environmental Documentation Costs* Implementing Nutrient Management in the Santa Margarita River Watershed

			San Diego I	RWM Proposa	I	Upper	Santa Marg	jarita IRWM P	roposal	
Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request	Number of Hours	Total	Funding Match	Grant Request	Total Costs
Task 4A: Form and Facilitate Stake	holder Adviso	ry Group								
Senior Scientist, QAPP Preparation	\$148.40	50.5	\$7,500	\$7,500	\$0	151.6	\$22,500	\$22,500	\$0	\$ 30,001
Principal Scientist, 10 meetings	\$187.40	N/A	\$0	\$0	\$0	120	\$22,488	\$0	\$22,488	\$22,488
Supervising Scientist, 10 meetings	\$148.40	N/A	\$0	\$0	\$0	120	\$17,808	\$0	\$17,808	\$17,808
Miscellaneous Support, Supplies, and Travel	Lump Sum	N/A	\$0	\$0	\$0	N/A	\$4,463	\$0	\$4,463	\$4,463
San Diego RWQCB, 10 meetings	\$32.95	N/A	\$0	\$0	\$0	60	\$1,977	\$0	\$1,977	\$1,977
	•	Subtotal	\$7,500	\$7,500	\$0		\$69,236	\$22,500	\$46,736	\$76,737
Task 4B: Conduct Field and Specia	al Studies									
Principal Scientist	\$187.40	120	\$22,488	\$0	\$22,488	10	\$1,874	\$0	\$1,874	\$24,362
Senior Scientist	\$148.40	80	\$11,872	\$0	\$11,872	4	\$594	\$0	\$594	\$12,466
Senior Research Technician	\$106.00	500	\$53,000	\$0	\$53,000	0	\$0	\$0	\$0	\$53,000
Research Technician	\$84.80	466	\$39,516	\$0	\$39,516	0	\$0	\$0	\$0	\$39,516
Laboratory Analysis, Supplies, and Travel	Lump Sum	N/A	\$24,624	\$0	\$24,624	N/A	\$16,271	\$0	\$ 16,271	\$40,895
	•	Subtotal	\$151,500	\$0	\$151,500		\$18,739	\$0	\$18,739	\$170,239
Task 4C: Develop Nutrient WQOs for	or Santa Marga	arita River E	Estuary	•	•					
Santa Margarita River Estuary Investigation	Lump Sum	N/A	\$72,500	\$72,500	\$0	N/A	\$0	\$0	\$0	\$72,500
Bight '08 Estuaries and Coastal Wetlands Study	Lump Sum	N/A	\$70,000	\$70,000	\$0	N/A	\$0	\$0	\$0	\$70,000
San Diego RWQCB	\$32.95	911	\$30,000	\$0	\$30,000	0	\$0	\$0	\$0	\$30,000
Principal Scientist	\$180.19	120	\$21,623	\$0	\$21,623	0	\$0	\$0	\$0	\$21,623
Senior Scientist	\$148.40	1168	\$173,337	\$0	\$173,337	0	\$0	\$0	\$0	\$173,337
Scientist	\$127.20	472	\$60,040	\$0	\$60,040	0	\$0	\$0	\$0	\$60,040
	•	Subtotal	\$427,500	\$150,000	\$285,000		\$0	\$0	\$0	\$427,500
Total			\$586,500	\$150,000	\$436,500		\$87,975	\$22,500	\$65,475	\$674,475

* Note that the modeling will be conducted by a subconsultant and hourly rates may vary, but the overall cost of Task 4 will not be exceeded.



Row (g) Other Costs

Not applicable.

Row (h) Construction/Implementation Contingency

Not applicable.

Row (i) Grand Total

The Grand Total for the *Implementing Nutrient Management in the Santa Margarita River Watershed* project (\$600,000) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-36: Row (i) Grand Total Costs Implementing Nutrient Management in the Santa Margarita River Watershed

Row	Budget Category	Total Costs
GA	SDCWA Grant Administration	\$15,525
(a)	Direct Project Administration Costs	\$0
(b)	Land Purchase Easement	\$0
(C)	Planning/Design/Engineering/Environmental Documentation	\$674,475
(d)	Construction/Implementation	\$0
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	\$0
(i)	Grant Total	\$690,000

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection project will involve tasks necessary for reducing the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek watershed. Funding for this project is needed for construction/implementation and construction/implementation contingency.

The total cost associated with the *Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection* project is \$3,543,300. Of these total costs, \$650,000 is being requested for grant funding through the IRWM Implementation Grant Program, and the project will not involve other sources of State funding. The remaining \$2,893,300 will be funded by non-state funding sources, which will come from the City of San Diego Storm Water Department, Watershed Capital Improvement Projects (Watershed CIP/ACC00001, WBS: \$10002). This amount constitutes 82% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 82%. Table 4-37 below provides a more detailed break-down of the total project budget.



Table 4-37: Total Project Budget Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection

		(a)	(b)	(C)	(d)	(e)		
Budg	et Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match		
GA	Grant Administration	\$0	\$19,500	\$0	\$19,500	0%		
(a)	Direct Project Administration Costs	\$0	\$0	\$0	\$0	0%		
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%		
(C)	Planning/Design/Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	0%		
(d)	Construction/Implementation	\$2,893,300	\$630,500	\$0	\$3,523,800	82%		
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%		
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%		
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%		
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	100%		
(i)	Grand Total	\$2,893,300	\$650,000	\$0	\$3,543,300	82%		
	* Sources of funding: City of San Diego Storm Water Department, Watershed Capital Improvement Projects (Watershed CIP / ACC00001, WBS: S10002, http://www.sandiego.gov/fm/annual/fy11vol3.shtml).							

This Implementation Grant Proposal is requesting funding for one project task identified within the Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection Project Work Plan (refer to Attachment 3).

Table 4-38: Cost Breakdown by Work Plan Task and Subtask Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection

Row/Task	Category	Total
GA	SDCWA Grant Administration	
Row (d)	Row (d) Construction/Implementation	
Task 9	Construction	\$3,523,800
Subtask 9.1	Mobilization and Site Preparation	\$590,000
Subtask 9.2	Project Construction/Implementation	\$2,608,750
Subtask 9.3	Performance Testing and Demobilization	\$325,000
Row (i)	Grand Total	\$3,523,750

Grant Administration

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant contract. The *Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project will contribute \$19,500 to this administration cost.

Row (a) Direct Project Administration Costs

The City of San Diego will carry out project administration tasks relating to direct project administration, a labor compliance program, and reporting for this project. However, staff costs for those tasks are not included within the proposed Budget.

Row (b) Land Purchase/Easement

Not applicable.



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

The City of San Diego will carry out assessment and evaluation tasks relating to assessment and evaluation, final design, environmental documentation, and permitting for this project. Planning studies that have been completed or will be completed include the following:

- Strategic Plan for Watershed Activity Implementation,
- Tier II and Tier III Storm Water Best Management Practices Conceptual Designs,
- Bannock Avenue Concept Design Drawings (10%),
- Bannock Avenue Streetscape Enhancements Preliminary Engineering Report,
- 30%, 60%, 90%, and 100% Final Design Drawings, and
- MND Addendum for Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection Project, and
- Water Pollution Control Plan and Traffic Control Plan per the MND Addendum.

However, because these studies have already been completed or will be completed using other funding sources, costs for those tasks are not included within the proposed budget.

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$3,198,750. Table 4-39 below provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 9 - Construction

- **Subtask 9.1 Mobilization and Site Preparation:** The costs associated with mobilization and site preparation include demolition of the concrete pavement and base and concrete and gutter, as well as disposal and hauling activities. In addition, these costs include all actions necessary to mobilize and prepare the site, and preparatory activities that must be undertaken to ensure that construction progresses quickly and efficiently. The costs associated with this subtask are \$590,000.
- **Subtask 9.2 Project Construction/Implementation:** The costs associated with project construction/implementation include installation of porous pavement, installation of Portland Concrete Cement (PCC) sidewalk, curb, and cutters, installation of vegetated planter areas in the public right-of-way, and installation of a storm drain by-pass, storm drain clean-out hydrodynamic separator, and AbTech units in the North Clairemont Park. Additionally, costs will be necessary to fund erosion and traffic control efforts.
- **Subtask 9.3 Performance Testing and Demobilization:** The costs associated with performance testing include \$325,000 for a consultant contract, estimated based on agency experience managing such contracts.

Construction costs for this project were estimated from the Concept Plan Estimate prepared from Weston Solutions (June 2008) and the City of San Diego, Development Services Unit Price List (www.sandiego.gov/development-services/industry/pdf/pricelist.pdf).

Table 4-39: Row (d) Construction/Implementation Costs Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection

Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request
Subtask 9.1 Mobilization and Site Prepara	tion				
Saw cut and grind concrete curb	\$50.00	1,100 LF	\$55,000	\$55,000	\$0
6" Concrete sidewalk removal	\$1.50	74,000 SF	\$111,000	\$111,000	\$0
Excavation and export soil between sidewalk and curb assumes 274 homes have planters installed	\$35.00	3,000 CY	\$105,000	\$105,000	\$0
Haul and dispose material – 6" concrete sidewalk and 1,100 feet of concrete curb	\$50.00	1,400 CY	\$70,000	\$70,000	\$0
Mobilization	\$249,000	Lump Sum	\$590,000	\$249,000	\$0
	•	Subtotal	\$590,000	\$590,000	\$0
Subtask 9.2 Project Construction/Impleme	entation			•	
Miscellaneous soil and material export	\$10,000	Lump Sum	\$10,000	\$10,000	\$0
6-inch thick pervious concrete sidewalk	\$8.00	74,000 SF	\$592,000	\$592,000	\$0
3 to 6-inch crushed rock assumes 274 homes have planters installed	\$25.00	3,000 CY	\$75,000	\$75,000	\$0
30-gallon tree – Two per house assumes 274 homes have planters installed	\$200.00	550 each	\$110,000	\$110,000	\$0
Bioretention cell with amended soils – 2/house assumes 274 homes have planters installed	\$100.0	550 each	\$55,000	\$55,000	\$0
PCC disabled access ramps	\$3,000.00	20 each	\$60,000	\$60,000	\$0
Driveway replacement from curb to sidewalk	\$2,000.00	28 each	\$56,000	\$56,000	\$0
RCP storm drain	\$175.00	210 LF	\$36,800	\$36,750	\$0
AbTech Unit – assumed 9 cfs treatment at 150k/cfs	\$1,350,000	1 each	\$1,350,000	\$719,550	\$630,450
Cleanout – type A	\$5,000.00	2 each	\$10,000	\$10,000	\$0
Hydrodynamic separator unit	\$45,000.00	1 each	\$45,000	\$45,000	\$0
Miscellaneous landscaping and irrigation	\$30,000.00	Lump Sum	\$30,000	\$30,000	\$0
2-foot by 3-foot by 6-inch thick concrete pad assumes one in five homes have planters installed	\$250.00	60 each	\$15,000	\$15,000	\$0
3-sided, 1/4-inch thick steel plate – 2' x 3 ' by 0.7 " high – assumes one in five homes has concrete pad and plate installed	\$400.00	60 each	\$24,000	\$24,000	\$0
1/4-inch steel plate – 2-feet long with attachments assumes 274 homes; 2/house	\$200.00	550 each	\$110,000	\$110,000	\$0
Erosion control	\$15,000	Lump Sum	\$15,000	\$15,000	\$0
Traffic control	\$15,000	Lump Sum	\$15,000	\$15,000	\$0
Subtotal	•		\$2,608,800	\$1,978,300	\$630,450
Subtask 9.3 Performance Testing and Der	mobilization				
Testing and verification of Install devices and equipment	\$325,000	Lump Sum	\$325,000	\$325,000	\$0
	•	Subtotal	\$325,000	\$325,000	\$0
		Total	\$3,523,800	\$2,893,300	\$630,450

* Units: LF = linear feet; SF = square feet; CY = cubic yards



Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable.

Row (f) Construction Administration

The City of San Diego will carry out construction administration tasks for this project. However, staff costs for those tasks are not included within the proposed budget.

Row (g) Other Costs

Not applicable.

Row (h) Construction/Implementation Contingency

Construction/Implementation Contingency is typically estimated for City of San Diego Capital Improvements Projects in the public right-of-way and on public facilities at 15% of the total construction cost less mobilization, erosion control, and traffic control lump sum costs. However, construction contingency costs are not included within the proposed budget.

Row (i) Grand Total

The Grand Total for the *Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection* project (\$3,543,300) was calculated as the sum of rows (GA) through (h) for each column. The grand total for this project is summarized in Table 4-40 below.

Table 4-40: Row (i) Grand Total Costs

Bannock Avenue Neighborhood Enhancements for Tecolote Creek Watershed Protection

Row	Budget Category	Total Costs
GA	Grant Administration	\$19,500
(a)	Direct Project Administration Costs	\$0
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$0
(d)	Construction/Implementation	\$3,523,800
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	
(i)	Grand Total	\$3,543,300

Project 8: Pilot Concrete Channel Infiltration Project

The *Pilot Concrete Channel Infiltration Project* will involve converting portions of concrete channels in the City of Santee to a more porous base, facilitating infiltration of dry weather flows without compromising flood control capacity. Funding for this project involves all aspects of project implementation including project administration, planning, design, engineering, environmental documentation, construction/implementation, other costs, and construction/implementation contingency.

The total cost associated with the *Pilot Concrete Channel Infiltration Project* is \$333,400. Of these total costs, \$250,000 is being requested for grant funding through the IRWM Implementation Grant Program. Approximately \$83,400 will be funded by non-State funding sources, which will come from the City of Santee's General and Redevelopment Funds. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-41 below provides a more detailed break-down of the total project budget.

Table 4-41: Total Project Budget Pilot Concrete Channel Infiltration Project

		(a)	(b)	(C)	(d)	(e)
Budg	et Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration		\$7,500	\$0	\$7,500	0%
(a)	Direct Project Administration Costs	\$9,990	\$0	\$0	\$9,990	100%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	#DIV/0!
(C)	Planning/Design/Engineering/ Environmental Documentation	\$9,510	\$37,751	\$0	\$47,261	20%
(d)	Construction/Implementation	\$0	\$140,655	\$0	\$140,655	0%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$17,880	\$0	\$0	\$17,880	100%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$46,020	\$35,963	\$0	\$81,983	56%
(h)	Construction/Implementation Contingency	\$0	\$28,131	\$0	\$28,131	0%
(i)	Grand Total	\$83,400	\$250,000	\$0	\$333,400	25%
* Sou	rces of funding: City of Santee General a	nd Redevelopme	nt Funds			

This Implementation Grant Proposal is requesting funding for eight project tasks identified within the *Pilot Concrete Channel Infiltration Project* Work Plan (refer to Attachment 3). These tasks are listed below in Table 4-42 in relation to their respective budget category (row) identified in Table 4.8.1.

Table 4-42: Cost Breakdown by Work Plan TaskPilot Concrete Channel Infiltration Project

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$7,500
Row (a)	Direct Project Administration Costs	\$9,990
Task 1	Project Administration	\$9,900
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$47,261
Task 4	Assessment and Evaluation	\$36,059
Task 5	Final Design	\$11,046
Task 6	Environmental Documentation	\$156
Row (d)	Construction/Implementation	\$140,655
Task 9	Construction	\$140,655
Row (f)	Construction Administration	\$17,880
Task 11	Construction Administration	\$17,880
Row (g)	Other Costs	\$81,983
Row (h)	Construction/Implementation Contingency	\$28,131
Row (i)	Grand Total	\$333,400

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.



Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Pilot Concrete Channel Infiltration Project* will contribute \$7,500 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$9,990. Table 4-43 provides a detailed listing of all applicable costs.

Task 1: Project Administration: This includes the cost for project management, including labor costs for a Stormwater Program Manager and a Principal Civil Engineer. These costs were determined based on the overall project budget and previous experience managing grant funding.

Task 2: Labor Compliance Program: The City of Santee will develop a Labor Compliance Program (LCP) if deemed necessary for project implementation. However, those project costs will be born by the City of Santee and are not included in the proposed Budget.

Task 3: Reporting: This task includes preparing the Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. However, those project costs will be born by the City of Santee and are not included in the proposed Budget.

Table 4-43: Row (a) Direct Project Administration Budget Pilot Concrete Channel Infiltration Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Stormwater Program Manager	\$77.95	92	\$7,171	\$7,171	\$0
Principal Civil Engineer	\$108.39	26	\$2,818	\$2,818	\$0
		Total	\$9,990	\$9,990	\$0

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$47,261. Table 4-44 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4: Assessment and Evaluation: This task includes cost for Review of Prior Monitoring Data, Literature Review, Project Monitoring Work Plan, and Final Report on Project Implementation. These costs were determined based on the project cost for researching and assembling relevant project data; experience preparing work plans for scientific assessments and to support grant applications; and experience preparing final reports. Approximately 44 hours will be spent on literature and data review (researching different types of infiltration products, contacting vendors, obtaining and reviewing data provided by vendors and independent sources, and reviewing previous monitoring results). The Project Monitoring Work Plan and Final Report on Project Implementation will be prepared by a DMax Engineer, the Stormwater Program manager, and a Principal Civil Engineer.

Task 5: Final Design: This task includes the cost for finalizing design of the project, from concept to 100% design. This cost was determined based on approximately 20 hours for Principal Civil Engineer, 15 hours for Stormwater Program Manager, and 80 hours for an Associate Civil Engineer. Plans for existing channels need to be researched and reviewed to assess where and how infiltration strips can be introduced.

This task also includes provision of materials to geotechnical engineer, review recommendations from the geotechnical engineer, incorporate them into the final project design, evaluate logistics and staging, and prepare bidding documents. These activities include 90 hours for Geotechnical Engineer, 10 hours for Storm Water Program Manager, and 13 hours for Principal Civil Engineer.

Task 6: Environmental Documentation: This task includes the cost for the CEQA preliminary assessment and documentation. These costs were determined based on approximately two hours of a planner to prepare the necessary documentation.

Task 7: Permitting: Not applicable.

Table 4-44: Row (c) Planning/Design/Environmental Documentation Costs
Pilot Concrete Channel Infiltration Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request		
Review of Prior Monitoring Data & Literatu	re Review						
Stormwater Program Manager	\$77.95	44	\$3,430	\$3,430	\$0		
Community Consultation and Education							
Stormwater Program Manager	\$77.95	20	\$1,559	\$1,559	\$0		
Geotechnical Recommendations			•				
Geotechnical Engineer	\$162.22	90	\$14,600	\$0	\$14,600		
Stormwater Program Manager	\$77.95	10	\$780	\$780	\$0		
Principal Civil Engineer	\$108.39	13	\$1,409	\$0	\$1,409		
Project Monitoring Work Plan & Final Repo	ort	•	•	•			
DMax Engineer	\$100.00	90	\$9,000	\$0	\$9,000		
Stormwater Program Manager	\$77.95	33	\$2,572	\$2,572	\$0		
Principal Civil Engineer	\$108.39	25	\$2,710	\$0	\$2,710		
Design			•				
Stormwater Program Manager	\$77.95	15	\$1,169	\$1,169	\$0		
Principal Civil Engineer	\$108.39	20	\$2,168	\$0	\$2,168		
Associate Civil Engineer	\$96.36	80	\$7,709	\$0	\$7,709		
Environmental Documentation							
Planner	77.95	2	\$156	\$0	\$156		
	1	Total	\$47,261	\$9,510	\$37,751		

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$140,655. Table 4-45 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8: Construction Contracting: The City of Santee will implement necessary construction contracting tasks. These costs are an integral part of the planning and design process. However, those staff costs are not included within the proposed Budget

Task 9: Construction: Construction costs for this project will be used for materials. These costs, which are summarized below:

• **Materials:** Materials for the project include sawcut concrete, excavating and removing concrete, subgrade preparation, concrete, imported soil matrix, and porous channel surfacing for a total of \$140,655.

Construction costs for the infiltration facility were estimated from preliminary estimates that certain areas, based on the typical width of the channel and standard rates for various construction materials.

Table 4-45: Row (d) Construction/Implementation Costs Pilot Concrete Channel Infiltration Project

Materials						
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request	
Sawcut concrete (square feet)	\$10.00	3610	\$36,100	\$0	\$36,100	
Excavate and remove concrete (cubic yards)	\$22.00	210	\$4,620	\$0	\$4,620	
Subgrade preparation (square feet)	\$5.00	3610	\$18,050	\$0	\$18,050	
Concrete (linear feet)	\$20.00	3200	\$64,000	\$0	\$64,000	
Imported Soil Matrix (cubic feet)	\$35.13	80	\$2,810	\$0	\$2,810	
Porous Channel Surfacing (square feet)	\$7.50	2010	\$15,075	\$0	\$15,075	
		Total	\$140,655	\$0	\$140,655	

Row (e) Environmental Compliance/Mitigation/Enhancement

No environmental mitigation or enhancement is required as the project does not remove any environmental resource and the project is solely located within City of Santee infrastructure.

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be \$17,880. This cost total is summarized in Table 4-46 and is based on the following:

Task 11: Construction Administration: This includes the cost for project management, including labor costs for a Stormwater Program Manager, a Principal Civil Engineer, an Engineering Inspector, and an Associate Engineer. These costs were determined based on a proportion of the total contract costs and apportioning the relative effort between technical staff, based on our experience of managing construction projects.

Table 4-46: Row (f) Construction Administration Costs Pilot Concrete Channel Infiltration Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Principal Civil Engineer	\$108.39	30	\$3,252	\$3,252	\$0
Engineering Inspector	\$65.38	55	\$3,596	\$3,596	\$0
Stormwater Program Manager	\$77.95	55	\$4,287	\$4,287	\$0
Associate Civil Engineer	\$96.36	70	\$6,745	\$6,745	\$0
		Total	\$17,880	\$17,880	\$0

Row (g) Other Costs

Other Costs for the project are \$79,643. These costs include lump sum costs for a Monitoring Report (\$35,924), Monitoring Report Review (\$5,009), and costs for previously collected monitoring data (\$38,710). The costs were estimated based on our experience managing monitoring contracts. Actual costs were used of previously collected monitoring data.

Table 4-47: Row (g) Other CostsPilot Concrete Channel Infiltration Project

Other Item	Lump Sum (\$)	Funding Match	Grant Request
Monitoring Report	\$35,924	\$0	\$35,963
Monitoring Report Review	\$5,009	\$5,009	\$0
Previously-collected data	\$41,011	\$41,011	\$0
Total	\$81,983	\$46,020	\$35,963

Row (h) Construction/Implementation Contingency

The Construction/Implementation Contingency for the project is estimated to be \$28,131 in grant request. This was estimated to be approximately 20% of the total construction cost of \$140,655. A full 20% was used because the project is in the pre-design phase.

Row (i) Grand Total

The Grand Total for the *Pilot Concrete Channel Infiltration Project* (\$333,400) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-48: Row (i) Grand Total Costs Pilot Concrete Channel Infiltration Project

Row	Budget Category	Total Costs
GA	Grant Administration	\$7,500
(a)	Direct Project Administration Costs	\$9,990
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/Environmental Documentation	\$47,261
(d)	Construction/Implementation	\$140,655
(e)	Environmental Compliance/Mitigation/ Enhancement	\$0
(f)	Construction Administration	\$17,880
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$81,983
(h)	Construction/Implementation Contingency	\$28,131
(i)	Grand Total	\$333,400

Project 9: San Diego Regional Water Quality Assessment and Outreach Project

This project will involve actions to engage community stakeholders to become more involved with regional water quality issues by collecting and analyzing surface water samples throughout San Diego County, and disseminating that information to the public to increase awareness. Funding for this project involves the following aspects of project implementation: grant administration, project administration costs, planning/design/engineering/environmental documentation, construction/implementation, and other costs.

The total cost associated with the San Diego Regional Water Quality Assessment and Outreach Project is \$667,000. Of these total costs, \$500,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$167,000 will be funded by non-State funding sources, which will come from volunteer hours and funds contributed to San Diego Coastkeeper by foundations, corporate sponsors, local government entities, and individual donors. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-49 below provides a more detailed break-down of the total project budget.

		(a)	(b)	(C)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$15,000	\$0	\$15,000	0%
(a)	Direct Project Administration Costs	\$0	\$10,000	\$0	\$10,000	0%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(C)	Planning/Design/Engineering/ Environmental Documentation	\$0	\$131,540	\$0	\$131,540	0%
(d)	Construction/Implementation	\$167,000	\$339,062	\$0	\$506,062	33%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$4,398	\$0	\$4,398	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	0%
(i)	Grand Total	\$167,000	\$500,000	\$0	\$667,000	25%
Ford San I	* Sources of funding: Volunteers who participate in water quality monitoring and data management activities; Cali Bamboo; Ford Motor Company Fund and Community Services; Golden State Flycasters; Hattie Ettinger Conservation Fund at The San Diego Foundation; Kass Family Foundation; S. Kaupp; The Parker Foundation; San Diego County Regional Airport Authority; Surf Industry Manufacturer's Association, Environmental Fund; Anonymous Fund at The San Diego Foundation;					

Table 4-49: Total Project Budget San Diego Regional Water Quality Assessment and Outreach Project

This Implementation Grant Proposal is requesting funding for four project tasks identified within the San Diego Regional Water Quality Assessment and Outreach Project Work Plan (refer to Attachment 3).

Table 4-50: Cost Breakdown by Work Plan Task and Subtask San Diego Regional Water Quality Assessment and Outreach Project

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$15,000
Row (a)	Direct Project Administration Costs	\$10,000
Task 1	Project Administration	\$10,000
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$131,540
Task 4	Assessment and Evaluation	\$131,540
Subtask 4.1	Establish Regional Water Monitoring Training and Resource Center	\$131,540
Row (d)	Construction/Implementation	\$506,062
Task 9	Construction	\$506,062
Subtask 9.1	Develop and Implement Outreach and Education Campaign	\$294,325
Subtask 9.2	Manage Data, Analyze Data, and Develop Regional Watershed Reports	\$211,737
Row (g)	Other Costs	\$4,398
Row (i)	Grand Total	\$667,000

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Anonymous Individual Donor



Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The San Diego Regional Water *Quality Assessment and Outreach Project* will contribute \$15,000 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$10,000, which are being requested in full as grant funding from the IRWM Grant Program. Table 4-51 provides a detailed listing of all applicable costs.

Task 1-Project Administration: Costs in this task total \$10,000 and include the cost for all project administration efforts, including labor costs for a Program Director, Lab Coordinator, and Data Coordinator. These costs were determined based on actual hours required to perform equivalent tasks during current ongoing operation of the program.

Task 2- Labor Compliance Program: Not applicable.

Task 3- Reporting: This task includes preparing the Project Assessment and Evaluation Plan, Quarterly Progress Reports and Invoices, and Project Completion Report. Estimated labor costs associated with reporting were included in Task 1: Project Administration.

Table 4-51: Row (a) Direct Project Administration Budget San Diego Regional Water Quality Assessment and Outreach Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Program Director	\$87.00	60	\$3,915	\$0	\$5,220
Lab Coordinator	\$80.00	39	\$3,120	\$0	\$3,120
Data Coordinator	\$50.00	33.2	\$1,660	\$0	\$1,660
		Total	\$10,000	\$0	\$10,000

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$131,540, which are being requested in full as grant funding from the IRWM Grant Program. Table 4-52 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4- Assessment and Evaluation: This task includes cost for the following:

- Subtask 4.1: Establish Regional Water Monitoring Training and Resource Center. Costs associated with this subtask include all labor, analyses, and supplies necessary to complete the task. This cost was determined based on actual costs to perform equivalent tasks during current ongoing operation of the program.
- Task 5- Final Design: Not applicable.
- Task 6- Environmental Documentation: Not applicable.

Task 7- Permitting: Not applicable.



Table 4-52: Row (c) Planning/Design/Environmental Documentation Costs San Diego Regional Water Quality Assessment and Outreach Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Establish Regional Water Monitoring Tra	aining and Res	ource Center			
Program Director	\$87.00	20	\$1,740	\$0	\$1,740
Lab Coordinator	\$80.00	15	\$1,200	\$0	\$1,200
Data Coordinator	\$50.00	10	\$500	\$0	\$500
Certified lab analysis (toxicity)	Lump	Sum	\$12,600	\$0	\$12,600
Lab Supplies	Lump	Sum	\$28,500	\$0	\$28,500
Contract for Trash Clean-Ups	Lump	Sum	\$12,000	\$0	\$12,000
Contract for Bio-Assessment	Lump Sum		\$30,000	\$0	\$30,000
Contract for Dissolved Metal Analyses	Lump	Sum	\$45,000	\$0	\$45,000
	•	Total	\$131,540	\$0	\$131,540

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$506,062. Table 4-53 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8- Construction Contracting: Not applicable.

Task 9- Construction:

Construction costs for this project are divided between three subtasks/categories: Subtask 9.1, Subtask 9.2, and Other Costs. These costs, which are summarized below, are necessary to develop and implement a public outreach and education campaign, and manage data, analyze data, and develop regional watershed reports as described within Task 9 (Construction) of the Work Plan (refer to Attachment 3).

- Subtask 9.1 Develop and Implement Public Outreach and Education Campaign. Costs associated with this subtask include all labor for a Program Director, Lab Coordinator, and Data Coordinator. Together these costs total \$294,325 and were calculated based on actual hours required to perform equivalent tasks during current ongoing operation of the program. Funding match includes salary funded through non-state grants from corporate, foundation, local government, and individual donors.
- Subtask 9.2 Manage Data, Analyze Data, and Develop Regional Watershed Reports. Costs associated with this subtask include all labor for a Program Director, Lab Coordinator, and Data Coordinator. Together these costs total \$211,737 and were calculated based on actual hours required to perform equivalent tasks during current ongoing operation of the program. Funding match includes water quality monitor and data analysis (GIS) volunteer hours contributed by members of the community.

Row (e) Environmental Compliance/Mitigation/Enhancement

This project will not require environmental compliance/mitigation/enhancement. Therefore, no environmental mitigation is included within the Work Plan or Budget.

Task 10- Environmental Compliance/Mitigation/Enhancement: Not applicable.

Table 4-53: Row (d) Construction/Implementation Costs San Diego Regional Water Quality Assessment and Outreach Project

Labor							
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request		
Develop and Implement Public Outreach	and Education	n Campaign					
Program Director	\$87.00	1200	\$159,400	\$55,000	\$104,400		
Lab Coordinator	\$80.00	1000	\$110,000	\$30,000	\$80,000		
Data Coordinator	\$50.00	200	\$24,925	\$14,925	\$10,000		
		Subtotal	\$294,325	\$99,925	\$194,400		
Manage Data, Analyze Data, and Develo	p Regional Wat	tershed Repor	ts		•		
Program Director	\$87.00	690	\$60,030	\$0	\$60,030		
Lab Coordinator	\$80.00	638	\$51,041	\$0	\$51,040		
Data Coordinator	\$50.00	672	\$33,592	\$0	\$33,592		
Volunteers	\$23.29	2,880	\$67,075	\$67,075	\$0		
	•	Subtotal	\$211,738	\$67,075	\$144,662		
		Total Cost	\$506,062	\$167,000	\$339,062		

Row (f) Construction Administration

Construction will not be performed as part of this project, therefore construction administration is not applicable to this project and is not included within the Work Plan or Budget.

Task 11- Construction Administration: Not applicable.

Row (g) Other Costs

Other costs for the project involve costs associated with purchasing internet software, printing reports, and replacing equipment. These costs are anticipated to be \$4,398, and were calculated based on known costs and estimates based on expenses incurred during current ongoing operation of the program.

Row (h) Construction/Implementation Contingency

Construction/Implementation contingency are not required for this project.

Row (i) Grand Total

The Grand Total for the San Diego Regional Water Quality Assessment and Outreach Project (\$667,000) was calculated as the sum of rows (GA) through (h) for each column.

Row	Budget Category	Total Costs
GA	Grant Administration	\$15,000
(a)	Direct Project Administration Costs	\$10,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$131,540
(d)	Construction/Implementation	\$506,062
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$4,398
(h)	Construction/Implementation Contingency	\$0
(i)	Grand Total	\$667,000

Table 4-54: Row (i) Grand Total Costs San Diego Regional Water Quality Assessment and Outreach Project

Project 10: Chollas Creek Integration Project

The *Chollas Creek Integration Project* will gather and prepare scientific data and stakeholder input to form an integrated planning process that will update the Chollas Creek Enhancement Program and restore native habitat and reduce flooding hazards within Section 2A of Chollas Creek. Funding for this project involves all aspects of project implementation including project administration, planning, design, engineering, environmental documentation, construction/implementation, environmental compliance/mitigation/enhancement, construction administration, construction/implementation contingency and other costs.

The total cost associated with the *Chollas Creek Integration Project* is \$994,500. Of these total costs, \$900,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$94,500 will be funded by contributions from Jacobs Center for Neighborhood Innovation and Groundworks San Diego-Chollas Creek. In total, this amount constitutes 10% of the total project cost, meaning that the non-state share of the total project cost (funding match) is 10% for this project. Because this project will not meet its 25% funding match requirement, and it will be serving disadvantaged communities (DACs), this project is requesting a funding waiver match (refer to Attachment 12).

Table 4-55 below provides a more detailed break-down of the total project budget.

		(a)	(b)	(C)	(d)	(e)		
Budg	et Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match		
GA	SDCWA Grant Administration	\$0	\$27,000	\$0	\$27,000	0%		
(a)	Direct Project Administration Costs	\$0	\$18,000	\$0	\$18,000	0%		
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%		
(c)	Planning/Design/Engineering/ Environmental Documentation	\$57,400	\$285,976	\$0	\$343,376	17%		
(d)	Construction/Implementation	\$0	\$489,100	\$0	\$489,100	0%		
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$15,000	\$0	\$15,000	0%		
(f)	Construction Administration	\$37,100	\$0	\$0	\$37,100	100%		
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$25,000	\$0	\$25,000	0%		
(h)	Construction/Implementation Contingency	\$0	\$39,924	\$0	\$39,924	0%		
(i)	Grand Total	\$94,500	\$900,000	\$0	\$994,500	10%		
Cholla	* Sources of funding: Contributions from Jacobs Center for Neighborhood Innovation (JCNI) and Groundworks San Diego- Chollas Creek (GWSDCC) obtained from non-state sources, specifically \$51,705 in private funding from the Jacobs Family Foundation and \$42,795 from a federal grant to GWSDCC from the U.S. National Park Service.							

Table 4-55: Total Project Budget Chollas Creek Integration Project

The Implementation Grant Proposal is requesting funding for nine project tasks identified within the *Chollas Creek Integration Project* Work Plan (refer to Attachment 3).

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$27,000
Row A	Direct Project Administration Costs	\$18,000
Task 1	Project Administration	\$18,000
Row C	Planning/Design/Engineering/Environmental Documentation	\$343,376
Task 4	Assessment and Evaluation	\$124,176
Task 5	Final Design	\$151,700
Task 6	Environmental Documentation	\$37,500
Task 7	Permitting	\$30,000
Row D	Construction/Implementation	\$489,100
Task 9	Construction	\$489,100
Row E	Environmental Compliance/Mitigation/Enhancement	\$15,000
Task 10	Environmental Compliance/Mitigation/Enhancement	\$15,000
Row F	Construction Administration	\$37,100
Task 11	Construction Administration	\$37,100
Row G	Other Costs	\$25,000
Row H	Construction/Implementation Contingency	\$39,924
Row I	Grand Total	\$994,500

Table 4-56: Cost Breakdown by Work Plan Task and Subtask Chollas Creek Integration Project

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Chollas Creek Integration Project* will contribute \$27,000 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$18,000, which are being requested through the IRWM Grant Program. Table 4-57 provides a detailed listing of all applicable costs. The total Direct Project Administration Costs (\$18,000) were estimated as 2% of the total grant request (\$900,000), which was calculated based on prior experience.

Task 1- Project Administration: This includes the cost for project management, including labor costs for two Project Managers (for Administration Support), a Grant Administrator (for Grant Administration), and coordination with Groundworks San Diego-Chollas Creek (GWSDCC). Program management and administrative support will consist of \$5,610, grant administration and reporting will consist of \$1,890 of Project Administration costs.

Task 2- Labor Compliance Program: The Jacobs Center for Neighborhood Innovation will implement a labor compliance program for the *Chollas Creek Integration Project*. However, those staff costs are not included within the proposed budget.

Task 3- Reporting: This includes the staff labor from the Project Manager(s) for preparing the Project Assessment and Evaluation Plan (PAEP), quarterly progress reports and invoices, and Project Completion Report. Costs for grant reporting were included within the staff labor shown in Task 1: Project Administration.

Table 4-57: Row (a) Direct Project Administration Budget Chollas Creek Integration Project

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Administration Support	\$35.00	60	\$2,100	\$0	\$2,100
Grant Administration	\$75.00	140	\$10,500	\$0	\$10,500
Program Management (GWSDCC)	\$65.00	54	\$3,510	\$0	\$3,510
Equipment/Supplies: Graphics	Lump	Sum	\$1,890	\$0	\$1,890
		Total	\$18,000	\$0	\$18,000

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$343,020. Table 4-58 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4- Assessment and Evaluation: This task includes cost for the following:

- Chollas Creek Section 2A Hydrology Study (2008) and Update (2011),
- Chollas Creek Section 2A Biology Study (2008) and Update (2011),
- Pueblo Watershed Stakeholders Needs Assessment,
- Pueblo Watershed Hydrology Study, and
- Pueblo Watershed Habitat Characterization Study.

This cost was determined based on the anticipated labor costs of those involved in creating these documents. This task will require a Project Manager, Soils Engineer, Hydrological Engineer, Archeologist, Lead Planner and a Special Program Manager for completion of the various studies.

Task 5 - Final Design: This task includes the cost for finalizing design of the project. This cost was determined based on anticipated labor costs of those involved in completing the final design. This task will consist of a Civil Engineer, Landscape Architect, GIS/CAD and a Drafting Designer through the design phases to completion of the Final Design.

Task 6- Environmental Documentation: This task includes the cost for preparation of an Initial Study/Mitigated Negative Declaration/CEQA-Plus, utilizing the Chollas Creek Section 2A Hydrology and Biology studies completed in Task 4 above. These costs were determined based on the anticipated labor costs of those involved in creating these documents. This task will require a Biologist through the assessment and evaluation and design phases as part of completion of the Environmental Documentation.

Task 7- Permitting: This task includes the cost for obtaining all necessary permits to implement the project, including:

- A CWA Section 401 Water Quality Certification Permit from the San Diego Regional Water Quality Control Board,
- A Streambed Alteration Agreement and Notification of Lake or Streambed Alteration from the California Department of Fish and Game,
- A CWA Section 404 Permit to authorize construction within a wetland from the U.S. Army Corps of Engineers, and
- A Grading Permit from the City of San Diego.

This cost was determined based on the consultant costs of anticipated agency fees of those involved in obtaining these permits.

Table 4-58: Row (c) Planning/Design/Environmental Documentation Costs	
Chollas Creek Integration Project	

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Assessment and Evaluation				•	
Project Manager 1	\$75.00	395	\$29,605	\$14,605	\$15,000
Project Manager 2	\$60.00	500	\$30,000	\$0	\$30,000
Soils Engineer	\$150.00	60	\$9,000	\$0	\$9,000
Hydrological Engineer 1	\$125.00	80	\$10,000	\$0	\$10,000
Hydrological Engineer 2	\$130.00	80	\$10,400	\$0	\$10,400
Paleo/Archeologist	\$125.00	40	\$5,000	\$0	\$5,000
Lead Planner	\$165.00	138	\$22,696	\$12,795	\$9,900
Program Manager	\$65.00	115	\$7,475	\$0	\$7,475
		Subtotal	\$124,176	\$27,400	\$96,776
Final Design				•	
Civil Engineer 1	\$165.00	200	\$33,000	\$0	\$33,000
Civil Engineer 2	\$170.00	140	\$23,800	\$0	\$23,800
Landscape Architect	\$135.00	260	\$35,100	\$0	\$35,100
GIS/CAD	\$115.00	250	\$28,750	\$0	\$28,750
Designer	\$115.00	270	\$31,050	\$0	\$31,050
		Subtotal	\$151,700	\$0	\$151,700
Environmental Documentation				•	•
Biologist 1	\$150.00	100	\$15,000	\$0	\$15,000
Biologist 2	\$150.00	150	\$22,500	\$0	\$22,500
		Subtotal	\$37,500	\$0	\$37,500
Permitting					•
Permitting Specialist	\$150.00	200	\$30,000	\$30,000	\$0
		Subtotal	\$30,000	\$30,000	\$0
		Total	\$343,376	\$57,400	\$285,976

Row (d) Construction/Implementation

The Construction and Implementation costs for the project are estimated to be \$489,100. Table 4-59 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 8 - Construction Contracting: The Jacobs Center for Neighborhood Innovation will produce a Construction Specifications Package for construction. However, those staff costs are not included within the proposed budget.

Task 9 - Construction: Construction costs for this project are divided between four categories: materials, equipment, labor, and other costs. No matching funds will be provided to cover construction costs. Table 4-59 provides a detailed listing of all applicable costs.

- **Materials:** Materials for the project include materials necessary to complete project construction and creek stabilization for a total of \$212,400. Project materials include slope concrete ditches, a headwall, a catch basin, bioswales, rip-rap, revegetation plantings, and new irrigation.
- **Equipment:** Equipment for the project includes equipment necessary to complete mobilization, demolition, and site preparation for a total of \$194,600.
- **Labor:** Labor required to fulfill performance monitoring includes soils testing, water quality sampling and analysis, and water quality reporting for a total of \$2,600.
- Other Costs: Additional costs for construction include identification, storage, and protection of existing native vegetation until re-planting phase of construction; 22,000 sf invasive plant

removal; Project Construction Fence; Water Meter for irrigation establishment; and annual habitat establishment education and outreach for a total of \$52,000.

Construction costs were estimated based on prior experience and quantities of the current engineering and landscape concept design.

	Mate	rials			
Materials Used*	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request
Slope Concrete Ditch (LF)	\$15	260	\$3,900	\$0	\$3,900
24" Drainage Ditch (LF)	\$50	35	\$1,750	\$0	\$1,750
Headwall (24" pipe-3:1 slope)	Lump Sum	N/A	\$8,000	\$0	\$8,000
Catch Basin	Lump Sum	N/A	\$5,000	\$0	\$5,000
Bioswale (SF)	\$5	600	\$3,000	\$0	\$3,000
Rip-Rap: 1/2 ton (CY)	\$60	340	\$20,400	\$0	\$20,400
Rip-Rap: 2 ton (CY)	\$75	270	\$20,250	\$0	\$20,250
Revegetation Plantings (SF)	\$3.15	19,000	\$59,850	\$0	\$59,850
Irrigation (SF)	\$4.75	19,000	\$90,250	\$0	\$90,250
		Total	\$212,400	\$0	\$212,400
	Equip	ment			
Equipment Used	Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request
Mobilization (LS)	Lump Sum	N/A	\$10,000	\$0	\$10,000
Clear & Group (SF)	\$0.55	32,000	\$17,600	\$0	\$17,600
Rough/Final Grading (CY)	\$16	10,000	\$160,000	\$0	\$160,000
Onsite Cut & Fill (CY)	\$14	500	\$7,000	\$0	\$7,000
		Total	\$194,600	\$0	\$194,600
	Lat	oor			
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request
Soils Test	\$125	160	\$20,000	\$0	\$20,000
Water Quality Sampling & Analysis	\$100	75	\$7,500	\$0	\$7,500
Water Quality Reporting	\$65	40	\$2,600	\$0	\$2,600
		Total	\$30,100	\$0	\$30,100
	All Othe	r Costs			
Discipline	Hourly Wage (\$)	Number of hours	Total (\$)	Funding Match	Grant Request
Identification, Storage, and Protection of Existing Native Vegetation Until Replanting	Lump Sum	N/A	\$5,000	\$0	\$5,000
22,000 SF of Invasive Plant Removal	Lump Sum	N/A	\$12,000	\$0	\$12,000
Project Construction Fence	Lump Sum	N/A	\$5,000	\$0	\$5,000
Water Meter for Irrigation Establishment	Lump Sum	N/A	\$20,000	\$0	\$20,000
Annual Habitat Establishment Education and Outreach	Lump Sum	N/A	\$10,000	\$0	\$10,000
	All	Other Costs	\$52,000	\$0	\$52,000
		Total Cost	\$489,100	\$0	\$489,100

Table 4-59: Row (d) Construction/Implementation Costs Chollas Creek Integration Project

*Materials units are as follows: LF = linear feet; CY = cubic yards; SF = square feet

Row (e) Environmental Compliance/Mitigation/Enhancement

The Environmental Compliance/Mitigation/Enhancement costs for the project are \$15,000, as described below. Table 4-60 provides a detailed listing of all applicable costs.

Task 10: Environmental Compliance/Mitigation/Enhancement

Environmental compliance for this project will take place upon project construction, and will be completed in compliance with the findings and/or Mitigation Monitoring Program determined within the environmental document. At a minimum, erosion control will be required throughout project duration. The anticipated costs associated with materials for erosion control, which will not be covered by matching funds are outlined in Table 4-60.

Table 4-60: Row (e) Environmental Compliance/Mitigation/Enhancement Costs
Chollas Creek Integration Project

Materials and Labor							
Materials Used	Unit Costs (\$)	Number of Units	Total (\$)	Funding Match	Grant Request		
Silt Fencing (LF)	\$4.00	1000	\$4,000	\$0	\$4,000		
Straw Bales (LF)	\$6.50	1000	\$6,500	\$0	\$6,500		
Temporary Seeding (SF)	\$0.05	25000	\$1,250	\$0	\$1,250		
Permanent Seeding (SF)	\$0.10	25000	\$2,500	\$0	\$2,500		
Stabilized Construction Entrance	\$750.00	1	\$750	\$0	\$750		
Total \$15,000					\$15,000		

Row (f) Construction Administration

The Construction Administration costs for the project are estimated to be \$37,100. Table 4-61 provides a detailed listing of all applicable costs.

Task 11- Construction Administration: The total construction administration costs consist of labor required for construction administration, labor compliance, and construction management. The hours estimated were based on prior experience, and as per the estimated design and construction schedule. These costs will be provided as matching funds through a private grant from the Jacobs Family Foundation.

Table 4-61: Row (f) Construction Administration Costs
Chollas Creek Integration Project

Discipline	Hours	Unit Cost (\$)	Total Costs (\$)	Funding Match	Grant Request
Construction Administration	280	\$35.00	\$9,800	\$9,800	\$0
Labor Compliance	48	\$100.00	\$4,800	\$4,800	\$0
Construction Manager	300	\$75.00	\$22,500	\$22,500	\$0
		Total	\$37,100	\$37,100	\$0

Row (g) Other Costs

Other Costs for the project are \$25,000. These costs include costs associated with obtaining a development permit (\$10,000) and costs associated with insurance and bonding (\$15,000).

Row (h) Construction/Implementation Contingency

The Construction/Implementation Contingency for project is estimated to be \$39,924. This was estimated based on prior experience of a general percentage of the construction contract amount budgeted for unforeseen emergencies or design shortfalls identified to be approximately 4% of the total Project cost of \$954,220.



Row (i) Grand Total

The Grand Total for the project (\$994,500) was calculated as the sum of rows (GA) through (h) for each column. The grand total for this project is summarized in Table 4-62 below

Table 4-62: Row (i) Grand Total Costs Chollas Creek Integration Project

Row	Budget Category	Total Costs
GA	Grant Administration	\$27,000
(a)	Direct Project Administration Costs	\$18,000
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$343,376
(d)	Construction/Implementation	\$489,100
(e)	Environmental Compliance/ Mitigation/Enhancement	\$15,000
(f)	Construction Administration	\$37,100
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$25,000
(h)	Construction/Implementation Contingency	\$39,924
(i)	Grand Total	\$994,500

Project 11: Regional Water Data Management Program

The *Regional Water Data Management Program* will provide information regarding current data management efforts in the San Diego IRWM region, and prioritize data needs for future uses. Funding for the project involves the following aspects of project implementation: grant administration, project administration costs, and planning/design/engineering/environmental documentation.

The total cost associated with the *Regional Water Data Management Program* is \$200,326. Of these total costs, \$150,000 is being requested for grant funding through the IRWM Implementation Grant Program. The remaining \$50,326 will be funded by non-State funding sources, including the City of San Diego and the San Diego County Water Authority. In total, this amount constitutes 25% of the total project cost, meaning that the non-State share of the total project cost (funding match) is 25% for this project. Table 4-63 below provides a more detailed break-down of the total project budget.

		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
GA	SDCWA Grant Administration	\$0	\$4,500	\$0	\$4,500	0%
(a)	Direct Project Administration Costs	\$17,274	\$0	\$0	\$17,274	100%
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	0%
(c)	Planning/Design/Engineering/ Environmental Documentation	\$36,053	\$145,500	\$0	\$181,553	20%
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	0%
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	0%
(f)	Construction Administration	\$0	\$0	\$0	\$0	0%
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0	\$0	\$0	\$0	0%
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	0%
(i)	Grand Total	\$53,327	\$150,000	\$0	\$203,327	26%
	ces of funding: In-kind labor costs for Co rity staff.	ounty of San Die	go, City of San D	iego, and San D	iego County Wa	ter

Table 4-63: Total Project Budget Regional Water Data Management Program

The Implementation Grant Proposal is requesting funding for four project tasks identified within the *Regional Water Data Management Program* Work Plan (refer to Attachment 3).

Table 4-64: Cost Breakdown by Work Plan Task and Subtask Regional Water Data Management Program

Row/Task	Category	Total
GA	SDCWA Grant Administration	\$4,500
Row (a)	Direct Project Administration Costs	\$17,274
Task 1	Project Administration	\$17,274
Row (c)	Planning/Design/Engineering/Environmental Documentation	\$181,553
Task 4	Assessment and Evaluation	\$103,341
Task 5	Final Design	\$78,212
Row (i)	Grand Total	\$203,327

The sections below provide detailed descriptions of each of the row and task budgets (where applicable) shown in the summary table above. In addition, each description below describes how cost estimates for each of the tasks or rows were calculated.

Grant Administration (GA)

Each local project sponsor shall dedicate 3% of their grant funds to the San Diego County Water Authority for administration and processing of the Implementation Grant. The *Regional Water Data Management Program* will contribute \$4,500 to this administration cost.

Row (a) Direct Project Administration Costs

The total direct project administration costs for the project are \$17,274. Table 4-65 provides a detailed listing of all applicable costs.

Task 1: Project Administration: This includes the cost for project management, including labor costs for a Land Use and Environmental Planner. These costs were based on the hourly billing rate for a County of San Diego Land Use and Environmental Planner III.

Task 2: Labor Compliance Program: This project will not require a Labor Compliance Program, because it will not involve construction activities or any other activities that would necessitate a LCP. As such, staff costs associated with the LCP are not included within the proposed work plan or budget.

Task 3: Reporting: This task includes preparing a Project Assessment and Evaluation Plan (PAEP), Quarterly Progress Reports and Invoices, and Project Completion Report. These costs were incorporated into labor estimates for the County of San Diego in Task 1: Project Administration.

Table 4-65: Row (a) Direct Project Administration Budget Regional Water Data Management Program

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Land Use and Environmental Planner III	\$99.12	174	\$17,274	\$17,274	\$0
		Total	\$17,274	\$17,274	\$0

Row (b) Land Purchase/Easement

Not applicable.

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

The total planning/design/engineering/environmental documentation costs for the project are \$181,553. Table 4-66 provides a detailed listing of all applicable costs. This cost total is based on the following:

Task 4: Initial Design, Engineering, and Environmental Documentation: This task includes the total cost for completing initial design and planning efforts for the project, which is expected to be \$103,341. This total cost includes costs for the following:

- Subtask 4.1: Convene a Data Management System (DMS) Advisory Workgroup: \$991
- Subtask 4.2: Identify and Segment Stakeholder Groups: \$3,587
- Subtask 4.3: Develop Assessment Approaches and Methodologies: \$16,312
- Subtask 4.4: Conduct Needs Assessment of Stakeholder Groups: \$69,526
- **Subtask 4.5:** Develop a Vision for Data Management System Basic Design Recommendation: \$12,925

These cost estimates are based on hourly billing rates for County of San Diego, San Diego County Water Authority, City of San Diego, consultant, and non-governmental staff.

Task 5: Final Design: This task includes the total cost for completing design and planning efforts for the project, which is expected to be \$78,212. This total cost includes costs for the following:

- Subtask 5.1: Develop draft Data Management System Basic Design Recommendations: \$28,169
- **Subtask 5.2**: Develop draft Final Data Management System Basic Design Recommendations: \$33,612
- **Subtask 5.3:** Develop Final Data Management System Basic Design Recommendations: \$16,432

These estimates are based on hourly billing rates for County of San Diego, San Diego County Water Authority, City of San Diego, consultant, and non-governmental staff.

Table 4-66: Row (c) Planning/Design/Engineering/Environmental Documentation Regional Water Data Management Program

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Subtask 4.1: Convene a Data Management Sys	tem (DMS) Adv	isory Workg	roup	•	
Land Use and Environment Planner III - COSD	\$99.12	10	\$991	\$991	\$0
		Subtotal	\$991	\$991	\$0
Subtask 4.2: Identify and Segment Stakeholder	r Groups				
Land Use and Environment Planner III- COSD	\$99.12	5	\$496	\$496	
Water Quality Program Manager- COSD	\$144.48	5	\$722	\$722	
Principal Water Resources Specialist - CWA	\$85.70	4	\$300	\$300	
Senior Water Resources Specialist - City of SD	\$116.14	4	\$406	\$406	
Technical Consultant	\$250.00	4	\$875		\$875
Nongovernmental Agencies	\$75.00	11	\$788		\$788
		Subtotal	\$3,587	\$1,925	\$1,663
Subtask 4.3: Develop Assessment Approaches	and Methodol	ogies			
Land Use and Environment Planner III- COSD	\$99.12	5	\$496	\$496	
Water Quality Program Manager- COSD	\$144.48	5	\$722	\$722	
Principal Water Resources Specialist - CWA	\$85.70	4	\$300	\$300	
Senior Water Resources Specialist - City of SD	\$116.14	4	\$406	\$406	
Technical Consultant	\$250.00	42	\$10,598		\$10,598
Nongovernmental Agencies	\$75.00	11	\$788		\$788
	•	Subtotal	\$16,312	\$1,925	\$14,388
Subtask 4.4: Conduct Needs Assessment of St	akeholder Grou	ıps		•	
Land Use and Environment Planner III- COSD	\$99.12	60	\$5,947	\$5,947	
Water Quality Program Manager- COSD	\$144.48	24	\$3,468	\$3,468	
Principal Water Resources Specialist - CWA	\$85.70	60	\$5,142	\$5,142	
Senior Water Resources Specialist - City of SD	\$116.14	60	\$6,968	\$6,968	
Technical Consultant	\$250.00	120	\$30,000		\$30,000
Facilitation Consultant	\$250.00	60	\$15,000		\$15,000
Nongovernmental Agencies	\$75.00	40	\$3,000		\$3,000
	1	Subtotal	\$69,525	\$21,525	\$48,000
Subtask 4.5: Develop a Vision for Data Manage	ment System E	asic Design	Recommend	ation	
Land Use and Environment Planner III- COSD	\$99.12	5	\$495	\$495	
Water Quality Program Manager- COSD	\$144.48	5	\$722	\$722	
Principal Water Resources Specialist - CWA	\$85.70	4	\$343	\$343	
Senior Water Resources Specialist - City of SD	\$116.14	4	\$465	\$465	
Technical Consultant	\$250.00	40	\$10,000		\$10,000
Nongovernmental Agencies	\$75.00	12	\$900		\$900
	•	Subtotal	\$12,925	\$2,025	\$10,900
Subtask 5.1: Develop draft Data Management S	System Basic D	esign Recon	nmendations		
Land Use and Environment Planner III- COSD	\$99.12	6	\$594	\$594	
Water Quality Program Manager- COSD	\$144.48	6	\$867	\$867	
Principal Water Resources Specialist - CWA	\$85.70	4	\$343	\$343	
Senior Water Resources Specialist - City of SD	\$116.14	4	\$465	\$465	
Technical Consultant	\$250.00	100	\$25,000		\$25,000
Nongovernmental Agencies	\$75.00	12	\$900		\$900
		Subtotal	\$28,169	\$2,269	\$25,900

Discipline	Hourly Wage (\$/hr)	Number of Hours	Total	Funding Match	Grant Request
Subtask 5.2: Develop draft Final Data Manager	nent System Ba	sic Design I	Recommenda	tions	
Land Use and Environment Planner III- COSD	\$99.12	12	\$1,190	\$1,190	
Principal Water Resources Specialist - CWA	\$85.70	12	\$1,028	\$1,028	
Senior Water Resources Specialist - City of SD	\$116.14	12	\$1,394	\$1,394	
Technical Consultant	\$250.00	100	\$25,000		\$25,000
Facilitation Consultant	\$250.00	8	\$2,000		\$2,000
Nongovernmental Agencies	\$75.00	40	\$3,000		\$3,000
		Subtotal	\$33,612	\$3,612	\$30,000
Subtask 5.3: Develop Final Data Management	System Basic D	esign Recor	nmendations		•
Land Use and Environment Planner III- COSD	\$99.12	4	\$396	\$396	
Water Quality Program Manager- COSD	\$144.48	4	\$578	\$578	
Principal Water Resources Specialist - CWA	\$85.70	4	\$343	\$343	
Senior Water Resources Specialist - City of SD	\$116.14	4	\$465	\$465	
Technical Consultant	\$250.00	55	\$13,750		\$13,750
Nongovernmental Agencies	\$75.00	12	\$900		\$900
	•	Subtotal	\$16,432	\$1,782	\$14,650
		Total	\$181,553	\$36,053	\$145,500

Task 6: Environmental Documentation: Not applicable.

Task 7: Permitting: Not applicable.

Row (d) Construction/Implementation

Construction will not be performed as part of this project, therefore construction contracting and construction are not applicable to this project and are not included within the Work Plan or Budget.

Task 8- Construction Contracting: Not applicable.

Task 9- Construction: Not applicable.

Row (e) Environmental Compliance/Mitigation/Enhancement

This project will not require environmental compliance/mitigation/enhancement. Therefore, no environmental mitigation is included within the Work Plan or Budget.

Row (f) Construction Administration

Construction will not be performed as part of this project, therefore construction administration is not applicable to this project and is not included within the Work Plan or Budget.

Task 11- Construction Administration: Not applicable.

Row (g) Other Costs

No other costs are required for this project.

Row (h) Construction/Implementation Contingency

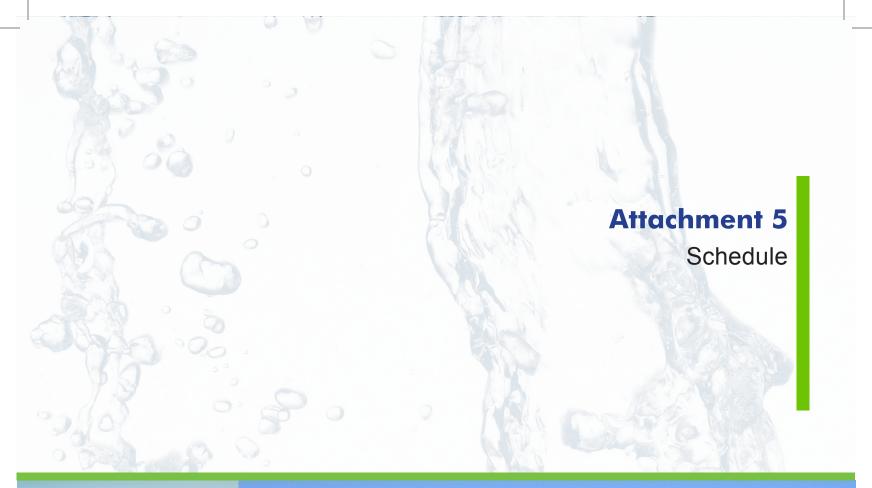
Construction/Implementation contingency are not required for this project.

Row (i) Grand Total

The Grand Total for the project (\$203,327) was calculated as the sum of rows (GA) through (h) for each column.

Table 4-67: Row (i) Grand Total CostsRegional Water Data Management Program

Row	Budget Category	Total Costs
GA	Grant Administration	\$4,500
(a)	Direct Project Administration Costs	\$17,274
(b)	Land Purchase/Easement	\$0
(C)	Planning/Design/Engineering/ Environmental Documentation	\$181,553
(d)	Construction/Implementation	\$0
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0
(f)	Construction Administration	\$0
(g)	Other Costs (Including Legal Costs, Permitting and Licenses)	\$0
(h)	Construction/Implementation Contingency	\$0
(i)	Grand Total	\$203,327





Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Schedule

Attachment 5 consists of the following items:

 Proposal Schedule(s). The attached schedules provide a timeline for implementation of each project within the Proposal, including the sequence and timing of each project.

The enclosed proposal schedule provides start and end dates as well as milestones for each Work Plan task, consistent with the Work Plan (refer to Attachment 3) and Budget (refer to Attachment 4). The assumed start date is June 1, 2011, and each project has an assumed end date that is reasonable based on their individual Work Plan and Budget.



		<u>Propo</u>	sal Sum	mary								
ID	0	Task Name	Duration	Start	0304		2010 Q2Q3Q4	2011	2012	2013	2014	2015 20 Q2Q3Q4Q1
1		Project 1: Sustainable Landscapes Program	1022 days	Fri 10/1/10	QUQT							
2		Project 2: San Diego North Regional Recycled Water Project	523 days	Wed 6/1/11								
3		Project 3: North San Diego County Cooperative Demineralization Project	1120 days	Mon 9/1/08								
4		Project 4: Rural Disadvantaged Community (DAC) Partnership Project	675 days	Wed 6/1/11								
5		Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures Project	1408 days	Tue 10/26/10								<u> </u>
6		Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed	914 days	Wed 6/1/11							<u> </u>	
7		Project 7: Bannock Avenue Streetscape Enhancements for Tecolote Creek	1532 days	Mon 2/16/09								
8		Project 8: Pilot Concrete Channel Infiltration Project	414 days	Wed 6/1/11								
9		Project 9: San Diego Regional Water Quality Assessment and Outreach Project	849 days	Wed 6/1/11					 			
10		Project 10: Chollas Creek Integration Project	611 days	Mon 8/9/10								
11		Project 11: Regional Water Data Management Program	523 days	Wed 6/1/11								
	t: Overa Wed 1/5	Il Schedule_SD Summany				ks stone ◆ ↔						
			Page 1									

0	Task Name		Duration	Start	Finish	Predecessors		2011 a e a p a u .		1	2012	1 . 2		2013			2014	
- U	Regional Sustainable Lar	ndscapes Program	 1022 days?	Fri 10/1/10	Mon 9/1/14			ale apau.	Juluec	oleia	ale ap	a u Jul u		a e a p	a u Jul u	ecoe	alelap	a u Jul u
	Start of Grant Contrac	t	1 day?	Wed 6/1/11	Wed 6/1/11			م										
	Task 1: Project Admir	nistration	1022 days	Fri 10/1/10	Mon 9/1/14	•												
	Task 2: Labor Compli	ance Program	 33 days?	Wed 6/1/11	Fri 7/15/11	2FS-1 day	-											
	Task 3: Reporting		847 days	Wed 6/1/11	Mon 9/1/14	•	-	-										
0	Quarterly Repor	ting & Invoicing	 847 days	Wed 6/1/11	Mon 9/1/14	2FS-1 day		\diamond	\diamond	\diamond	\diamond	\diamond	\diamond \diamond		♦ <	>	\diamond	<u>ه</u>
	Task 9: Construction/	Conservation	653 days	Thu 12/1/11	Mon 6/2/14	•				_								

Project 2: North San Diego County Regional Recycled Water Project

North San Diego County Regional Recycled Water Project Start of Grant Contract Task 1: Project Administration Quarterly Reporting & Invoicing	523 days? 1 day?	Wed 6/1/11											Ind a
Task 1: Project Administration	1 day?		Sat 6/1/13					an e MarAp					
-		Wed 6/1/11	Wed 6/1/11		• ₁								
Quarterly Reporting & Invoicing	523 days	Wed 6/1/11	Sat 6/1/13		-								
	523 days	Wed 6/1/11	Sat 6/1/13	2FS-1 day		\diamond							
Task 4: Assessment and Evaluation	218 days?	Wed 6/1/11	Fri 3/30/12		-								
Recycled Water Facilities Plan	0 days	Wed 6/1/11	Wed 6/1/11	2FS-1 day	♦ 6/1								
Engineering Study	218 days?	Wed 6/1/11	Fri 3/30/12	2FS-1 day				ر ر					
Task 5: Final Design	523 days?	Wed 6/1/11	Fri 5/31/13		-								
Conceptual (10%) Design	132 days?	Wed 6/1/11	Thu 12/1/11	2FS-1 day	📥		_						
30% Design	196 days?	Fri 12/2/11	Fri 8/31/12	18	_					 _			
50% Design	195 days	Mon 9/3/12	Fri 5/31/13	19	_								
Task 7: Permitting	305 days?	Mon 4/2/12	Fri 5/31/13		_			-					_
CEQA/NEPA Initial Studies	305 days?	Mon 4/2/12	Fri 5/31/13	16	-			<u></u>					
	Task 5: Final Design Conceptual (10%) Design 30% Design 50% Design	Task 5: Final Design523 days?Conceptual (10%) Design132 days?30% Design196 days?50% Design195 daysTask 7: Permitting305 days?	Task 5: Final Design 523 days? Wed 6/1/11 Conceptual (10%) Design 132 days? Wed 6/1/11 30% Design 196 days? Fri 12/2/11 50% Design 195 days Mon 9/3/12 Task 7: Permitting 305 days? Mon 4/2/12	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 50% Design 195 days Mon 9/3/12 Fri 5/31/13 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13	Task 5: Final Design 523 days? Wed 6/1/11 Fri 5/31/13 Conceptual (10%) Design 132 days? Wed 6/1/11 Thu 12/1/11 2FS-1 day 30% Design 196 days? Fri 12/2/11 Fri 8/31/12 18 50% Design 195 days Mon 9/3/12 Fri 5/31/13 19 Task 7: Permitting 305 days? Mon 4/2/12 Fri 5/31/13

Project 3: North San Diego County Cooperative Demineralization Project

ID	0	Task Name	Duration	Start	Finish	8	2009		2010		2011	2012	20
1	•	North San Diego County Cooperative Demineralization Project	1120 days?	Mon 9/1/08	Fri 12/14/12		r tr tı	· tr tr	tr tr	tr tr	tr tr tr	tr tr tr	
2		Start of Grant Contract	1 day?	Wed 6/1/11	Wed 6/1/11	•							•
3		Task 1: Project Administration	400 days	Thu 6/2/11	Wed 12/12/12								
4		Task 2: Labor Compliance Program	209 days?	Tue 12/13/11	Fri 9/28/12							<u> </u>	
5		Task 3: Reporting	393 days	Wed 6/1/11	Sat 12/1/12								
6	0	Quarterly Reporting & Invoicing	393 days	Wed 6/1/11	Sat 12/1/12						\diamond	$\rangle \diamond \diamond \diamond$	$\diamond \diamond \diamond$
14		Task 4: Assessment and Evaluation	1120 days	Mon 9/1/08	Fri 12/14/12								
15		Task 5: Final Design	459 days	Tue 12/1/09	Fri 9/2/11			(h	
16		Task 6: Environmental Documentation	314 days?	Wed 10/1/08	Mon 12/14/09				Ь				
17		Task 7: Permitting	394 days	Mon 12/14/09	Thu 6/16/11								
18		Task 8: Construction Contracting	72 days?	Fri 9/2/11	Mon 12/12/11						WII/WII		
19		Task 9: Construction	210 days?	Mon 12/12/11	Fri 9/28/12						U.S. III		
20		Task 10: Environmenal Compliance	210 days?	Mon 12/12/11	Fri 9/28/12							<u> </u>	
21		Task 11: Construction Admin	210 days?	Mon 12/12/11	Fri 9/28/12								

	Task	Milestone	♦	External Tasks	
Project: SDIRWMP_Coop Demin Sche Date: Wed 1/5/11	Split	 Summary	~	External Milestone	٠
	Progress	Project Summary	\bigtriangledown	Deadline	Ŷ
		Page 1			

ID				FIOJECT 4			ged Comn	nunity	(DAC	-	-							
ID	0	Fask Name			Duration	Start	Finish	a Jun Jul	u e Oo	toe.	2012 Jan e MarA	Aprila Jur	lulu e	Oct o e	2013 Jan e Mar	Apr a Jun	Julue	Oct o
1	F	Rural Disadvantaged C	ommunity Partnersh	ip Project	675 days?	Wed 6/1/1	Tue 12/31/13								barr o mar			
2		Start of Grant Contra	act		1 day?	Wed 6/1/17	Wed 6/1/11	•										
3		GA: Grant Administ	tration		675 days?	Wed 6/1/17	Tue 12/31/13											
4		Task 1: Project Adn	ministration		675 days?	Wed 6/1/1	Tue 12/31/13											
5		Task 3: Reporting			653 days	Wed 6/1/1	I Sun 12/1/13											
6	Ð	Quarterly Repo	orting & Invoicing		653 days	Wed 6/1/1	I Sun 12/1/13	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond
18		Task 4: Assessmen	nt and Evaluation		263 days?	Wed 6/1/17	Fri 6/1/12					 _						
19		Task 5: Final Desig	IN		5.4 mons	Mon 6/4/12	2 Wed 10/31/12											
20		Task 6: Environmer	ntal Documentation		174 days	Mon 6/4/12	2 Thu 1/31/13	8				2						
21		Task 8: Constructio	on Contracting		191 days?	Mon 3/11/1	3 Mon 12/2/13	8										
22		Task 9: Constructio	n		191 days	Mon 3/11/1	3 Mon 12/2/13	8										
23		Task 11: Constructi	ion Administration		191 days	Mon 3/11/13	3 Mon 12/2/13	5										
	t: SDIRWM Wed 1/5/1:	MP_Rural DAC Sched	Task Split Progress		Milestone Summary Project Sur			External Ta External M Deadline	1ilestone									

ID	0	Task Name		Duration	Start	Finish	2011	03/04	2012	2013	2014 Q3Q4Q1Q		2015
1		Lake Hodges Water Q	uality and Quagga Mitigation Measures	1408 days	Tue 10/26/10	Thu 3/17/16		QU QH				2030-	
2		Start of Grant Contract		1 day	Wed 6/1/11	Wed 6/1/11	•	ן					
3		Grant Administration		767 days	Wed 6/1/11	Thu 5/8/14							
4		Task 1: Project Admin	istration	923 days	Tue 10/26/10	Thu 5/8/14						,	
5		General Project Ac	ministration Tasks	923 days	Tue 10/26/10	Thu 5/8/14							
6		Task 2: Labor Complia	ance Program	971 days	Tue 10/26/10	Tue 7/15/14							
7		Develop and Exect	ute Labor Compliance Program	971 days	Tue 10/26/10	Tue 7/15/14							
8		Task 3: Reporting	9	676 days	Fri 9/30/11	Fri 5/2/14						J	
9	0	Quarterly Re	porting & Invoicing	676 days	Fri 9/30/11	Fri 5/2/14		000			000		
23		Task 4: Assessment a	nd Evaluation	133 days	Mon 8/1/11	Wed 2/1/12		-	▼				
24		Produce RFP, Drat	it, and Final Reports	133 days	Mon 8/1/11	Wed 2/1/12	•		2				
25		Task 5: Final Design (from Concept)	245 days	Wed 8/24/11	Tue 7/31/12		—					
26		Design Process		245 days	Wed 8/24/11	Tue 7/31/12							
27		Task 6: Environmenta	I Documentation	370 days	Wed 2/29/12	Tue 7/30/13			╺		▼		
28		Complete CEQA D	etermination	5 days	Wed 2/29/12	Tue 3/6/12			F				
29		Complete EIR (As	Needed)	365 days	Wed 3/7/12	Tue 7/30/13			Č				
30		Task 7: Permitting		135 days	Wed 3/7/12	Tue 9/11/12				ן ן			
31		Task 8: Construction	Contracting	80 days	Wed 9/12/12	Tue 1/1/13			Č				
32		Task 9: Construction		315 days	Wed 1/2/13	Tue 3/18/14							
33		Task 10: Environmen	tal Compliance	837 days	Wed 1/2/13	Thu 3/17/16							I
34		Task 11: Construction	Administration	360 days	Wed 1/2/13	Tue 5/20/14				4 			

	0	Task Name	Duration	Start	Finish Predecessors	2011 2014
1	-	Implementing Nutrient Management in the Santa Ma	913 days?	Wed 6/1/11	Mon 12/1/14	Sep Jan May Sep Jan May Sep Jan May Sep Jan May Sep
2		Start of Grant Contract	1 day?	Wed 6/1/11	Wed 6/1/11	
3		Task 3: Reporting	913 days	Wed 6/1/11	Mon 12/1/14 2FS-1 day	
4	0	Quarterly Grant Reporting & Invoicing & D	913 days	Wed 6/1/11	Mon 12/1/14	
20		Task 4: Assessment and Evaluation	913 days?	Wed 6/1/11	Mon 12/1/14 2FS-1 day	
21	0	Form & Facilitate Stakeholder Advisory Gr	913 days	Wed 6/1/11	Mon 12/1/14	
37		Conduct Field and Special Studies	871 days?	Wed 6/1/11	Wed 10/1/14 2FS-1 day	
38		Submit Monitoring and Special Studies	785 days?	Wed 6/1/11	Tue 6/3/14	
39		Submit Monitoring and Special Studies F	86 days?	Wed 6/4/14	Wed 10/1/14 38	
40		Develop Nutriend WQOs and SMR Estuary	871 days?	Wed 6/1/11	Wed 10/1/14 2FS-1 day	V
41		Submit Proposed Draft Report	785 days?	Wed 6/1/11	Tue 6/3/14	
42		Submit Proposed Final Report	86 days?	Wed 6/4/14	Wed 10/1/14 41	
	1					

Project 7: Bannock Avenue Streetscape Enhancements for Tecolote Creek Watershed Protection

1	Task Name	Duration	Start	Finish	H2	2009 H1 H2	2010 H1		2011 11 H2	2012 H1	201 H2 H1	3 20 H2 H)14 1 H2	2015 H1 H
	Bannock Avenue Streetscape Enhancements	1532 days?	Mon 2/16/09	Tue 12/30/14		/								••••
2 🛅	Start of Grant Contract	1 day?	Wed 6/1/11	Wed 6/1/11					م					
3	GA: Grant Administration	935 days	Wed 6/1/11	Tue 12/30/14					4					
4	Task 2: Labor Compliance Program	549 days?	Thu 9/27/12	Tue 11/4/14										
5	Task 3: Reporting	934 days	Wed 6/1/11	Tue 12/30/14										,
6	Project Design and Assessment Report Deliverable	0 days	Wed 6/1/11	Wed 6/1/11					6 /	1				
7 😯	Quarterly Grant Reporting & Invoicing & Deliverab	les 913 days	Wed 6/1/11	Mon 12/1/14					$\diamond \diamond \diamond$	$\diamond \diamond \diamond$				
23	Project Completion Report	0 days	Tue 12/30/14	Tue 12/30/14									4	12/3
24	Planning/Design/Engineering/Environmental	943 days?	Mon 2/16/09	Thu 9/27/12	l			_						
25	Task 5: Final Design	809 days?	Mon 2/16/09	Thu 3/22/12				_						
31	Task 6: Environmental Documentation	644 days?	Mon 10/12/09	Thu 3/29/12		\square		_						
32	CEQA Exemption Determination	640 days?	Mon 10/12/09	Fri 3/23/12			1							
33	Council Approval & CEQA Certification	4 days?	Mon 3/26/12	Thu 3/29/12						Ţ				
34	Task 7: Permitting	134 days?	Fri 3/23/12	Thu 9/27/12						──				
35	Water Pollution Control Plan	134 days?	Fri 3/23/12	Thu 9/27/12										
36	Traffic Control Plan	134 days?	Fri 3/23/12	Thu 9/27/12										
37	Contruction/Implementation	683 days?	Fri 3/23/12	Tue 11/4/14						──				
38	Task 8: Construction Contracting	134 days?		Thu 9/27/12						—				
39 🛅	Advertising & Bidding Award	44 days?		Wed 5/23/12						—	ב			
40	Award and Notice to Proceed	1 day?		Thu 9/27/12							Ţ			
41	Labor Compliance Program Contract Verification	1 day?		Thu 9/27/12							R			
42	Task 9: Construction	548 days?		Tue 11/4/14										
43	Mobilization and Site Preparation:	51 days?		Fri 12/7/12							۵ <u>۱</u>			
44	Project Construction - Site Improvements	213 days?		Wed 10/2/13							_			
45 🛅	Warranty Administration	263 days?		Mon 10/6/14										
46	Performance Testing and Demobilization	262 days?		Fri 10/3/14								_		
47 🛅	Closeout & Notice of Compltetion	15 days?	Wed 10/15/14	Tue 11/4/14									<u> </u>	

<u> Project 8: Pilot Concrete Chanel Infiltration Project</u>

ID Task Name Duration Start Finish AutiAut u e loci n e Ani/e Markay a Jun,Aut u e loci n e Ani/e Markay			–		 									1
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Project 9: San Diego Regional Water Quality Assessment and Outreach Project

2 Start of Grant Contract 3 Tasks 1: Project Administration 4 Task 3: Reporting 5 Quarterly Reporting & Invoicing 20 Task 4: Assessment and Evaluation	849 days? 1 day? 849 days? 847 days 847 days	Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11	Mon 9/1/14 Wed 6/1/11 Mon 9/1/14 2FS-1 day Mon 9/1/14											
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Project: SDIRWMP_Reg WQ Schedule	Task	Progress		Summary	—	External Tasks Deadline 🖓	
Date: Tue 1/4/11	Split	 Milestone	•	Project Summary	$\checkmark \qquad \qquad$	External Milestone	
				David (

Project 10: Chollas Creek Integration Project

ID 1 2 3 4	Task Name Chollas Creek Integration Project Start of Grant Contract Tasks 1: Project Administrati		Duration 611 days? 1 day?	Start Mon 8/9/10 Mon 6/6/11	Finish Mon 12/10/12 Mon 6/6/11		u e Oct o e	2011 Jan e MarApr	a Jun Ju	lue O	ctoeJ	2012 Ian e MarAj	or a Jun J	ul u e C	Dct o e
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3			1 day?	Mon 6/6/11	Mon 6/6/11		-								
4	Tasks 1: Project Administrati								•						
		ion	611 days?	Mon 8/9/10	Mon 12/10/12										
	Task 2: Labor Compliance P	rogram	131 days?	Tue 6/5/12	Tue 12/4/12	18	-								
5	Task 3: Reporting		389 days	Mon 6/6/11	Sat 12/1/12		-		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						
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14	Task 4: Assessment and Eva	aluation	90 days?	Mon 8/9/10	Fri 12/10/10										
15	Task 5: Final Design		146 days?	Fri 12/10/10		14FS-1 day									
16	Task 6: Environmental Docu	mentation	408 days?	Fri 12/10/10		14FS-1 day									
	Task 7: Permitting		132 days?	Fri 7/1/11		15FS-1 day	_								
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Project 11: Regional Water Data Management Program

1	0	Task Name	Duration	Start	Finish	Predecessors		2011				2012			2	013	_
	·	Regional Water Data Management Program	523 days?	Wed 6/1/11	Sat 6/1/13		Oct o e	Jan e MarA	pr a Jun Ju	ıl∣u∣e O	ctole,	lan e Mar	Apr a Jun J	lul u e Oc	t o e J	ani e MariAp	n a
2		Start of Grant Contract	1 day?	Wed 6/1/11	Wed 6/1/11		_		م								
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4		Tasks 1: Project Administration	24 days	Wed 6/1/11	Mon 7/4/11	2FS-1 day			- 📥								
5	<u> </u>	Task 3: Reporting	522 days	Wed 6/1/11	Sat 6/1/13		_										_
6	0	Quarterly Reporting & Invoicing	522 days	Wed 6/1/11	Sat 6/1/13	2	_		\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	\diamond	
6	ľ	Task 4: Assessment and Evaluation	300 days	Tue 7/5/11	Mon 8/27/12		_										
7		Convene a Data Management System (DMS) Advisory W	3 mons	Tue 7/5/11	Mon 9/26/11	4	_		2								
8		Identify and Segment Stakeholder Groups	3 mons	Tue 9/27/11	Mon 12/19/11	17	_		_		 }						
9		Develop assessment approaches and methodologies	3 mons	Tue 12/20/11	Mon 3/12/12	18											
20		Conduct needs assessment of stakeholder groups	3 mons	Tue 3/13/12	Mon 6/4/12	19	_						 h				
21		Develop vision for Data Management System Basic Desig	3 mons	Tue 6/5/12	Mon 8/27/12	20	_										
22		Task 5: Final Design	180 days	Tue 8/28/12	Mon 5/6/13		_										-
23		Develop draft Data Management System Basic Design R€	3 mons	Tue 8/28/12	Mon 11/19/12	21	_								_		
4		Develop draft Final Data Management System Basic Desi	3 mons	Tue 11/20/12	Mon 2/11/13	23	_								_	_ h	
25	-	Develop Final Data Management System Basic Design R	3 mons	Tue 2/12/13	Mon 5/6/13	24	_										

Attachment 6

Monitoring, Assessment, and Performance Measures



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Monitoring, Assessment, and Performance Measures

Attachment 6 consists of the following items:

Performance Measures. The purpose of this attachment is to describe the monitoring, assessment, and performance measures that will be used to evaluate each proposed project. These measures will ensure that this proposal meets its intended goals, achieves measurable outcomes, and provides value to the Region and the State of California.

For each project in this San Diego IRWM Implementation Grant Proposal, specific performance measures and monitoring approaches have been developed to assess project performance on an ongoing basis. The purpose of this attachment is to provide a discussion of the monitoring system to be used to verify project performance with respect to the project benefits or objectives identified. For each proposed project, listed below, this attachment will identify data collection and analysis to be used.

This attachment will also discuss how monitoring data will be used to measure the performance in meeting the overall goals and objectives of the San Diego IRWM Plan. Each project applicant has prepared a Project Performance Measures Table (included in this attachment) that includes the following:

- Project goals
- Desired outcomes
- Output indicators measures to effectively track output
- Outcome indicators measures to evaluate change that is a direct result of the work
- Measurement tools and methods
- Targets measureable targets that are feasible to meet during the life of the project

Project 1: Sustainable Landscapes Program

The Sustainable Landscapes Program is a multifaceted project that consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants. These activities will be executed in order to meet project goals (listed below). Project goals will each have performance measures that will be used to quantify and verify project performance.

Project Goals

<u>Reduce urban water consumption:</u> The following methods will be employed to accurately monitor urban runoff consumption; surveys or other market research, list of conservation events, number of attendees at events, number of certified professionals at events, impact analysis, and site evaluations. Increased conservation events and attendees reveal that urban water consumption is being widely recognized and that reduction efforts are being considered.

<u>Modification of long-term landscape behavior</u>: Landscape behavior will be tracked by pre- and post- water use evaluations. Pre- and post- modification water use data will be obtained from local water agencies and analyzed to determine the program's effectiveness. Landscape sites that will be modified will thus be monitored for long-term efficiency. The analysis will require the administration of surveys or other market research techniques to determine satisfaction. Additionally, multivariate regression analysis will control for and or identify the impact of project variables (i.e. weather, location, economic status). Site evaluations may be conducted to determine pre- and post-performance ultimately showing how long-term landscape behavior has been modified. The analysis will rely on a representative sample.

<u>Promotion of Stewardship:</u> Increased environmental awareness is a goal for this project because it will lead community members to feel a greater duty to conserve. To assess the progress of promoting stewardship and increasing community involvement the project will use surveys or other market research as measurement tools. As mentioned earlier, a list of conservation events, number of attendees at events, number of certified professionals at events, impact analysis, and site evaluations will be collected. The quantification of citizen participation will mark progress toward environmental stewardship.

<u>Diversify water supply:</u> Water supply diversification will be measured by pre-and post-retrofit water use records. Diversifying water supply will be achieved by reducing dependence on imported water supplies. Measuring pre- and post- retrofit water use will determine if average water use reductions are occurring. Water use reductions will lead to reduced dependence on imported water and will serve as an indicator for progress towards achieving water supply diversification.

<u>Improve water quality:</u> Poor water quality has been linked to increased runoff due to irrigation and from land development practices that result in compacted soil. This project will perform a recorded visual observations program to observe runoff flow and its conditions. Monitoring efforts will be compared to previous observations to estimate whether runoff has been reduced and water quality has been improved.

<u>Improve soil quality:</u> Increased soil health is correlated with increasing depth of topsoil. To monitor soil quality improvements the project will perform recorded visual observations and site evaluations to document soil measures. Monitoring increasing soil depth will provide measurements for improving soil quality.

<u>Reduce wet weather runoff</u>: First flush wet weather runoff has been known to contain high levels of pollutants due to dry weather build-up. The retention of the "first-flush" and the effective reduction of wet weather runoff will increase water quality. To quantify reduced wet weather runoff, a recorded visual observations program will be implemented. Measurement tools used to quantify the amount of rain/wet weather runoff will include rain barrels and other rain capture devices that will be implemented as a result of LID construction and maintenance processes.

Monitoring System

Pre- and post-water use data will be obtained from local water agencies and analyzed to determine the program's effectiveness. It is anticipated that the analysis will require the administration of surveys or another market research technique to determine satisfaction. Additionally, it is anticipated that multivariate regression analysis will control for and or identify the impact of project variables (i.e. weather, location, economic status). It is also anticipated that site evaluations may be conducted to determine pre- and post-performance. The analysis will rely on a representative sample.

The results of the regression and survey analysis will be compared to performance goals (see above) to determine effectiveness. The goals above are consistent with the IRWM Plan.

The project will incorporate elements of stormwater management. Reduced irrigation will result in less runoff and loading of pollutants. These elements will help the San Diego RWQCB and stormwater Copermittees achieve the TMDLs.

Table 6-1: Performance Measures Table Sustainable Landscapes Program

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Water Conservation	Reduce urban water consumption	Successful implementation of Regional Sustainable Landscapes Program	6.25 acres retrofitted (landscape); Over 25 Regional Sustainable Landscape program Events (Trainings, Workshops)	Change in behavioral norms so that water conservations is a priority and duty; Post retrofit/conversion water use reduction	Surveys or other market research; list of conservation events; number of attendees; number of certified professionals; impact analysis; site evaluations	Water savings of 180 AF over 10 years.
Water Conservation	Modification of long- term landscape behavior	Reduced landscape irrigation demand at participating sites	6.25 acres retrofitted (landscape)	Net difference between pre- and post-retrofit water use; Change in behavioral norms so that water conservation is a priority and a duty; change in customer choices (landscape equipment, landscape trained professionals, water efficient plants)	Customer pre- and post-retrofit water use records; survey; site evaluations	Average water use reduction of 30% for retrofit sites
Stakeholder Involvement	Promotion of Stewardship/ Increased Community Involvement	Increased conservation awareness/Greater duty to conserve	Over 25 Regional Sustainable Landscape Program Events (Trainings, Workshops)	Change in behavioral norms so that water conservation is a priority and duty	Surveys or other market research; list of conservation events; number of attendees; number of certified professionals; impact analysis; site evaluations	Water savings of 180 AF over 10 years.
Water Supply Diversification	Diversify Water Supply	Reduced dependence on imported water supplies	6.25 acres retrofitted (landscape)	Net difference between pre- and post-retrofit water use.	Customer pre- and post-retrofit water use records	Average water use reduction of 30% for retrofit sites



Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Water Quality Improvement	Improve Water Quality	Reduced runoff due to over-irrigation and from land development practices that result in compacted soil	participating sites with visible evidence of run-off	% reduction in dry weather runoff - retrofit areas	Recorded visual observations	% Reduction in observed dry weather runoff
Improved Soil Quality	Improved Soil Quality	Increased depth of healthy soil	Maximum of 6.25 acres of soil amended	Increase in presence of micorriza	Recorded visual observations; site evaluations	Increased presence of micorriza
Reduce Pollutant Loading	Reduce Wet Weather Runoff	Retention of "first flush"	Placement of rain barrels/implementatio n of LID features	Amount captured in rain barrels/retained as a result of LID features	Recorded visual observations	Water in rain barrels post rain event or other rain capture devices



Project 2: North San Diego County Regional Recycled Water Project

The North San Diego County Regional Recycled Water Project will provide for a comprehensive recycled water program by consolidating North San Diego recycled water projects to meet a regional need. The project provides a sustainable, reliable, water resource for North San Diego County. Below is a list of project goals that will need to be achieved for the successful implementation of the project. To ensure that project goals are on course monitoring programs for each project goal will be established.

Project Goals

<u>Develop and maintain a diverse mix of water resources:</u> Customer recycled water use records will provide data that will reveal recycled water use trends. Increasing water use will indicate a greater diversity in water resources since fresh water use is being reduced. Therefore, tracking recycled water use will monitor the development of a diverse mix of water resources.

Effectively reduce sources of pollutants and environmental stressors: The successful implementation of a regional recycled water system will reduce wastewater discharges into the ocean. Effective source pollution reduction will be monitored by NPDES discharge reports for discharges associated with North San Diego wastewater agencies within North San Diego recycled water agency boundaries. Reduced pollutant concentrations reported will be a measurement tool used to determine the progress of this project goal.

Monitoring System

Baseline will be 2015 or earlier and can include 1) recycled water user reports for agencies receiving the additional recycled water, and 2) reduced ocean discharge of wastewater for wastewater agencies within the boundaries of the water agencies receiving the recycled water.

The project and associated monitoring will be consistent with NPDES monitoring reports for the San Diego RWQCB, NPDES reports for recycled water facilities, and water agency use records.

SAN DIEGO Integrated Regional Water Management

Table 6-18: Performance Measures TableNorth San Diego County Regional Recycled Water

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Diverse Mix of Water Resources	Increase recycled water use	Successful implementation of regional recycled water system	# AF used amongst North San Diego agencies	Amount of recycled water used	Recycled water customer use records	Increase recycled water use by about 5,000 AFY by 2016
Reduce Sources of Pollutants and Environmental Stressors	Reduce ocean discharge of wastewater	Successful implementation of regional recycled water system reduces wastewater discharged to ocean	# gallons discharged to ocean	Amount of wastewater discharged	NPDES discharge reports for discharges associated with North San Diego wastewater agencies within North San Diego recycled water agency boundaries (adjusted for growth and other factors)	Reduce ocean discharge by about 5,000 AFY by 2016 (from current volumes)



Project 3: North San Diego County Cooperative Demineralization Project

This project aims to construct a demineralization facility to increase recycled water production, construct storm water diversion structures to divert pollutant sources, to provide a feasibility study and to provide water monitoring of water quantity and quality. To achieve these tasks, the project has identified four project goals. These goals will be monitored or assessed using measurement tools to track project completeness and progress.

Project Goals

<u>Provide water education and outreach</u>: The project will include a count of the number of public outreach events (environmental fairs, etc.) attended by project partners (with an emphasis on the local water issues driving this project), a count of the number of visitors to visitor centers that have project-specific exhibits, and a count of the number of residents on tours given by project partners that feature the water issues driving this project. This tally of citizen participation will successfully measure water education and outreach performance.

Increase recycled water production capacity: This project intends to increase recycled water production by construction a demineralization facility that will have the production capacity of 560 acre feet/year. The effectively measure if recycled water production has increased flow monitors will be put into place and observations will be performed. An account of the total reclaimed water flow-rate capacity (increased by 560 AFY) by the SEWRF after project construction and a completed study on the feasibility of constructing a brackish groundwater to potable water facility will be performed.

<u>Construct demineralization facility:</u> The measurement tool used to identify the progress of demineralization facility construction will be observations. Construction and planning can be identified and verified by visual observations.

<u>Construct diversion facilities/structures:</u> Construction of facilities/structures to divert high-TDS lowflow/first flush urban runoff from the San Elijo Lagoon will alleviate the impacts of environmental stressors. Currently, as part of its NPDES Permit, the SEJPA routinely monitors the flow rate and TDS (and other constituents) of its recycled water. A summary of constituents monitored and the average, minimum, and maximum values can be found in the demineralization facility preliminary design report. The San Elijo Lagoon Conservancy monitors various parameters in the San Elijo Lagoon on a regular basis in order to monitor the health of the San Elijo Lagoon. The bacteria count at the Seascape Sur HOA storm drain is monitored monthly and analyzed at the SEJPA laboratory. All monitoring efforts will continue after this project is completed. Diversion facilities and structures will reduce TDS concentrations. The continuation of monitoring will make certain that the objectives of this project goal are being reached.

Monitoring System

Baseline data for this project is routinely collected as part of general operations, NPDES permits, nongovernment organization efforts, or other means. The project partners have historically attended local environmental fairs to open a dialogue with the public about water issues. These historic efforts can be used as the baseline for stakeholder involvement. As part of its NPDES Permit, the SEJPA routinely monitors the flow rate and TDS (and other constituents) of its recycled water. A summary of constituents monitored and the average, minimum, and maximum values can be found in the demineralization facility preliminary design report. The San Elijo Lagoon Conservancy monitors various parameters in the San Elijo Lagoon on a regular basis in order to monitor the health of the San Elijo Lagoon. The bacteria count at the Seascape Sur HOA storm drain is monitored monthly and analyzed at the SEJPA laboratory. All monitoring efforts will continue after this project is completed.

The monitoring data collected as part of this project often directly correlates to meeting specific goals and objectives of the IRWM Plan using specific strategies outlined in the IRWM Plan. Monitoring data used to measure the performance of this project meeting Objective A of the IRWM Plan include a count of the number of public outreach events (environmental fairs, etc.) attended by project partners (with an emphasis on the local water issues driving this project) a count of the number of visitors to visitor centers that have project-specific exhibits, and a count of the number of residents on tours given by project partners that feature the water issues driving this project. Monitoring data used to measure the



performance of this project meeting Objective D of the IRWM Plan includes an account of the total reclaimed water flow rate capacity (increased by 560 AFY) by the SEWRF after project construction and a completed study on the feasibility of constructing a brackish groundwater to potable water facility. Monitoring data used to measure the performance of this project meeting Objective E include an account of the total reclaimed water flow rate capacity by the SEWRF after project construction and a completed study on the feasibility of constructing a brackish groundwater to potable water facility. Monitoring data used to measure the performance of this project meeting Objective E include an account of the total reclaimed water flow rate capacity by the SEWRF after project construction and a completed study on the feasibility of constructing a brackish groundwater to potable water facility. Monitoring data used to measure the performance of this project meeting Objective G of the IRWM Plan includes monitoring performed by the San Elijo Lagoon Conservancy and City of Solana Beach and an accounting of additional storm water diversion structures constructed as part of this project (two storm water diversion structures will be constructed as a part of this project, a third is made possible by this project and will be constructed by CALTRANS once the Manchester Avenue Exit is updated as part of the I-5 Widening Project).

A majority of the monitoring performed as a part of this project will be performed as part of an existing NPDES Permit using approved methods and with analysis performed by laboratories accredited to perform each analysis. As part of the NPDES Permit, monitoring is performed on a routine basis to ensure constituents released from facilities (or treated by facilities) do not exceed permit limitations (which are set by basin plan and ocean plan limitations). This project has been designed to help reduce TDS, Chlorides, Boron, Fluoride, Sulfate, Sodium, Iron, Manganese, and Nitrate in the recycled water that is distributed throughout the SEWRF's service area. These constituents are prescribed limits in the San Diego Basin Plan, and this project will help to reduce the loading rates of these constituents to the basin.

SAN DIEGO Integrated Regional Water Management

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Community Outreach	Provide water education and outreach to over 43,000 residents of North San Diego County.	Reach over 43,000 Residents with water education and outreach, including in regions served by disadvantaged communities.	* # students through SEWRF tours. * # environmental fairs attended by project sponsors. * # participants through Elfin Forest Recreational Reserve, where project exhibited	* Public Awareness of the water issues facing our region	* Public surveys and questionnaires	Conduct water management outreach and solicit input from regions population, including underserved and disadvantaged communities.
Diverse Mix of Water Resources	*To increase recycled water production capacity by 560 AFY. *To explore the feasibility of expanding brackish groundwater to potable water production by 1120 AFY.	*Construct an operable 560 AFY demineralization facility at the SEWRF. *Complete a feasibility study for a brackish to potable water desalination facility.	*Maximum recycled water production from SEWRF. *Completed Feasibility Study.	Amount of reclaimed water production capacity (AFY) increase at SEWRF.	*Flow Meters *Observations	*Increase recycled water production capacity by 560 AFY. *Planning for an increase in brackish groundwater to potable water production capacity by 1120 AFY
Construct Reliable Infrastructure	To construct and plan for the construction of infrastructure that increases local water supplies.	*Construct and operable 560 AFY demineralization facilities at the SEWRF. *Complete a feasibility study for a brackish to potable water desalination facility.	*Construction Notice of Completion *Completed Feasibility Study	Construction and Planning Milestones Completed	Observations	*Develop facilities and manage supplies to ensure adequate emergency and carry- over deliveries. *Develop the infrastructure needed to support recycled water
Manage Impacts to San Elijo Lagoon and Pacific Ocean	To construct facilities to divert high-TDS low-flow and/or first flush urban runoff from the San Elijo Lagoon and the Pacific Ocean to the SEWRF for treatment.	*Construct diversion structures at Seascape Sur HOA in Solana Beach and the regional storm drain channel at the SEWRF to divert pollution sources from the San Elijo Lagoon and the Pacific Ocean to the SEWRF for treatment.	*Construction Completion*Diversion Structures Operable	*Water Quality studies in the SE Lagoon*Monthly storm water sampling.*Constructio n Milestones Completed	Sample/Data Collection and Laboratory Analysis	*Reduce Mass Emissions of pollutants in receiving waters. *Number of storm water diversion structures implemented.

Table 6-20: Performance Measures Table North San Diego County Cooperative Demineralization Project



Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The goal of the *Rural DAC Partnership Project* is to 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. Project goals and monitoring programs created to measure their progress are listed below:

Project Goals

<u>Provide outreach and funding to DACs</u>: Outreach and funding will be used to fund capacity development and sustainability projects. The California Department of Public will perform a technical, managerial, and financial (TMF) capacity assessment of public water systems. The TMF capacity assessment will have a list of elements that will need to be addressed; one element specific to this project goal will be the 'source capacity assessment and evaluation'. This element requires each community water system to evaluate its anticipated growth and water demand and to compare this with its existing source capacity and ability to deliver water. The comparison will help a water system anticipate needed changes or additions to their sources in order to allow them to plan accordingly.

The TMF capacity assessment will indicate if there has been capacity development. The evaluation will also reveal water system issues and needs that can be mitigated by sustainability efforts. The TMF capacity assessment, in practice, will be the measurement of progress since the assessment cannot be performed without funding to the DACs. The initiation of the capacity assessment is therefore, the indicator of successful outreach and funding to DACs.

<u>Incorporate efficient use of water supplies and energy resources into DAC projects</u>: Efficient use of finite water supplies and energy resources will be incorporated into DAC projects when appropriate and affordable. To measure the performance of this project goal, water and energy audits will be performed on approved DAC projects. By implementing these audits, the incorporation of efficient use of water supplies and energy resources will be monitored and trends can be observed to determine if project goals are being met.

Implement projects that will solve DAC critical water system issues (water infrastructure): Selection of DAC projects for funding will be decided by stakeholder/ community decision makers with additional educational meetings to inform citizens of the importance of environmental stewardship emphasizing conservation, renewable energy, and utility efficiency. Measurements that will indicate that projects are implemented and will solve DAC critical water system issues include the successful completion of the project and verbal conversations, written conversations or written correspondence with regulators. Recorded communications will signify DAC critical water infrastructure project implementation.

<u>Address public health risks (water infrastructure):</u> Inadequate water supply to support existing communities is a public health risk. The project will reduce potential for high public health risks in water and/or wastewater systems by providing funding to address these concerns. To effectively measure if these health risks are being addressed, the project proposes to verify the successful completion of the project and system compliance with state and local regulations as indicators. The completion of a public health risk project and its conformance to state and local regulations reduces public health risks regarding water infrastructure.

Implement projects that will solve critical wastewater system issues (reduce sources of pollutants and environments stressors): The same measurement methods used for the Implement projects that will solve DAC critical water system issues (water infrastructure) project goal will be applied for this project goal. Measurements that will show that pollutant source related issues are being solved include the successful completion of the project and verbal conversations, written conversations or written correspondence with regulators. Recorded communications will signify whether DAC wastewater systems projects concerning source pollutants are being implemented.

<u>Address public health risks (reduce sources of pollutants and environments stressors)</u>: The same measurement methods used for the Address public health risks (water infrastructure) project goal will be applied for this project goal. To effectively measure if source pollutant related health risks are being



addressed, the project proposes to verify the successful completion of the project and system compliance with state and local regulations as performance indicators.

Monitoring System

Projects will be solicited from rural DACs and assessed based on the following factors: 1) public health risks, 2) environmental justice, 3) multiple benefits, 4) affordability and sustainability, 5) incorporation of green technologies. Projects selected will have specific outcomes that solve a water or wastewater quantity or quality problem. Community needs data will be collected at the time of project selection. Output indicator data will be requested from each selected community. Upon completion of the project, outcome indicators will be assessed. Communities will be evaluated for future needs and resources provided.



Table 6-14: Performance Measures TableRural DAC Partnership Project

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Maximize Stakeholder Involvement and Stewardship	Provide outreach and funding to DACs, including tribal communities, to achieve capacity development and sustainability	Bring DACs education and money to increase system capacity	*Increased compliance with regulations *Conduct site visits to determine capacity change *Complete TMF capacity assessments to determine initial and change due to project *Increased expertise at system level	*Increased TMF capacity score *Successful project completion	*CDPH (UCDavis) TMF capacity assessment for water systems	*Increased technical capacity score for water system *Records kept for future DAC needs *DAC in compliance with regulations
Maximize Stakeholder Involvement and Stewardship	Incorporate efficient use of water supplies and energy resources into DAC projects when appropriate and affordable	DAC adopts water and energy use efficiency programs	*Reduction in water use *Reduction in energy use	*Reduction in water use *Reduction in energy use	*Water audit *Energy audit	
Construct and Maintain a Reliable Water Infrastructure	Implement projects that will solve DAC critical water system issue	Reduce public health risk	*In compliance with state and local regulations	*In compliance with state and local regulations	*Successful completion of project *Verbal conversations and written correspondence with regulators	*Develop facilities to ensure adequate supply * DAC in compliance with regulations
Construct and Maintain a Reliable Water Infrastructure	Address public health risks found in DACs providing water and/or wastewater services	Remove or reduce of public health risk(s)	*In compliance with state and local regulations	*In compliance with state and local regulations	*Successful completion of project *System in compliance with state and local regulations	*DAC in compliance with state and local regulations
Reduce Sources of Pollutants and Environmental Stressors	Implement projects that will solve DAC critical wastewater system issue	Reduce public health risk	*In compliance with state and local regulations	*In compliance with state and local regulations	*Successful completion of project *Verbal conversations and written correspondence with regulators	*DAC in compliance with state and local regulations
Reduce Sources of Pollutants and Environmental Stressors	Address public health risks found in DACs providing wastewater service	Remove or reduce of public health risk(s)	*In compliance with state and local regulations	*In compliance with state and local regulations	*Successful completion of project *System in compliance with state and local regulations	*Reduction in number and volume of sewer spills *DAC is in compliance with regulations.



Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The Lake Hodges Water Quality and Quagga Mitigation Measures will evaluate available methods to improve water quality within Lake Hodges and prioritize implementation of those methods. Project benefits include decreased reliance on imported water supplies, greater technical knowledge, stakeholder involvement and prioritization of methods to improve Lake Hodges water quality. To ensure that these benefits are fully achieved, project goals are established and measured for progress. Below is a description of the performance measures that will be used to quantify and verify project performance:

Project Goals

<u>Coordinate Efforts to improve water quality in Lake Hodges:</u> Coordinating efforts will created increased stakeholder involvement benefits and water quality improvement benefits. To measure coordination of efforts, stakeholder meetings with periodic comparison of project tasks will be counted. Increased stakeholder meetings will show that coordination efforts to improve water quality in Lake Hodges are increasing.

<u>Make Technical Information available:</u> Greater availability of technical information will give this project an opportunity to share its methods with other agencies to improve water quality and infrastructure conditions. Technical information availability can be tracked by counting the number of e-mails or other direct communications that distribute technical information.

<u>Decrease reliance on imported water supplies:</u> Decreasing reliance on imported water supplies will be achieved through infrastructure maintenance. The project will utilize a SCADA system output or spreadsheets to quantify reliance on imported water supplies.

<u>Protect regional water treatment infrastructure</u>: The project will assess the number of days the delivery system is shut down due to poor water quality in order to quantify the value of protecting this regional water treatment infrastructure.

<u>Produce a plan to decrease levels of pollutants in Lake Hodges:</u> A detailed project schedule will verify that a plan is being produced to decrease levels of pollutants in the lake. As tasks are complete from the schedule, it will serve as an indicator of plan production and plan implementation.

<u>Control Quagga Mussel Population:</u> Quagga mussels populations reside in the Lake Hodges Pumped Storage (LHPS) facility. High levels of quagga mussels have been associated with LHPS facility shutdown. This project goal will be implemented to maintain the facility's ability to operate. To verify that quagga mussel populations are, in fact, being control, assessments of shutdown schedule and the frequency of shutdown will reflect whether mussel populations have increased or decrease.

Monitoring System

Monitoring data can be tied to objectives cited in the IRWM plan, but they are separate from the designated targets for achieving objectives and parameters for measuring success. Those targets and parameters that will be affected by the progress of this project include: (1) developing facilities and managing supplies for adequate emergency and carry-over deliveries, (2) implement TMDLs according to established schedules, (3) avoid or reduce need for TMDLs, and (4) develop comprehensive source management strategies.

This project deals with water bodies and facilities in the San Dieguito Hydrologic Unit. This project addresses components of the Regional Board Water Quality Management policies #3 and #5 as listed in chapter one the San Diego Basin Plan (Basin Plan). It also addresses water quality objectives shown in chapter three of the Basin Plan.

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Table 6-10: Performance Measures TableLake Hodges Water Quality and Quagga Mitigation Measures

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Stakeholder Involvement	Coordinate efforts to improve water quality in Lake Hodges	Multiple project efforts are coordinated and not duplicated	List of specific water quality improvement measures to be made or explored	Non-duplicative scope of work/task schedule	Stakeholder meetings with periodic comparison of project tasks	A list of water quality improvement projects including responsible party
Technical Information Availability	Make technical information available to agencies who may be considering similar applications	Area water agencies have access to updated product evaluation or control measures evaluated by SDCWA	# of sites where notice of info availability can be posted	# of agencies requesting data	E-mail or other direct communications	All requesting agencies receive data
Source Water Diversification	Decrease reliance on imported water supplies through infrastructure maintenance	Maintain ability to move water in/out of Lake Hodges	AFY available for movement in/out of reservoir	AFY requested but not moved	SCADA system output or spreadsheets	All water requested is moved
Infrastructure Reliability	Protect regional water treatment infrastructure by making plans to improve Lake Hodges water quality	Prioritized list of water quality improvement projects	# of water agencies treating Lake Hodges water	Avoidance of added water treatment costs due to degraded water quality from Lake Hodges	# of days delivery system shut down due to poor water quality	Minimal delivery system shut-downs
Pollutant Reduction	Produce a plan to decrease levels of pollutants in Lake Hodges that contribute to its 303(d) listed water body status	Plan produced	Detailed project schedule	Completed tasks from schedule	project schedule	Generate priority list with expected reductions in pollutant levels
Infrastructure Reliability/ Environmental Stressors	Control quagga mussel population in Lake Hodges Pumped Storage (LHPS) facility and evaluate the ability to reduce numbers of viable quagga mussels in connected reservoirs	Maintain ability to operated the LHPS facility	# of hours facility available for operation	# of hours/days facility shut down exclusively for quagga removal	spreadsheet/shutdow n schedule	No facility shutdowns exclusively for quagga removal



Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project aims to establish nutrient water quality objectives (WQOs) for the Santa Margarita River estuary (Phase I) and ultimately watershed (Phase II) that will lead to the implementation of nutrient reduction and water conservation practices in the watershed. The project seeks to incorporate stakeholder groups and community members in WQOs decision making. Development of nutrient WQOs for SMR watershed is an important goal of this project. To make certain that the right steps are being made toward successful nutrient management, project goal progresses are tracked by monitoring and assessment protocols. Below is a list of project goals followed by their progress tracking method:

Project Goals

<u>Increase stakeholder involvement and stewardship</u>: Stakeholder involvement is central to the goals of the project. The measurement tools used to assess this project goal will include the totaling of the number of stakeholder meetings and the degree of diversity of the list of stakeholders. Increased meetings will indicate greater participation opportunities for WQOs planning and increased diversity will show that a larger mix of population is being reached for a more widely accepted WQOs planning process.

<u>Further the scientific and technical foundation of water quality management</u>: The project will utilize and expand the existing watershed-wide hydrology and water quality database furthering the scientific and technical foundation of water quality management. To track the progress of this project goal the same measures as described above will be used. Improving the technical foundation of water management will including demonstrating an innovative approach to establish nutrient WQOs by using open source models and making presentation to stakeholders. Consequently, the method of counting stakeholder meetings and determining the diversification of stakeholders will be a marker for the progress of this project goal.

<u>Develop and maintain a diverse mix of water resources:</u> Through development and adoption of a Basin Plan Amendment that incorporates the Site Specific WQOs for nutrients to Santa Margarita River and watershed, local water purveyors may be allowed to deliver recycled water to augment river flows. This shift from MWD imported water supplies to recycled water supplies allows for use of a more diverse mix of water resources during river management. Use of the proposed WQOs (from Phase II) in San Diego RWQCB's staff report for consideration of a Basin Plan Amendment would indicate project success.

<u>Protect and maintain habitat and open space:</u> This project will develop nutrient WQOs that will help reduce sources of pollutants and will help protect and maintain habitat and open space. To quantify the amount of habitat and open space preserved, a monitoring and special studies report will be compiled. The report will include the percentage of habitat coverage of the study area.

Monitoring System

The State Water Quality Control Board's Surface Water Ambient Monitoring Plan protocols will be used to conduct field studies. Modeling efforts will use open source codes and collaborate with the Stakeholder Advisory Group which will include staff from the San Diego Regional Water Quality Control Board. Monitoring will allow project proponents to determine the progress of the protection and maintenance of habitat and open space.

Development of site-specific water quality objectives will aid in the development of TMDLs for nutrients in the Santa Margarita Watershed. Development of the nutrient TMDLs will provide targets for the reduction of nutrients to the watershed. These targets may requires implementation of source control or other best management practices to reduce nutrients in the river and estuary to protect beneficial uses.

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Table 6-8: Performance Measures Table Implementing Nutrient Management in the Santa Margarita River Watershed

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Stakeholder Involvement	Increase stakeholder involvement and stewardship	Achieve consensus on recommending water quality objectives for nutrients in the Santa Margarita Estuary	* List of Stakeholders *Stakeholder meeting notes and No. of attendees	* Increase in general knowledge of the effects of nutrients in Santa Margarita Lagoon	 * # of stakeholder meetings * Diversity of the list of stakeholders 	Broad acceptance by stakeholders of the proposed WQOs.
scientific and Technical Foundation of Water Quality Management	Further the scientific and technical foundation of water quality management	Demonstrate an innovative approach to establishing nutrient WQOs by using open source models, publishing results in peer- reviewed scientific literature, and making presentations to stakeholders, thus improving the technical foundation of water management.	* List of Stakeholders *Stakeholder meeting notes and No. of attendees	Successful completion of Modeling Report	* # of stakeholder meetings * Diversity of the list of stakeholders	RWQCB Consideration of a Basin Plan Amendment for a Site Specific WQO for nutrients to Santa Margarita Lagoon
Diverse Mix of Water Resources	Develop and maintain a diverse mix of water resources	WQOs for the Santa Margarita River will be developed to protect beneficial uses and possibly allow delivery of recycled water to river.	Collaboration with RWQCB staff on WQOs and Basin Plan Amendment	Use of proposed WQOs in San Diego RWQCB's staff report for consideration of a Basin Plan Amendment	* Use of proposed WQOs in San Diego RWQCB's staff report	*Adoption of Basin Plan Amendment allowing delivery of recycled water to augment river flows
Protect and Maintain Habitat and Open Space	Protect and maintain habitat and open space	Improve understanding of nutrient processes in SMR River watershed to protect beneficial uses.	# of sites sampled	% sample coverage of study area	Monitoring & Special Studies Report	Use results of these studies to in Phase II develop a site- specific nutrient WQOs for Santa Margarita River



Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed *Protection* project is intended to reduce the pollutant load and volume of runoff entering the storm drain system in the Tecolote Creek watershed. To ensure that the project meets intended goals, assessments or monitoring programs will be implemented to document progress. Below is a description of each project goal and their corresponding monitoring efforts:

Project Goals

<u>Increase community awareness of storm water pollution prevention</u>: To monitor the successfulness of community awareness programs the project will coordinate public survey and questionnaire dispersals to measure awareness level.

<u>Increase landscape irrigation efficiency:</u> Pre-construction monitoring, sampling and analysis and postconstruction monitoring, sampling and analysis will be performed to quantify total pollutant load reductions. The data collected for these monitoring efforts will determine if landscape irrigation efficiencies have been achieved which will lead to reduced volume runoff (one of the project goals).

<u>Mitigate impacts of hydro-modification:</u> Storm water flows have been known to increase due to hydromodification (urbanization and the installation of large impervious pavement areas) transporting concentrations of contaminants. To reduce runoff inundation into storm drain systems (which drain into Mission Bay), the project will increase infiltration opportunities on impervious surfaces. To monitoring decreases in runoff, this project will employ flow monitors to measure storm water flows. The measureable target for this objective is to reduce flow measured as seen from post-construction compared to pre-construction conditions.

<u>Reduce indicator bacteria and other pollutants:</u> The water quality monitoring effort, as mentioned above, will employ automated samplers and flow meters to collect flow-weighted composite samples throughout entire storm events from each of the monitoring locations. Grab samples will be collected during peak discharge for microbiological analyses. To effectively estimate the reduction (or change) in analyte concentrations, the quantity and quality of runoff entering the BMPs will be compared to the quantity and quality of water discharged from the BMPs and/or preconstruction sampling and monitoring data at the same locations. This data will allow a direct estimate of the total reduction in mass loadings and removal rates for a variety of contaminants. Water Quality monitoring will include both dry weather and wet weather monitoring components to include a complete range of data from which to measure performance.

Improve water quality in Mission Bay thereby improving recreational opportunities such as swimming: The Tecolote Creek watershed drains into Mission Bay which provides many recreational and aesthetic benefits. By implementing this project, excessive bacteria loading from urban runoff entering Mission Bay will be reduced. Reducing runoff due to over-irrigation will be monitored by water quality sampling and analysis. Automated samplers and flow meters will collect flow-weighted composite samples during storm events. Runoff quantity will be measured which will allow for the direct estimate of total reduction of runoff volume.

Monitoring System

Data for the effectiveness assessment will be gathered from sampling and analysis from preconstruction (baseline) and post construction water quality monitoring which will be collected at the locations of at least three and storm water curb inlets of where the storm water filtration units ate to be located at the site. In addition to the influent and effluent of the storm drain pipeline to be bypassed for the future inline bacterial treatment system (BTS) and hydrodynamic separator. At least 8 storm events should be sampled at each monitoring location during the wet season (October through May). For the first two storm events, an operational assessment of the BMPs will be conducted to ensure that the BMPs and the monitoring equipment are functioning properly. Field crews will observe and document any operational issues at the filtration units, and bacterial treatment system basin. Flow rates will be measured during these first two events; however, water quality samples will not be collected until it can be verified by on-site field crews that all equipment is operating properly.

The water quality monitoring effort will employ automated samplers and flow meters to collect flowweighted composite samples throughout entire storm events from each of the monitoring locations. Grab samples will be collected during peak discharge for microbiological analyses. To effectively estimate the reduction (or change) in analyte concentrations, the quantity and quality of runoff entering the BMPs will be compared to the quantity and quality of water discharged from the BMPs and/or preconstruction sampling and monitoring data at the same locations. This data will allow a direct estimate of the total reduction in mass loadings and removal rates for a variety of contaminants.

Constituents selected for this Effectiveness Assessment study to be constructed for these BMP are prioritized into Tier 1 and Tier 2 categories. Tier 1 constituents are considered a priority for water quality monitoring in this study because they are; 1) consistent with other BMP monitoring guidance to address street runoff such as the Caltrans Guidance Manual: Storm Water Monitoring Protocols (Caltrans, July 2000); 2) specifically identified as constituents of concern in the Tecolote Creek watersheds and/or subject to a TMDL; or 3) consistent with other City monitoring efforts currently underway in the watershed, such as the San Diego Bay Watershed Urban Runoff Management Program, and the Chollas Creek Storm Drain Characterization Study. Tier 2 constituents may also have been identified as pollutants of concern in the subject watersheds; however, adding these constituents may need to be considered in light of the available budget for sampling and analyses. Evaluation of pollutant removal effectiveness of Tier 2 constituents may also be of interest if implementation of these BMPs is being considered in other watersheds with specific water quality concerns.

Estimates of the number of samples required to yield statistically valid monitoring results are necessary for making decisions about the nature and extent of monitoring efforts. For this study, the appropriate number of samples is the number required to discern a significant difference between the influent and effluent. The sample size will depend on the specified mean percent constituent removal rate desired. Because of the variability of rainfall and runoff quality, it is necessary to sample a number of storms to generate statistically reliable answers to the study questions. The number of samples needed depends upon the variability in the data, the magnitude of the effect being studied, and the degree of confidence desired in the answer.

These BMPs would not be implemented if they did not remove a significant fraction of the constituent of concern. The most commonly used confidence level in scientific studies is 95 percent. However, due to the high variability in storm water data, use of a 95 percent confidence level results in an impractical number of samples, or masks the effectiveness of BMPs known to remove pollutants. For this reason, a 90 percent confidence level is appropriate for BMP pilot studies and is the confidence level chosen for this study. The statistical procedure used to estimate the number of samples required is described in the Caltrans BMP Pilot Study Guidance Manual.

Storm selection criteria described for this effectiveness assessment studies will likely entail a minimum 0.25 inch of rainfall and 72 hour antecedent dry period, an average of 8 storms per year can be expected. A minimum of 8 samples are required. Consideration must also be given to the number of unproductive monitoring events that are likely to occur. Rainfall may not happen as predicted, or may be of insufficient quantity (i.e., a "false start").

Samples can also be missed due to problems with autosamplers. When planning a study, it is reasonable to assume that one out of four sampling events will be unsuccessful. In addition an operational assessment of the BMPs will be conducted during the first two storm events to ensure that the BMPs and the monitoring equipment are functioning properly. Field crews will observe and document any operational issues at the filtration units and the bioretention cells. Flows will be measured during these first two events; however, water quality samples will not be collected until it can be verified by on-site field crews that all equipment is operating properly. Therefore, considering two storm events for the operational assessment and assuming two unproductive sampling events for the required minimum 8 storms, the anticipated duration of the study would be a total of 12 storm events. Therefore it is anticipated that the study period will be 2 years.

The data collected from the preconstruction baseline water quality monitoring and the post construction water quality and performance monitoring will be used to measure the effectiveness of the installed BMP in reducing peak storm flows for the 85th percentile storm and the effectiveness in reducing pollutant loads of bacteria, metals, trash and other pollutants sources from urban runoff. A study will be completed

to assess and compare the effectives of using these methods for both the design and the selection of the low impact development infrastructure and physical BMP's selected in comparison to other LID/BMP approaches to source control and pollutant removal. An estimate will be made as to the total peak flow and pollutant load reduction that can be expected on a annual basis and for the lifecycle of the improvements and figures extrapolated and projected assess their effectiveness in addressing the objectives and goals for the Tecolote Creek Watershed and Mission Bay for this project in particular and this type of project throughout the watershed.

The sampling and analysis under this project will be consistent with the objectives of Chapter 6 (Surveillance, Monitoring and Assessment) of the San Diego Regional Basin Plan. The sample protocols will be adopted from the SWAMP protocols, analytes, detection limits and sample collection methodologies. The list constituents of concern in urban discharges include outlines in that chapter, namely: total and fecal coliform, enterococcus, total suspended solids, biochemical oxygen demand, chemical oxygen demand, total organic carbon, oil and grease, heavy metals, nutrients, base/neutral and acid extractables, pesticides, herbicides, petroleum hydrocarbon products, and/or those causing extremely high or low pH, will be included in the list of analytes to be included in the preconstruction baseline monitoring and the post construction effectiveness assessment monitoring. Water Quality monitoring will include both dry weather and wet weather monitoring components to include a complete range of data from which to measure performance.



Table 6-6: Performance Measures Table Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Community Involvement and Stewardship	Increase community awareness of storm water pollution prevention	Successful implementation of storm water pollution prevention outreach campaign	 * # Community project meetings and education sessions * # water storm water pollution events (workshops, fair exhibits, etc) conducted 	* Change in attitude about storm water pollution and urban runoff	* Public surveys and questionnaires * List of pollution prevention events	Increased awareness of the infiltration project, storm water runoff and storm water pollution impacts to Tecolote Creek.
Effectiveness Assessment	Increase landscape irrigation efficiency	Data and information of the effectiveness of the infiltration project design in removing pollutants.	Infiltration project output (storm water runoff flow) and total pollutant load.	Reduced storm water runoff flows and reduced pollutant loads	Pre- construction (background) monitoring, sampling and analysis and post-construction monitoring sampling and analysis	Total pollutant loads reduction.
Reduction in Storm Water Flows	Mitigate impacts of hydromofification	Reduction in storm water flows for 85th percentile storm.	Total storm water flow from project drainage area into Tecolote Creek.	Reduced storm water flow from the 85th percentile storm.	storm water flow measurements.	Reduced flow measured as seen from post construction measurements as compared to preconstruction conditions.
Reduces Sources of Pollutants	Reduce indicator bacteria and other pollutants.	Achieve a 95% or greater efficiency of the 85th percentile storm (SUSUMP) event	Sampling and analysis of storm water out flows from Bacteria Treatment Systems (BTS)	Bacteria counts in samples retrieved before and after the implementation of the system (BTS).	Water quality sampling and analysis.	>90% reduction in indicator bacteria from BTS effluent.
Water Quality Improvements	Improve water quality in Mission Bay thereby improving recreational opportunities.	Reduced runoff due to over-irrigation	Infiltration project output (storm water runoff flow) and total pollutant load.	Reduced beach posting. Improvement in wet weather (post storm) sampling results.	Water quality sampling and analysis. Reduced beach post notifications.	Reduced bacteria in samples taken in wet weather.



Project 8: Pilot Concrete Channel Infiltration Project

The *Pilot Concrete Channel Infiltration Project* will convert a portion of the concrete channel in Woodglen Vista Creek (and other channels as budget/logistics permit) to a more porous base, facilitating infiltration of dry weather flows without compromising flood control capacity. The goals of this project (below) will each incorporate monitoring or assessment efforts to effectively monitor project performance.

Project Goals

<u>Increased awareness of MS4:</u> Increased awareness will be tracked by reviewing complaint logs and dry weather monitoring reports. By quantifying the number of inquiries about the project and the reduction of exceedances this project goal's performance will be evaluated. The comparison of previous inquiry and exceedance numbers will provide verification for awareness progress.

<u>Share Data:</u> Data will be collected throughout the projects lifespan will be incorporated into relevant jurisdictional, watershed, and regional urban runoff management plans. This information will be publically available so that the value of the project can be assessed and the idea implemented elsewhere. Measuring the progress of shared data can be determined by counting references in urban runoff management plans to determine to what level collaborations are being made.

<u>Develop new type of BMP to attain water quality objectives:</u> Construction tasks for this project will include mobilization and site preparation, project construction, and performance testing and demobilization. All three construction tasks will require upkeep of stormwater BMPs to attain water quality objectives. BMPs will be introduced to construction personnel since they will be implementing and monitoring BMP activities onsite. To measure the development of new types of BMPs, the project will count the number of presentations where new techniques were proposed. Increasing presentation counts will signify increases in new type of BMPs. BMPs help mitigate storm water runoff pollutants and the addition of new and effective BMPs will help the project move toward water quality objective attainment.

<u>Reduce dry weather flows</u>: Facilitating infiltration of dry weather flows will reduce the discharge of pollutants to receiving waters effectively increasing water quality. To track reductions in dry weather flows visual observation programs will be implemented. Visual observations will include flow volume evaluations and reduction in flow across the strip will be documented. Flow will be assessed by upgradient and down-gradient of strips.

<u>Reduce pollutants in dry weather flow:</u> Dry weather discharges contain pollutants. One objective of this project is to reduce pollutant loads. Field screening and laboratory analysis will be performed to monitor pollutant loads to reveal any reductions. The screening and analysis will use a baseline as established by previous dry weather monitoring that was collected to comply with the municipal permit. Data collated should also include: flow, nitrate, phosphate, temperature, conductivity, turbidity (all field screening data); and bacteria (fecal coli form and Enterococci (laboratory analysis)). Additionally, flow data from upgradient and where available, down-gradient, will be used to assess any reduction in pollutant loads.

<u>Promote infiltration</u>: The primary objective is to infiltrate dry weather flows. Reduction in flow will be the primary performance measure (see "reduce pollutants in dry weather flows" for monitoring methods).

<u>Maintain flood control capacity</u>: This project eliminates some of the disadvantages associated with a concrete channel through infiltration without losing the flood control benefits of the channel. Infiltration will reduce the volume of flows from the concrete channel but flow will continue and it is anticipated that no flooding will occur. To ensure that flood control capacity of the channel is maintained, visual observations during rain will be performed. The channel will be measured for effective functionality as a flood control device.

Monitoring System

Dry weather monitoring will be collected to comply with the municipal permit. Data collected should include: flow, nitrate, phosphate, temperature, conductivity, turbidity (all field screening data); and bacteria (fecal coliform and Enterococci (laboratory analysis). Post-construction data will be sampled and analyzed according to a project-specific QAPPP that will be developed. Flow will be assessed upgradient and downgradient of strips. Samples will occassionally be collected upgradient and downgradient of the

strips and analyzed for nitrate; phosphate; temperature; conductivity; and turbidity (all field-screening data) and fecal coliform and Enterococci (laboratory analysis).

The primary objective is to infiltrate dry weather flows. Reduction in flow will be the primary performance measure. Data up-gradient and where available, down-gradient, will be used to assess any reduction in pollutant loads.

The QAPPP and sampling will be conducted in accordance with SWAMP. The objective of the project is to facilitate infiltration of dry weather flows from the storm drain system, avoiding the discharge of pollutants to receiving waters, facilitating the attainment of water quality objectives.

Table 6-4: Performance Measures Table Pilot Concrete Channel Infiltration Project

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Community Involvement	Increased awareness of MS4.	Reduced discharges	# of inquiries about project.	Reduction in # of exceedences.	Review of complaint log and dry weather monitoring report.	Reduction of exceedences.
Data Management	Share data.	Incorporate into WURMP report.	Inclusion in report, # of WURMP meetings when project discussed.	Yes/No	Yes/No	Enabling other program managers to access data.
Scientific and Technical Advances	Develop new type of BMP to attain water quality objectives.	Deployment in other areas.	<pre>#presentations and #projects where technique was proposed.</pre>	<pre>#presentations and #projects where technique was proposed.</pre>	<pre>#presentations and #projects where technique was proposed.</pre>	Introduction in other jurisdictions.
Promote Infiltration	Reduce dry weather flows.	Elimination of dry weather flows.	Change in flow.	Change in flow at each strip location.	Visual observations	Reduction in dry weather runoff.
Reduce Pollutants	Reduce pollutants in dry weather flow.	Measure reduction in pollutants.	Change levels of nutrients and bacteria.	Change in nutrient and bacteria levels at each strip location.	Field screening / laboratory analysis.	Reduction in nutrient concentrations and fecal coli form/ <i>Enterococci</i> counts.
Supplement Groundwater	Promote infiltration.	Eliminate flows.	Change in flow over strip.	Change in flow at each strip location.	Visual observations	Reduction in flows across strip.
Maintain Flood Control Capacity of Channel	Maintain flood control capacity.	Channel performs during rain events.	No flooding occurs.	Observe flow in channel when full.	Visual observations during rain.	Channel continues to function effectively as a flood control device.



Project 9: San Diego Regional Water Quality Assessment and Outreach Project

The San Diego Regional Water Quality Assessment and Outreach Project addresses the growing information and involvement gap between water agencies and the community. The project will close this gap by promoting volunteer monitoring that uses accepted monitoring and analytical methodologies, increasing public awareness and understanding of water quality data. Project goal monitoring (described below) will provide performance measures that will be used to quantify and verify project performance.

Project Goals

<u>Assess water quality using volunteers:</u> Bi-monthly water quality data access, analysis and interpretation workshops for community groups will be provided to properly train volunteers; greater attendance will equate to greater water quality assessment efforts. The project will conduct monthly volunteer water quality monitoring to develop a baseline for water quality in the county. Two years of volunteer monitoring results will provide valuable water quality data for assessment and trend monitoring.

<u>Share Data:</u> This project intends to take collected data and incorporate it into two web-based, publiclyaccessible data portals. This distribution of data allows for effective management and assessment of water resources data and information by collecting and generating high quality data that is SWAMP compatible and sending that data to the state. To show that data is being shared and this project goal is being met, analytical methods and measurement quality objectives that are included in the project Quality Assurance Project Plan (QAPP) will be confirmed. The sample collection, analyses, target reporting limits, measurement quality objectives and quality control for this project are documented in a Quality Assurance Project Plan (QAPP) that has been approved by the San Diego Regional Water Quality Control Board.

<u>Develop outreach materials</u>: Outreach materials inform the public and address non-point source pollution. Outreach materials can include pamphlets, flyers or even Watershed Reports. To ensure that this project goal is being met the following measurement methods will be utilized: collecting sign-in sheets for monthly monitoring events and bi-monthly water monitoring training events, tallying the number of visitors on the project website (www.sdwatersheds.org) and counting the number of Watershed Reports distributed at outreach and education events. These monitoring methods will gauge how well outreach materials are distributed.

<u>Establish regional water monitoring training and resource center:</u> This project goal will help solidify and continue existing efforts by San Diego CoastKeeper to education and engage community members on water quality issues and to monitor water quality in local watershed. The successful performance of this project goal will be monitored by quantifying the number of people trained every month and the number of people who return for additional trainings and volunteer opportunities.

<u>Reduce amount of gross pollutants in local waterways:</u> The removal of gross pollutants that negatively impact watershed health is a major project goal. The total amount of gross pollutants at sampling sites observed will establish a baseline. The total amount of gross pollutants observed at sampling site thereafter will be used as assessment data to estimate whether a reduction in gross pollutants have occurred.

Gross pollutant activities such as the SWAMP approved Rapid Trash Assessment and the I Love a Clean San Diego standard volunteer protocol will serve as a measurement tool in verifying that there has been a reduction in the amount of gross pollutants in local waterways.

Monitoring System

Coastkeeper will collect 28 to 33 samples per month in nine of eleven watersheds in the county to better characterize water quality that impacts coastal waters. Monitoring sites will be inland creeks and rivers and will include testing for chemical, nutrient, bacterial and toxicty constituents of water quality. Samples will also be anlayzed for dissolved metals by a contract laboratory. Bio-assessment of river and creek health will also be performed by contract services. The results will be used to augment existing monitoring of county's creeks and rivers (receiving waters) by the stormwater programs, adding to the baseline of data for those locations.

The monitoring data will be directly applicable to attaining several IRWM Plan objectives A) Maximize stakeholder/community involvement and stewardship by training volunteers to become watershed stewards; B) Effectively obtain, manage, and assess water resources data and information by collecting and generating high quality data that is SWAMP compatible and sending that data to the state; C) Further scientific and technical foundation of water quality management by increasing the amount of data available for water resource and quality protection decision making; and G) Effectively reduce sources of pollutants and environmental stressors by conducting trash removal events and preventing pollution of coastal and inland waters.

The sample collection, analyses, target reporting limits, measurement quality objectives and quality control for this project are documented in a Quality Assurance Project Plan (QAPP) that has been approved by the San Diego Regional Water Quality Control Board. The QAPP specifies that all data generated, and the reporting of that data, will be in a SWAMP compatible format.

SAN DIEGO Integrated Regional Water Management

Table 6-12: Performance Measures Table San Diego Regional Water Quality Assessment and Outreach

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Stakeholder Outreach and Involvement	 Assess water quality in San Diego County watersheds using trained volunteers to collect and analyze samples 	Water quality constituents/ parameters will be monitored and measured on a regular basis from sites representing inland aquatic ecosystems in the San Diego region.	Two years of monthly sample data for the water quality indicators listed in table footnote #1.	Sufficient data to represent the health status of inland water bodies of the San Diego region; Improved knowledge of the baseline conditions in San Diego County watersheds	Methods to measure and analyze water quality parameters are listed in table footnote #2.	28 - 33 sites in 9 watersheds of San Diego County are sampled each month; 90% of data analyzed meets data quality objectives.
Share Data Resources	 Share data. Data collected through this project will be incorporated in 2 web- based, publicly-accessible data portals: the water quality page on the San Diego Coastkeeper web site (http://www.sdwatersheds. org/wiki/Main_Page) and the state California Environmental Data Exchange Network (CEDEN) 	Increase the amount of data available to regulatory decision makers that meets state standards for QA/QC.	The number of samples collected per watershed per year vs. the number of data points meeting QA/QC standards	Data uploaded to state water quality databases.	Analytical methods and measurement quality objectives are included in the project Quality Assurance Project Plan (QAPP)	Data is available on www.sdwatersheds .org and CEDEN (California Environmental Data Exchange Network) within 1 month of analysis
Stakeholder Outreach and Involvement	3. Develop Outreach Materials to Inform the Public and address Non- Point Source Pollution, including annual Watershed Reports	Increase the level of public understanding of watershed water quality issues. Watersheds Report printed and on-line	Water quality information and sample data posted to sdwatersheds.org page; Number of people reached in direct education campaigns (Project SWELL) and indirectly via visits to sdwatersheds.org page; Watersheds Reports distributed at	% increase in community participation in watershed stewardship activities. Increase in availability of watershed related information.	Sign-in sheets for monthly water monitoring events and bi-monthly water monitoring training events Visits to the sdwatersheds.org # of Watersheds Reports distributed at outreach and education events	 10% increase in number of persons participating in monthly water monitoring events and bi-monthly water monitoring training events compared to pre-Prop 84 grant activity; 10% increase in # of visits to www.sdwatersheds.or g compared to pre-



Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
			outreach and education events and online resource is publicized			Prop 84 grant activity; 100 Watershed Reports distributed in report-related neighborhoods
Share Data Resources	4. Establish Regional Water Monitoring Training and Resource Center	A corps of 'citizen scientists' (i.e., volunteers) that can collect and produce QA/QC approved data	Volunteers trained by Coastkeeper to collect and analyze water quality samples per all standard operating procedures and approved QAPP	State approved QAPP for Coastkeeper Laboratory	 # people trained every other month; # people who return for additional trainings and volunteer opportunities (trained volunteer retention) 	100 new individuals trained in WQ monitoring and analysis. 10% increase in volunteer retention
Water Quality and Pollution Reduction	5. Reduce amount of gross pollutants (trash and litter) in local waterways	The removal of gross pollutants (trash and litter) that negatively affect the health of our local waters and can be transported downstream to potentially affect our ocean ecosystems	Regular trash removal events and a database of the type and amount of gross pollutants removed from inland waterways.	An assessment of the types of trash polluting local waterways, and an estimate of loadings of trash avoided.	Total amount of gross pollutants at sampling sites; SWAMP approved Rapid Trash Assessment in addition to I Love a Clean SD standard volunteer protocol.	 10% reduction of trash collected at sampling sites 50 lbs. of itemized trash removed per cleanup event
i. Temperature ii. Dissolved Oxyge iii. pH iv. Conductivity (fre v. Nitrate vi. Total Orthophos	esh water) or Salinity (marine) sphate Is (Cadmium, Chromium, Nick		i. Hach ii. Hach iii. Oak iv. Hac v. Hac vi. Hac vi. Hac vii. Ind vii. IDE	to measure and analyze of HQ40d electrometric pro h HQ40d Luminescent Dis ton Double Junction Elect h HQ40d Conductivity pro h 8192 and Hach 10206 (h 8048 and Hach 10210 (uctively Coupled Plasma I EXX Colisure or Collert 18	be isolved Oxygen rode be TNT 835) TNT 843) Mass Spectrometer ICP-N	

- x. Enterococci bacteria
- xi. Benthic macro-invertebrates
- xii. Toxicity

- ix. IDEXX Colisure or Colilert 18
- x. IDEXX Enterolert
- xi. SWAMP Bio-assessment procedures xii. QwikLite 200 Bio-Sensor System using ASTM E1924



Project 10: Chollas Creek Integration Project

The purpose of the *Chollas Creek Integration Project* is to gather and generate scientific data and stakeholder input to form an integrated planning process for the Pueblo Hydrologic Unit that will update the Chollas Creek Enhancement Program and establish implementation strategies. The *Chollas Creek Integration Project* seeks to develop a stakeholder-driven watershed management process, restore habitat and flood management to improve environmental health/safety, surface water quality, and availability of open space. The following section lists the projects goals and their corresponding monitoring and assessment programs:

Project Goals

<u>Build support among public and private agencies/NGOs for watershed planning:</u> To effectively monitor and assess the support among public and private agencies for watershed planning, informal surveys at stakeholder meetings will be distributed to determine progress.

<u>Build awareness among community leaders about watershed planning:</u> Community leaders and groups will also be surveyed to account for awareness level. This process will help project proponents determine if awareness improvements have been made.

<u>Engage watershed residents and foster community stewardship:</u> Tracking volunteer events and participation will provide performance measures that will gauge achievement of project benefits of objectives regarding the engagement of watershed residents and the fostering of community stewardship.

<u>Reduce erosion, scour and sedimentation:</u> Surveying of erosion sites, completed by stakeholder groups, will entail visual observations that will report existing soil conditions (i.e. slope, hydrology, geologic hazards etc.). This soil surveying program will help determine if the project has experienced erosion, scour and sedimentation reduction.

<u>Reduce and control invasive plant species:</u> To assess the current conditions of invasive plant species, a presentation of draft invasives report will be referenced. From there, a survey of stakeholder groups will be distributed to assess the level of invasive plant species presence. This initial assessment will allow a baseline to be set for the compilation of a Watershed Invasive Reduction/Control Plan. Future monitoring will allow monitoring staff to determine if invasive plant species are being reduced or controlled.

<u>Reduce flooding:</u> Monitoring for flood management improvements will include visual evaluations that will involve the identification of reduced channelization, less soil erosion/sedimentation and greater vegetative zones. These factors when observed will correlate to flood management improvements.

<u>Reduce stormwater contamination and sedimentation:</u> Like the reduced flooding monitoring program, this project objective will utilize the same method, visual observations. Visual assessments for this project assessment will include water color, turbidity and clarity observations. Documentation of these observations will verify the project's performance with respect to stormwater contamination and sedimentation reduction.

<u>Pollution prevention outreach/education and monitoring/ maintenance (stewardship):</u> Community members and volunteers will be educated in data gathering/analysis and the identification of illegal dumping/pollutant discharges. Volunteer data, violator identification and visual observations will be documented and reported. This outreach approach promotes pollution prevention activities and expands environmental stewardship. The quantification of organized outreach/cleanup activities, volunteers and submitted documents will be an indicator of project performance. Measuring progress will be achieved by comparing participation against previous years (or other applicable time periods).

<u>Restore native habitat:</u> Per the approved restoration and enhancement plan, success criteria shall be established to measure the success of the restoration effort. It is anticipated that success criteria for Phase 1 shall include survivorship, height and percentage of groundcover / understory / over story coverage. Meeting success criteria shall insure that native habitat is restored to Phase 1 within Section 2A of Chollas Creek.



Monitoring System

Baseline data regarding existing conditions, pre-restoration, and enhancement will be gathered and reported in the Chollas Creek 2A Biology Study Update. A restoration and enhancement plan will also be prepared and approved by the City of San Diego and regulatory agencies (California Department of Fish and Game, San Diego RWQCB, and U.S. Army Corps of Engineers). Monitoring of the creek restoration project will be conducted on both a qualitative and quantitative basis per an approved restoration and enhancement plan. Qualitative data will be collected regarding plant health and development, effectiveness of the irrigation system and the control of exotic species. Qualitative monitoring will be performed by the project biologist monthly, then bimonthly and then quarterly for a period of 3-5 years until the success criteria as stated within the restoration and enhancement plan are met. Quantitative monitoring will consist of the collection of vegetation data. Data consist of vegetation cover, height and make up and survivorship of plantings. Permanent transects will be established within the restoration/enhancement area and data shall be collected using the line intercept method. Permanent photo points will also be established. Data will be analyzed and an annual report prepared and submitted to the City and permitting agencies for 3-5 years until the success criteria are met. Data shall be collected and maintained by the project biologist.

Table 6-2: Performance MeasuresChollas Creek Integration Project

Benefits	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Maximize Stakeholder Involvement in Watershed Planning	Build support among public and private agencies/NGOs for watershed planning.	Regular stakeholder meetings; collaborative grant writing; public awareness and education	# of meetings # of attendees Frequency of meetings #of stakeholders collaborating on grants	Increase numbers of collaborative , multi- stakeholder applications by two	Informal survey at stakeholder meetings	Integration of two watershed applications; to include 2012 SDIRWM request
Maximize community awareness and involvement	Build awareness among community leaders about watershed planning	Regular watershed planning outreach to community groups	# of groups meetings carrying planning message; # of attendees; frequency of meetings; # of residents represented by groups	Increase in awareness of watershed planning benefits at community organizations	Survey of community group agendas (pre- and post) to reflect inclusion of watershed planning	A minimum of eight organizations including watershed planning issues on their agendas at least twice in 2011-12.
Maximize community stewardship and identity	Engage watershed residents in trail uses and creek access study; foster community stewardship	Completed watershed public trail funding plan; community volunteer events	Existing conditions report of all proposed or desired trails	Completed research, field investigation, and stakeholder/ community group survey of trail sites; recommend trail construction plan, including concept design, cost estimate, and priority	Based on presentation of draft trail funding plan, survey of stakeholders group; tracking volunteer events and participation	First trail project designed and approved through stakeholders consensus in 2012.
Habitat Protection	Reduce erosion, scour and sedimentation	Completed watershed erosion control plan	Existing conditions report evaluating soils, slope, hydrology, precipitation, geologic hazards	Completed research, field investigation, and stakeholder/ community group survey of erosion sites; recommend reduction/control project design, cost estimate, and priority	Based on presentation of draft trail funding survey of stakeholders group; tracking volunteer events and participation	Erosion control implementation plan approved through stakeholders consensus in 2012.
Habitat Protection	Reduce and control invasive plant species	Completed watershed invasives reduction/ control plan	Completed existing conditions report of invasives	Completed invasive species mapping; summary of data gaps; research of historical and existing removal and control efforts	Based on presentation of draft invasives report, survey of stakeholders group	Approval of invasives control plan through stakeholder's consensus in 2012.



Benefits	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Creek Restoration	Reduce flooding caused by channelization, soil erosion/sedimentation, and dumping of trash and construction debris into the creek through structural modifications	*Reduce flood damage / insurance claims; *Increase public safety; *Reduce bank erosion in project limits.	*Reduction in number or frequency of flood damage / insurance claims.	TBD	Visual assessment	Reduction in flood claims.
Creek Restoration	Reduce storm water contamination and sedimentation in Chollas Creek Section 2A through replacement of non- native plants with native vegetation (biofiltering),	Reduced landscape irrigation demand at participating sites	sites where irrigation or landscape retrofits performed	TBD	Visual assessment	Reduction in road closures due to flooding
Creek Restoration	Pollution prevention outreach/education and monitoring/ maintenance (stewardship)	*Outreach/Education to surrounding communities, businesses, and residents *Community Involvement in Cleanup and Maintenance *Implement LID/HMP development standards upstream	*Data gathering, analysis and annual reports *Reduction in illegal dumping or pollutant discharges to waterway	*Organized community cleanup activities *Reduction in dry weather flows, and slower peak flow response to small rainfall events	*Visual assessment and reduction of violators identified *Observed activities	Based on number of cleanup activities per year**
Creek Restoration	Restore native habitat as protected open space within Chollas Creek Section 2A	Successful implementation of restoration / enhancement plan	Qualitative and quantitative data gathering, analysis and annual reports	Qualitative and quantitative monitoring and data analysis of restoration site (survivorship of container plants, % vegetative cover). Increased observations of wildlife use.	Visual observations, survivorship evaluation, transects to determine % vegetative cover, maintaining high vegetative coverage of native species as specified in success criteria	Meeting success criteria for survivorship and targets for % vegetative coverage (example: 90% survivorship of container plants, 90% native vegetative cover and 1 year of no irrigation by yr 5)



Project 11: Regional Water Data Management Program

The Regional Water Data Management Program seeks to establish a regional stakeholder-driven Workgroup to guide development of the regional data management system recommendations, provide a snapshot of current data management efforts, and establish basic design parameter recommendations document for the future develop of a regional, web-based system for sharing data and information. Project goals outlined below and their corresponding monitoring and assessment programs will help to quantify and verify overall project performance.

Project Goals

<u>Assess the data management needs of the IRWM stakeholders:</u> The number of stakeholders involved and the number of meetings will be tracked through meeting agendas and sign-in sheets. The needs of each of the stakeholder groups will be determined through assessment tools such as surveys and questionnaires that are to be developed by the Data Management System Advisory Workgroup. The measurement tools described will help in assessing the data management needs of the IRWM stakeholders.

<u>Develop a data management system basin design recommendations:</u> All public comments received on the Data Management System Basin Design Recommendations will be documented as part of the project record. Tracking the number of public comments, facilitated meetings and stakeholders attending the meeting will ensure that the end product considers and meets, as appropriate, stakeholder needs.

Monitoring System

The number of stakeholders involved and the number of meetings will be tracked through meeting agendas and sign-in sheets. The needs of each of the stakeholder groups will be determined through assessment tools such as surveys and questionnaires that are to be developed by the Data Management System Advisory Workgroup. All public comments received on the Data Management System Basin Design Recommendations will be documented as part of the project record.

This project will consider all efforts to date for the management of data especially CEDAN, the California Environmental Data Exchange Net. The intent is to identify which datasets in the San Diego region already participate in CEDEN and which data sets do not.



Table 6-22: Performance Measures TableRegional Water Data Management Program

Benefit Type	Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Maximize Stakeholder Involvement and Stewardship	Assess the data management needs of the IRWM stakeholders	Five Needs Assessments reflecting the needs of 5 stakeholder groups	* # stakeholders involved in needs assessment * # stakeholder group meetings	Clearly defined data management needs for each of the five stakeholder groups	* Surveys and questionnaires * Track # of Facilitated meetings * Track # of stakeholders attending meetings.	* Number of Stakeholders involved *Number of stakeholder meetings
Water Resources Data and Information	Develop Data Management System Basin Design Recommendations	Data Management System Basin Design Recommendations	* # stakeholders participating in the public comment of design recommendations * # stakeholder group meetings	Data Management System Basin Design Recommendations Document	* Track Public Comments * Track # of Facilitated meetings * Track # of stakeholders attending meetings.	* Develop Data Management System Basin Design Recommendations Document



Attachment 7

Economic Analysis – Water Supply Costs and Benefits



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Economic Analysis – Water Supply Costs and Benefits

Attachment 7 consists of the following items:

- Water Supply Costs and Benefits. The body of this attachment provides an overview of the water supply costs and benefits of this proposed funding package, as well as the benefits associated with each individual project.
- Appendix 7-1. Appendix 7-1 provides a detailed discussion of the estimated avoided future imported water costs from developing local supplies in the San Diego region.
- Appendix 7-2. Appendix 7-2 of this attachment contains detailed information and background regarding the qualitative and quantitative costs and water supply benefits of each individual project contained within this proposal.

This attachment contains estimations of the water supply-related costs and benefits of each project contained within this *San Diego IRWM Implementation Grant Proposal*. Because several projects are being proposed with multiple benefits, Table 7-1 below contains a summary of the costs and benefits for all projects.

Section 1 provides a summary of the regional water supply background, and justification for the avoided costs of imported water supplied by the Metropolitan Water District of Southern California (MWD) and the San Diego County Water Authority (SDCWA). Appendix 7-1 contains a more detailed discussion and water rate tables used in the analysis avoided costs of imported water analysis.

Section 2 contains a narrative description of the expected costs that may be incurred to implement and operate each project, and to achieve benefits from each project. Appendix 7-2 also contains all costs associated with each project that are necessary to accomplish full implementation of each project and achievement of the stated benefits.

Section 3 contains a narrative description of the expected water supply benefits of each project. Where possible, each benefit was quantified and presented in physical or economic terms. In cases where quantitative analyses were not feasible, this attachment provides complimentary qualitative analyses. In addition, this attachment provides a description of economic factors that may affect or qualify the amount of economic benefits to be realized. This attachment also includes a discussion regarding uncertainties about the future that might affect the level of benefit received. Appendix 7-2 contains detailed information regarding the benefits anticipated to occur as a result of this proposal.

1. Regional Water Supply Background

The San Diego region comprises eleven parallel and similar hydrologic units that discharge to coastal bays, estuaries, or lagoons. Due to low and unreliable quantities of precipitation, the region has a limited local water supply and has therefore depended largely on imported water from Northern California rivers, the Bay Delta, and the Colorado River for over sixty years. The adopted San Diego IRWM Plan recognizes that it is important to increase the local water supply, which is reflected in Goal 1 of the IRWM Plan: *optimize local water supply reliability*.

#	Project	Project Sponsor	Total Present Value Project Costs	Total Present Value Water Supply Benefits	
1	Sustainable Landscapes Program	San Diego County Water Authority	\$1,157,709	\$140,576	
2	North San Diego County Regional Recycled Water Project	Olivenhain Municipal Water District	\$17,199,249	\$61,324,268	
3	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	\$27,802,301	\$55,645,552	
4	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corporation	\$707,463	\$172,718	
5	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	\$1,517,868	\$41,783,290	
6	Implementing Nutrient Management in the Santa Margarita River Watershed	County of San Diego	\$1,534,082	\$40,866,899	
7	Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	City of San Diego - Storm Water Department	\$4,168,512	\$0	
8	Pilot Concrete Channel Infiltration Project	City of Santee	\$281,294	\$0	
9	San Diego Regional Water Quality Assessment and Outreach Project	San Diego Coastkeeper	\$924,578	\$0	
10	Chollas Creek Integration Project	Jacobs Center for Neighborhood Innovation	\$1,018,096	\$0	
11	Regional Water Data Management Program	County of San Diego	\$540,043	\$0	
	TOTAL		\$56,851,195	\$199,933,303	

 Table 7-1: Water Supply Costs and Benefits Summary

The San Diego County Water Authority (SDCWA) purchases the majority of the region's imported water (sourced from the State Water Project (SWP) and the Colorado River Aqueduct (CRA)) from the Metropolitan Water District of Southern California (MWD), and receives additional imported supplies from the Colorado River through a conservation and transfer agreement with the Imperial Irrigation District (IID). SDCWA, as the only water wholesaler within the Region, distributes the aforementioned supply to its 24 member agencies, which include all major water agencies in the San Diego region. The amount of water imported into the region varies depending on hydrologic conditions, but in general the region's water supply consist of 70 to 90 percent imported water. In 2008, approximately 88 percent of the region's water supply was imported, 76 percent of this water was purchased by SDCWA from MWD, and the remaining 12 percent came from the Colorado River (through the IID transfer). The remaining water supply in the region consists of conservation, recycled water, local surface water, and groundwater, with approximately 10 to 30 percent coming from these sources. It is anticipated that future water supplies may also consist of desalinated water, although this water sources is not currently available for the region.

One of the most significant issues for the region is the availability and reliability of its imported water supplies. The SWP is the major source of imported supply, followed by water from the CRA. Recent legal decisions to protect the endangered Delta smelt have drastically reduced the amount of Delta pumping that can be conducted, cutting back on the volume of SWP water that can be delivered. This situation, coupled with the recent droughts affecting both the SWP and CRA and further reducing available supplies, serves as a reminder that the region's water supply is vulnerable to events outside the region. The region faces a critical need for improved local supplies, and local water agencies have identified the need to increase local supplies as a key element in meeting future regional water demands.



Absent increased conservation efforts, as well as cultivation of local surface water, groundwater, desalinated water, and recycled water supplies, the region will continue to be vulnerable to unreliable imported supplies, and will continue to suffer the economic consequences of additional cutbacks in imported supplies. This trend of will continue until the region develops reliable local supplies.

Avoided Cost of Imported Water

As described above, imported water supply in the San Diego region constitutes approximately 70 to 90 percent of the region's water supply. Water produced by conservation, recycling, groundwater extraction, and other "local sources" will offset the need to use imported water supply. The value of adding new local supplies can thus be estimated based on the costs avoided by reducing local demands for imported water. Appendix 7-1 provides a detailed description of the local water supply and methodology used for calculating the avoided cost of imported water.

The avoided cost of purchasing imported water from SDCWA are calculated based on MWD's Tier 1 water rates and include additional SDCWA and MWD fixed charges. Table 7-2 shows the total "all in" rates for imported water supply from SDCWA. The total "all in" water rates for M&I supplies purchased from SDCWA are \$864 for untreated water and \$1,079 for treated water (in 2010 dollars). Appendix 7-1 provides a detailed table of SDCWA projected real treated and untreated water rates for 2009-2060 (in 2009 dollars) used for the economic analysis.

These values are used in the avoided cost analysis for all San Diego region projects except the Implementing Nutrient Management in the Santa Margarita River Watershed project, for which MWD's water rates are used for Rancho California Water District (RCWD) imports.

• •		
	Untreated (\$/AF)	Treated (\$/AF)
Volumetric Charges ¹		
Melded Supply Rate	\$597	\$812
Transportation	\$75	\$75
Melded Tier 1	\$672	\$887
Fixed Charges (in Volumetric Terms) ¹		
Storage	\$95	\$95
Customer Service	\$44	\$44
Total Fixed Charges	\$139	\$139
Total SDCWA Costs for M&I Water	\$811	\$1,026
Additional MWD Fixed Charges ²		
Capacity Charge	\$14	\$14
Readiness to Serve Charge	\$39	\$39
Total "All In" Costs for M&I Water	\$864	\$1,079

Table 7 9. Can Diana	Deview Weter Deter	Effective lenvement	0044 (00040)
Table 7-2: San Diego	Region water Rates	Effective January 1	, 2011 (\$2010)

Sources:

1 San Diego County Water Authority. June 24, 2010. Public Hearing: Recommended CY 2011 Rates and Charges.

2 City of San Diego. October 27, 2010. CY 2011 Rate Fact Sheet: SDCWA Water Rates for the City of San Diego Effective January 1, 2011.

Rancho California Water District (RCWD), who serves water to customers in the Riverside County portion of the shared Santa Margarita River watershed, purchases water imports from MWD through Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD). RCWD is a project partner in the *Implementing Nutrient Management in the Santa Margarita River Watershed* project being jointly proposed by the San Diego and Upper Santa Margarita regions. Annual imported water purchases by RCWD totaled 51,000 AFY in 2005, or 53 percent of supply.¹ As described in Appendix 7-1, the avoided costs of importing water from RCWD are calculated based on MWD's Tier 2 untreated water rates. Appendix 7-1 provides a detailed table of MWD projected real Tier 2 untreated water rates for 2009-2060 (in 2009 dollars) used for the economic analysis of that specific project only.

¹ Rancho California Water District. 2005. Urban Water Management Plan Update.



Project-Specific Avoided Costs

In addition to avoiding water imports, which would affect the San Diego region's water supply availability, there are project-specific avoided costs that need to be considered and included on a project-by-project basis. For example, an indirect potable reuse (IPR) project would have both the avoided cost of importing water plus the avoided cost of off-loading wastewater treatment and ocean discharge. Another example is a new local groundwater source that is of high enough quality that it can be put directly into the potable system; thus, avoiding the cost of conventional potable treatment [of raw imported water]. Each project assessed below contains a discussion of project-specific avoided costs.

1. Total Costs of Proposed Projects

The following sections provide information about the total project costs associated with each proposed project within this *San Diego IRWM Implementation Grant Proposal*. The summary of total project costs is based on Table 11 in DWR's Implementation Grant Proposal Solicitation Package (DWR 2010), inclusive of the project budget information contained in Attachment 4. Appendix 7-2 contains the complete Table 11 export for each proposed project.

Project 1: Sustainable Landscapes Program

The total estimated budget for the *Sustainable Landscapes Program* is \$1,400,000 for a total present value \$1,157,709 (in 2009 dollars). The total costs for the project are equivalent to the project budget, which is described in detail in Attachment 4. The cost benefit analysis for this project claims benefits from work detailed within the Work Plan for this project (refer to Attachment 3). As such, no further costs need to be spent to accrue the benefits presented within Attachments 7 through 10 of this Proposal.

Capital costs for this project would be expended between 2010 and 2014, with the largest capital cost in construction and implementation. Costs for administration and operation would also be expended between 2010 and 2014. Detailed cost information associated with the project, including present value calculations is presented in Appendix 7-2.

Table 7-3: Total Project Costs Sustainable Landscapes Program

Phase	Cost
Sustainable Landscapes Program	\$1,400,000
Total Present Value of Discounted Costs	\$1,157,709

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 2: North San Diego County Regional Recycled Water Project

The total estimated budget for the *North San Diego County Regional Recycled Water Project* is \$2,000,000 (refer to Attachment 4). In order to fully implement the *North San Diego County Regional Recycled Water Project* and accrue all aforementioned water supply benefits, however, the project sponsor would need to also complete activities that are not included in the proposed budget. The total capital costs for the proposed project (\$2,000,000) and additional phases (\$13,500,000) are estimated to be \$15,500,000. Additionally, O&M costs are estimated to be \$455,000 annually and replacement costs are estimated to be \$113,750 annually. Implementation of the entire project results in a total present value of \$17,199,249 (in 2009 dollars).

Capital costs would be expended between 2011 and 2017 and maintenance costs will be expended from 2016 to 2060, with the largest capital cost in construction and implementation. The operation and maintenance costs are estimated to be \$568,750 annually. Detailed cost information associated with the project, including present value calculations is presented in Appendix 7-2.



Table 7-4: Total Project Costs North San Diego County Regional Recycled Water Project

Phase	Cost
North San Diego County Regional Recycled Water Project Capital Costs	\$2,000,000
Final 100% design of regional recycled water connections	\$500,000
Environmental compliance and permitting for regional recycled water connections	\$500,000
Construction of regional recycled water connections ¹	\$12,500,000
Total Capital Costs	\$15,500,000
North San Diego County Regional Recycled Water Project O&M / Replacement Costs	\$25,593,750
Total Present Value of Discounted Costs	\$17,199,249

1 Construction of regional recycled water connections does not include the recycled water distribution system expansion accounted for under the *North San Diego County Cooperative Demineralization Project*. Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 3: North San Diego County Cooperative Demineralization Project

The total estimated budget for the *North San Diego County Cooperative Demineralization Project* is \$5,384,800 (refer to Attachment 4). In order to fully implement the project and accrue all aforementioned water supply benefits, the project sponsor would need to also complete activities that are not in the proposed budget. The total costs for the proposed project (\$5,384,800) and additional phases (\$28,000,000) are estimated to be \$33,384,800 between 2009-2015. After discounting, the total present value is estimated to be \$27,802,301 (in 2009 dollars).

Capital and implementation costs will be expended through 2012 for the proposed Work Plan (refer to Attachement 3) and would extend into 2015 for Phase II, with the largest capital cost in construction and implementation. The annual operation and maintenance costs are estimated to be \$70,000 throughout the lifetime of the project, and will span from 2009 to 2060. These costs will include labor for daily operation of facilities proposed by the project, energy costs, chemical costs, as well as maintenance costs associated with routine and emergency maintenance as needed. Administration costs will also span over the lifetime of the project, and will include administrative activities such as ordering parts, coordinating with vendors, and tracking costs and time. Replacement costs for the project will be incurred in 2020, 2030, 2040, 2050, and 2060, and will include routine replacement of membranes, pumps, electrical equipment, and other replacement costs as needed over the lifetime of the project. Detailed cost information associated with the project, including present value calculations, are available in Appendix 7-2.



Table 7-5: Total Project Costs North San Diego County Cooperative Demineralization Project

Phase	Cost
North San Diego County Cooperative Demineralization Project Capital Costs	\$5,384,800
Preliminary and final 100% design for recycled water distribution system expansion to service SEWRF capacity	\$300,000
Environmental compliance and permitting for recycled water distribution system expansion to service SEWRF capacity	\$200,000
Construction of recycled water distribution system expansion to service SEWRF capacity ¹	\$12,500,000
Preliminary and final 100% design of brackish to potable groundwater desalination facility	\$400,000
Environmental compliance and permitting for brackish to potable groundwater desalination facility	\$300,000
Construction of brackish to potable groundwater desalination facility	\$14,300,000
Total Capital Costs	\$33,384,800
North San Diego County Cooperative Demineralization Project O&M / Replacement Costs	\$4,994,000
Total Present Value of Discounted Costs	\$27,802,301

1 Cost estimate based on 'opinion of probable costs' for construction of recycled water facilities in Santa Fe Irrigation District Recycled Water Master Plan (2005); assumes \$13,172-\$15,408 per AF for construction of recycled water system including pump station, underground reservoir, pipelines, service laterals and meters. Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The total estimated budget for the *Rural Disadvantaged Community (DAC) Partnership Project* is \$530,000. The total costs for full implementation of the two sample projects include \$251,000 for *Sample Project 1: MGB Well Rehab and Treatment Plant Renovation* and \$566,000 for *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation*. Assuming that \$505,000 of the proposed budget goes directly to implementing the two sample projects (\$530,000 total project costs minus \$25,000 in grant and project administration), additional capital costs of \$312,000 will be sought from U.S. Department of Agriculture Rural Development, U.S. Environmental Protection Agency Region 9, Indian Health Services, and Rural Community Assistance Partnership. This results in a total present value \$707,463 (in 2009 dollars.)

Capital costs for this project would be expended between 2011 and 2013, with the largest capital cost in construction and implementation. No operations and maintenance costs are included at this time, but other costs would be expended as described above. For purposes of this analysis it was assumed that other project costs would be \$312,000, based on the two example projects selected, and would be incurred in 2011 for implementation of the necessary projects. Detailed cost information associated with the project, including present value calculations is presented in Appendix 7-2.

Table 7-6: Total Project CostsRural DAC Partnership Project

Phase	Cost
Rural Disadvantaged Community (DAC) Partnership Project	\$530,000
Capital Costs	
Rural Disadvantaged Community (DAC) Partnership Project	\$312,000
Additional Capital Costs	
Total Capital Costs	\$842,000
Total Present Value of Discounted Costs	\$707,463

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The total estimated budget for the *Lake Hodges Water Quality and Quagga Mitigation Measures* project is \$1,200,000 as described in Attachment 4. In order to fully implement the project and accrue all aforementioned water supply benefits, the project sponsor would need to also complete activities that are not in the proposed budget. Administration and O&M costs are based on SDCWA experience managing the Lake Hodges Pumped Storage Facility. Major maintenance and cleaning is anticipated in 5-year increments. Complete replacement of some facilities is anticipated at 10-year increments. In total, O&M and replacement costs are anticipated at \$1,968,640. This results in a total present value of \$1,517,868 (in 2009 dollars).

Capital costs for the project would be expended between 2010 and 2013 and maintenance costs would be expended in from 2014 to 2060, with the largest capital cost in construction and implementation. The total operation and maintenance costs are estimated to be \$1,968,640. Detailed cost information associated with the Project, including present value calculations is presented in Appendix 7-2.

Table 7-7: Total Project CostsLake Hodges Water Quality and Quagga Mitigation Measures

Phase	Cost
Lake Hodges Water Quality and Quagga Mitigation Measures	\$1,200,000
Capital Costs	
Lake Hodges Water Quality and Quagga Mitigation Measures	\$1,968,640
O&M / Replacement Costs	
Total Project Costs	\$3,168,640
Total Present Value of Discounted Costs	\$1,517,868

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

The total estimated budget for the *Implementing Nutrient Management in the Santa Margarita River Watershed* project is \$690,000 (refer to Attachment 4). In order to fully implement the *Implementing Nutrient Management in the Santa Margarita River Watershed* project and accrue all aforementioned water supply benefits, however, the project sponsor would need to also complete activities that are not included in the proposed budget. The total capital costs for the proposed project (\$690,000) and additional phases (\$1,510,000) are estimated to be \$2,200,000, for a total present value of \$1,534,082 (in 2009 dollars).

Capital costs would be expended from 2011 to 2014 for the proposed Work Plan (refer to Attachment 3), and would extend into 2018 for Phase II. The project would not require operations and maintenance



costs. Detailed cost information associated with the project, including present value calculations is presented in Appendix 7-2.

Table 7-8: Total Project CostsImplementing Nutrient Management in the Santa Margarita River Watershed

Phase	Cost
Implementing Nutrient Management in the Santa Margarita River Watershed Capital Costs (Phase I)	\$690,000
Phase II Capital Costs (Additional monitoring, special studies, and development of proposed nutrient WQOs for Santa Margarita River based on the NNE approach)	\$1,510,000
Total Project Costs	\$2,200,000
Total Present Value of Discounted Costs	\$1,534,082

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The total estimated budget for the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project is \$3,543,300. Administration, O&M, and replacement costs for the project total \$3,551,229 for major cleaning and repair of the storm drain bypass, the hydrodamic separator, and bacterial treatment system. This results in a total present value of \$4,168,512 (in 2009 dollars).

Capital costs for this project have already been spent (beginning in 2009), and will be incurred through 2014. The largest capital cost is anticipated for construction and implementation. The project will not be operational until 2014, and maintenance costs after construction will span from 2014 through 2043. Operational costs will be spent to maintain the bacterial treatment system, which will require major maintenance and cleaning at 5-year increments throughout their useful life. Maintenance costs are anticipated to increase in increments after each of the aforementioned lifecycle milestones is reached. Replacement costs are anticipated during the project lifetime, from 2014 through 2043. These costs were estimated based on a straight-line depreciation over 30 years of each for the assets constructed and installed as part of the project and which will need to be completely or significantly replaced. Detailed cost information associated with the project, including present value calculations, are in Appendix 7-2.

Table 7-9: Total Project Costs

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Phase	Cost
Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection Capital Costs	\$3,543,300
Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection O&M / Replacements Costs	\$3,551,229
Total Project Costs	\$7,094,529
Total Present Value of Discounted Costs	\$4,168,512

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.



Project 8: Pilot Concrete Channel Infiltration Project

The total estimated budget for the *Pilot Concrete Channel Infiltration Project* is \$333,400 for a total present value \$281,294 (in 2009 dollars). The total costs for the project are equivalent to the project budget, which is described in detail in Attachment 4. The cost benefit analysis for this project claims benefits from work detailed within the Work Plan for this project only (refer to Attachment 3). The project will be operational in 2012 and maintenance costs after construction (after 2012) will be minimal, because routine channel maintenance is already conducted by the City of Santee. As such, no further costs need to be spent to accrue the benefits presented within Attachments 7 through 10 of this Proposal.

Capital costs for this project would be expended through 2012, with the largest capital cost in construction and implementation. Detailed cost information associated with the project, including present value calculations is presented in Appendix 7-2. Detailed information regarding the budget for this project is available in Attachment 4.

Table 7-10: Total Project Costs Pilot Concrete Channel Infiltration Project

Phase	Cost
Pilot Concrete Channel Infiltration Project Capital Costs	\$333,400
Total Present Value of Discounted Costs	\$281,294

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 9: San Diego Regional Water Quality Assessment and Outreach Project

The total estimated budget for the San Diego Regional Water Quality Assessment and Outreach Project is \$667,000. Additional costs that will also be incurred during this timeframe include administration, operations, maintenance, and other costs. These costs are anticipated to include salaries, contract fees, and laboratory supplies and will total \$485,000. This project would not include permanent facilities or equipment, which would degenerate operating expenses beyond the life of the project. This results in a total present value of \$924,578 (in 2009 dollars).

Capital and implementation costs for the project will be expended from 2011 to 2014, with the largest capital cost in construction and implementation. Detailed cost information associated with the project, including present value calculations, are available in Appendix 7-2.

Table 7-11: Total Project Costs San Diego Regional Water Quality Assessment and Outreach Project

Phase	Cost
San Diego Regional Water Quality Assessment and Outreach Project Capital Costs	\$667,000
San Diego Regional Water Quality Assessment and Outreach Project O&M / Other Costs	\$485,000
Total Project Costs	\$1,152,000
Total Present Value of Discounted Costs	\$924,578

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 10: Chollas Creek Integration Project

The total estimated budget for the *Chollas Creek Integration Project* is \$994,500. Administration and maintenance costs are anticipated throughout the project lifetime, in order to maintain the riparian vegetation and remove trash from the restoration area. Operations and replacement costs are limited to irrigation components for the first three years until the planted vegetation matures. All additional costs total \$560,200 for the proposed project. This results in a total present value \$1,018,096 (in 2009 dollars).

Capital and implementation costs for the project will be expended from 2010 through 2013, with the largest capital cost in construction and implementation. The operation and maintenance costs are estimated to consist of administration, operation, maintenance, and replacement costs. Administration and maintenance costs will span from 2012 through 2060, whereas operation costs will span from 2012 to 2015 and replacement costs will be incurred from 2012 to 2014. Detailed cost information associated with the project, including present value calculations, are available in Appendix 7-2.

Table 7-12: Total Project Costs Chollas Creek Integration Project

Phase	Cost
Chollas Creek Integration Project Capital Costs	\$994,500
Chollas Creek Integration Project O&M Costs	\$560,200
Total Project Costs	\$1,554,700
Total Present Value of Discounted Costs	\$1,018,096

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

Project 11: Regional Water Data Management Program

The total estimated budget for the *Regional Water Data Management Program* is \$202,327 for a total present value of \$434,223 (refer to Attachment 4). In order to fully implement the *Regional Water Data Management Program* and accrue all aforementioned water supply benefits, the project sponsor would need to also complete additional activities that are not included in the proposed budget. The total costs for the proposed project (\$203,327), programming of the data platform (\$200,000), and startup of the datasets (\$150,000) are estimated to be \$553,327 between 2011 and 2015. Maintenance costs will include ongoing server capacity and platform maintenance at \$22,000 per year until 2025. This results in a total present value of \$540,043 (in 2009 dollars). Appendix 7-2 uses this total cost to determine the project's overall cost-benefit ratio.

Table 7-13: Total Project Costs Regional Water Data Management Program

Phase	Cost
Regional Water Data Management Program Capital Costs	\$203,327
Programming of Web-Based Data Platform	\$200,000
Startup of Datasets (assumes startup of 5 discrete datasets at \$10,000-\$50,000 each)	\$150,000
Total Project Costs	\$553,327
Regional Water Data Management Program O&M Costs (On-going Server Capacity and Platform Maintenance)	\$220,000
Total Present Value of Discounted Costs	\$540,043

Note: Please see Appendix 7-2, Table 11 for additional detail on calculation of present value.

2. Water Supply Benefits of Proposed Projects

The following sections provide information about the water supply benefits associated with each proposed project within this *San Diego IRWM Implementation Grant Proposal*. The summary of total project costs is based on Tables 12-15 in DWR's Implementation Grant Proposal Solicitation Package (DWR 2010). Appendix 7-2 contains the complete Tables 12-15 exports for each proposed project.

The projects within this proposal are anticipated to result in significant water supply benefits to the Region. Four projects specifically focus on water supply benefits: *Sustainable Landscapes Program, North San Diego County Regional Recycled Water Project, North San Diego County Cooperative Demineralization Project,* and *Rural DAC Partnership Project.* While these projects are anticipated to directly result in significant water supply benefits, the remaining projects would also have indirect or complementary benefits to the region's water supply.

Project 1: Sustainable Landscapes Program

The water supply benefits that are anticipated to result from implementation of the *Sustainable Landscapes Program* are summarized below in Table 7-13, and the cost-benefit overview is summarized in Table 7-14. This project would result in monetized water supply benefits associated with avoided water supply purchases. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2

Table 7-13: Benefits Summary Sustainable Landscapes Program

Type of Benefit Assessment Level		Beneficiaries
Water Supply Benefits		
Avoided Water Imports	Monetized	Local, regional, and statewide
Water Supply Reliability	Qualitative	Local, regional, and statewide

Table 7-14: Benefit-Cost Analysis Overview Sustainable Landscapes Program

	Present Value (\$2009)		
Costs – Total Capital and O&M	\$1,157,709		
Monetizable Benefits			
Avoided Water Imports	\$140,576		
Qualitative Benefits	Qualitative Indicator*		
Water Supply Reliability	+		

* Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *Sustainable Landscapes Program* were not implemented, current water use efficiency, water demand, and stormwater runoff would remain at current levels. Additionally, there would be no benefit received from reduced water demand, increased water supply reliability, improved water quality, or other conservation-related benefits.

Water Supply Benefits

The Sustainable Landscapes Program would result in water supply benefits associated with avoided water supply purchases and increased water supply reliability. Detailed cost and benefit information associated with the project, including present value calculations, is presented in Appendix 7-2.



Avoided Water Imports

The Sustainable Landscapes Program is anticipated to include sustainable retrofits that will increase water use efficiency and reduce water demand within the San Diego region. Current water supplies within the San Diego Region are largely comprised of imported water, so by reducing water demand, the project would indirectly reduce purchases of imported water supplies. Total water savings that would be gained from implementation of the project are proportional to the number of sites for which the project would be implemented. As such, water savings resulting from the project are anticipated to be approximately 0.08 AF per participant. This project assumed water savings of:

- 4 AF based on 50 participants in 2012,
- 8 AF based on 100 participants in 2013, and
- 18 AFY based on 224 participants from 2014 to 2022.

In total, from 2012 to 2022, the *Sustainable Landscapes Program* would potentially result in 174 AF of water savings. These water savings were monetized using the SDCWA treated water rates over the tenyear lifetime of the project, which was calculated at a total value of \$140,576.

Table 7-15: Avoided Imported Water Costs Sustainable Landscapes Program

	Units	Unit Cost	Years	Total Cost
Avoided Imported Water Costs	174 AF	\$1,111-\$1,488	11	\$232,685
Total Avoided Costs after Discounting			\$140,576	

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 12 Annual Water Supply Benefits

Water Supply Reliability

The reliability of a water supply refers to the ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Sustainable Landscapes Program* would reduce regional water demand by 174 AF, which reduces the demand for imported water supplies.

Although interest in water supply reliability is increasing, only a few studies have directly attempted to quantify its value. The results from these studies indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that the annual value of reliability ranged from \$93 to \$489 per household (updated to 2009 dollars) for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).²

The challenge for use of these values to determine a value of the project is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness-to-pay to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *Sustainable Landscapes Program* would increase overall reliability, but would not guarantee 100% reliability. Thus, the dollar values from the studies will probably overstate the reliability value provided by the project.

Reducing the demand for SDCWA imported water would also reduce the demand for the sources of SDCWA imported water, State Water Project (SWP) and Colorado River Aqueduct (CRA) supplies. Reducing the demand of these statewide water resources would benefit California residents and state and local government agencies involved in water management in preparing for drought years by reducing uncertainty about demand for water supplies. SWP and CRA water users will benefit from increased supply reliability, including but not limited to other Southern California municipal water users, Central Valley agricultural, municipal, and industrial water users, and Imperial Valley agricultural water users.

² San Diego County Water Authority on behalf of the San Diego Regional Water Management Group. 2008. San Diego Integrated Regional Water Management Grant Application, IRWM Implementation Grant, Round 2, Step 2 Program.



Studies have shown municipal water users throughout California are willing to pay in order to avoid water shortages and reduce water scarcity. Jenkins, Lund, and Howitt (2001) estimated that San Diego County area residents would be willing to pay between \$5 and \$10 (constant \$1995) per person on average (at projected 2020 population levels) to avoid costs associated with water scarcity.³ Expressed in real 2009 dollar values⁴, these willingness-to-pay estimates range from \$8 to \$15 per person at projected 2020 population levels. Project specific benefits are not monetized herein.

Distribution of Project Benefits and Identification of Beneficiaries

Project beneficiaries are summarized in Table 7-16. The *Sustainable Landscapes Program* would potentially reduce local water demand and allow SDCWA to reduce its water imports from the Metropolitan Water District of Southern California (MWD) and the Imperial Irrigation District (IID), who supply SWP and CRA water to San Diego. Use values associated with incremental water supplies would accrue to SWP and IID users. In the case of increased water for agriculture, benefits would be measured as the marginal value of production, less the marginal cost of additional units of available SWP and IID water available at the farm gate.

Increased water use efficiency would reduce demand for water within the region. As a result, the project would increase water supply reliability in times of drought. California government agencies could more effectively manage future statewide droughts because the San Diego region has created a local water supply from recycled water and reduced its demand for SWP water. California citizens also benefit as water rationing (in drought years) will be less likely, and they are incrementally less likely to incur water scarcity costs.

Table 7-16: Project Beneficiaries Summary Sustainable Landscapes Program

Local	Regional	Statewide
Local water agencies and water users	MWD, IID, and regional water users	California water regulatory and management agencies, and residents

Project Benefits Timeline Description

This project would provide water supply benefits beginning in 2012 and continuing through the 10-year lifetime of the project.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of this project are summarized below in Table 7-17. Projected savings through the reduction of local water demand represent best estimates based on the latest available data. Actual water savings will vary.

³ Jenkins, Lund, and Howitt (2001) use programming methods to measure the per capita value of urban water scarcity by Detailed Analysis Unit (DAU) throughout California at projected population levels in the year 2020.

⁴ Consumer Price Index for all urban consumers in the San Diego MSA.



Table 7-17: Omissions, Biases, and Uncertainties and their Effect on the Project Sustainable Landscapes Program

Benefit or Cost Category	Likely Impact on Net Benefits***	Comment	
Avoided Water Imports			
Water Rate Forecasting	+/-	Margin of error implicit in forecasting.	
Climate	+	The projections also are driven by "normal year" expectations, whereas dry year conditions will add additional cost pressure, and may move some of the imported water to higher cost Tier 2 levels.	
Regulatory / Legal	+	Regulatory/legal issues combine to make it more likely than not that the future availability of MWD-provided imported waters will be increasingly constrained, and that costs will escalate at rates higher than experienced in the recent past.	
Increased Water Demands	+	Other SWP users may increase their demand and may result in higher rates (holding supply constant).	
Program Participation	+/-	The number of actual participants in the retrofit incentives or other proposed programs is uncertain.	
Water Supply Reliability	+	The monetized value of added reliability is not included in the benefit-cost comparison. If we had added the present value benefit of improved water supply reliability in the overall benefit-cost analysis, it would increase net benefits.	

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Project 2: North San Diego County Regional Recycled Water Project

The benefits that are anticipated to result from implementation of the *North San Diego County Regional Recycled Water Project* are summarized below in Table 7-18, and the cost-benefit overview is summarized in Table 7-19. This project would result in qualitative and monetized water supply benefits, as well as qualitative and quantitative water quality and other benefits (refer to Attachment 8). Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

		•
Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits	•	
Avoided Water Imports	Monetized	Local / Regional
Increased Water Sales Revenue	Qualitative	Local / Regional
Water Supply Reliability (Avoided Water Shortage Costs)	Qualitative	Local / Regional / Statewide

Table 7-18: Benefits Summary North San Diego County Regional Recycled Water Project



Table 7-19: Benefit-Cost Analysis Overview North San Diego County Regional Recycled Water Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$17,199,249
Monetizable Benefits	
Avoided Water Imports	\$61,324,268
Qualitative Benefits	Qualitative Indicator*
Increased Water Sales Revenue	+
Water Supply Reliability	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *North San Diego County Regional Recycled Water Project* were not implemented, there would be continued use of potable water for municipal and industrial (M&I) purposes that could use recycled water. Additionally, there would be no benefit received from increased water supply reliability or the additional sales revenue associated with recycled water purchases.

Water Supply Benefits

This project would result in the water supply benefits associated with avoided water imports and improved water supply reliability. Detailed cost and benefit information associated with the project, including present value calculations, is in Appendix 7-2.

Avoided Water Imports

The North San Diego County Regional Recycled Water Project would facilitate efficient management and coordination among regional entities responsible for reclaimed water production by consolidating North San Diego recycled water projects. The increased efficiency resulting from the proposed project would increase regional recycled water production capacity by 5,000 AFY beginning in 2016. The increase in recycled water production of 5,000 AFY includes the addition 560 AFY of recycled water that would be provided by the North San Diego County Cooperative Demineralization Project. As a result, the total value of avoided imported water costs is 5,000 – 560 = 4,440 AFY. The proposed project would also create the distribution and storage system necessary to distribute the additional recycled water. Increasing regional recycled water production over and above the without project alternative reduces local and regional demand for non-potable water by SDCWA member agencies. The price of SDCWA untreated water is projected to increase from \$1,013 to \$1,724 during 2016-2060, and average \$1,369/AF. Before discounting, annual avoided costs of SDCWA water purchases are expected to average \$6.08 million over the same period for a total present value of \$69,058,860 in 2009 dollars.

Table 7-20: Avoided Imported Water Costs North San Diego County Regional Recycled Water Project

	Units	Unit Cost	Years	Total Cost
Avoided Imported Water Costs	4,440 AFY	\$1,013-\$1,724	45	\$314,154,726
Total Avoided Costs after Discounting				\$61,324,268

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 12 Annual Water Supply Benefits

Increased Water Sales Revenue

The North San Diego County Regional Recycled Water Project would increase recycled water production by 5,000 AFY over the without project alternative. Increased sales revenue from sales and distribution of recycled water would accrue over the without project alternative. This benefit has not been quantified, however, because the entities to which recycled water sales revenue would accrue are unknown, as is



the distribution among them. Assuming SDCWA member agencies will produce their own recycled water supply, net benefits of increased recycled water sales revenue is the value of increased recycled water sales less the cost of production and distribution.

Water Supply Reliability

The reliability of a water supply refers to the ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *North San Diego County Regional Recycled Water Project* would increase recycled water production by 5,000 AFY, which reduces the demand for imported SDCWA water supplies.

Although interest in water supply reliability is increasing, only a few studies have directly attempted to quantify its value. The results from these studies do indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that the annual value of reliability ranged from \$93 to \$489 per household (updated to 2009 dollars) for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).⁵

The challenge for use of these values to determine a value of the project is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness-to-pay to ensure complete reliability (zero drought-related use restrictions in the future), whereas these integrated projects enhance only overall reliability, but do not guarantee 100% reliability. Thus, the dollar values from the studies will probably overstate the reliability value provided by the project. One simple way to roughly adjust for this "whole versus part" problem is to attribute a portion of the total value of reliability to the portion of the project that is solved by the project.

Reducing the demand for water from the State Water Project (SWP) and Colorado River (derived by the demand for SDCWA water) by shifting to local recycled water supplies will benefit California residents and state and local government agencies involved in water management in preparing for drought years by reducing uncertainty about demand for water supplies. SWP and Colorado River water users will benefit from increased supply reliability, including but not limited to other Southern California municipal water users, Central Valley agricultural and M&I water users, and Imperial Valley agricultural water users.

Studies have shown municipal water users throughout California are willing to pay in order to avoid water shortages and reduce water scarcity. Jenkins, Lund, and Howitt (2001) estimated that San Diego County area residents would be willing to pay between \$5 and \$10 (constant \$1995) per person on average (at projected 2020 population levels) to avoid costs associated with water scarcity. 6 Expressed in real 2009 dollar values⁷, these willingness-to-pay estimates range from \$8 to \$15 per person at projected 2020 population levels. Project specific benefits are not monetized for the purpose of the benefits calculation.

Distribution of Project Benefits and Identification of Beneficiaries

Project beneficiaries are summarized in Table 7-21. As a result of this project, SDCWA member agencies would avoid the cost of purchasing water supplies from SDCWA. In turn, SDCWA may reduce its water imports from MWD and water transfers from IID, and benefits of reduced SDCWA water purchases would accrue to its member agencies. The project would also increase the reliability of the SDCWA member water supply portfolio by shifting away from imports and towards local supply. The project would increase North San Diego County recycled water production capacity by 5,000 AFY, and would create necessary distribution capacity for recycled water delivery throughout the region.

⁵ San Diego County Water Authority on behalf of the San Diego Regional Water Management Group. 2008. San Diego Integrated Regional Water Management Grant Application, IRWM Implementation Grant, Round 2, Step 2 Program.

⁶ Jenkins, Lund, and Howitt (2001) use programming methods to measure the per capita value of urban water scarcity by Detailed Analysis Unit (DAU) throughout California at projected population levels in the year 2020.

⁷ Consumer Price Index for all urban consumers in the San Diego MSA.

This project would potentially allow SDCWA to reduce its water imports from MWD and IID as it faces reduced demand for water due to increased local production and use of recycled water. Use values associated with incremental water supplies would accrue to SWP and IID users. In the case of increased water for agriculture, benefits would be measured as the marginal value of production, less the marginal cost of additional units of available SWP and IID water available at the farm gate.

Increased production and usage of reclaimed water would reduce demand for non-potable, and possibly potable, water within the region. As a result, the *North San Diego County Regional Recycled Water Project* would increase water supply reliability in times of drought. California government agencies could more effectively manage future statewide droughts because the San Diego region has created a local water supply from recycled water and reduced its demand for SWP water. California citizens also benefit as water rationing (in drought years) will be less likely, and they are incrementally less likely to incur water scarcity costs.

Table 7-21: Project Beneficiaries Summary North San Diego County Regional Recycled Water Project

Local	Regional	Statewide
Project partners and residents/rate payers	SDCWA member agencies, SWP customers, Imperial Valley agriculture, and residents	California water regulatory and management agencies, and residents of California

Project Benefits Timeline Description

The North San Diego County Regional Recycled Water Project would provide water supply benefits beginning in 2016 and continuing in excess of the 50-year project lifetime.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of this project are summarized below in Table 7-22. Projected savings through the increased use of recycled water represent best estimates based on the latest available data. Actual water savings will vary.



Table 7-22: Omissions, Biases, and Uncertainties and their Effect on the Project
North San Diego County Regional Recycled Water Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Water Imports Climate 	+/-	Projected SDCWA real water prices are based on projected MWD prices. Projected water rates are based on "normal year" expectations, whereas dry year conditions will add additional cost pressures (and may move some water to higher cost Tier 2 levels). Increasing concerns about climate change, specifically with respect to global warming, may increase evaporation and evapotranspiration resulting in reduced water supplies and putting upward pressure on water prices (holding demand constant). The future price of MWD, and therefore SDCWA water, may be understated and thus net benefits would likely increase.
Regulatory / Legal	+	Recent regulatory/legal issues, specifically those surrounding the Bay-Delta ecosystem with respect to operation of the SWP, increase the likelihood that SDCWA surface water supplies from MWD will be reduced in the future, even at existing demand levels. As a result, prices may increase at higher rates than experienced in the recent past.
 Increased Water Demands 	+/-	SWP and CRA water users may increase demand, which may result in higher rates (holding supply constant). Population projections are forecasted based on a host of assumptions, that when violated, will result in uncertainty about actual future demand for California water.
Untreated SDCWA Water Rate	+	Net benefits of avoided water supply purchases are computed using the untreated SDCWA water rate as the cost of avoided water supply. If demand for non-potable water exceeds supply, potable water may be used to satisfy excess demand in the without project alternative, and the treated SDCWA water rate would be more appropriate for the cost of avoided water.
Higher Cost of Recycled Water	+/-	According to SEJPA data, SDCWA members pay more for recycled water than for untreated water from SDCWA. As a result, the project may increase the marginal cost of water for SDCWA members purchasing recycled water and the avoided water supply cost net benefits are biased upward. To the extent SDCWA members bear the cost of increasing recycled water supply and produce it internally, the cost of recycled water is lower than when purchased from an outside entity (such as SEJPA).
* Magnitude of effect on net bene	+	The monetized value of added reliability is not included in the benefit-cost comparison. Adding the present value benefit of improved water supply reliability into the overall benefit-cost analysis would increase net benefits.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive) ;- (moderate negative); -- (significant negative)

Project 3: North San Diego County Cooperative Demineralization Project

The North San Diego County Cooperative Demineralization Project would result in water supply benefits associated with avoided water supply purchases, increased water sales revenue, and avoided water shortage costs. These water supply benefits are summarized below in Table 7-23. The magnitude of benefits, which were monetized when possible, is summarized in Table 7-24. Detailed cost and benefit information associated with implementation of this project, including present value calculations, is available in Appendix 7-2.

Table 7-23: Benefits SummaryNorth San Diego County Cooperative Demineralization Project

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Avoided Water Imports (Demineralization)	Monetized	Local / Regional
Avoided Water Imports (Desalination)	Physical Quantification	Local / Regional
Increased Water Sales Revenue	Qualitative	Local / Regional
Improved Water Supply Reliability (Avoided Water Shortage Costs)	Qualitative	Local / Regional / Statewide

Table 7-24: Benefit-Cost Analysis Overview North San Diego County Cooperative Demineralization Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$27,802,301
Monetizable Benefits	
Avoided Water Imports (Demineralization)	\$55,645,552
Qualitative Benefits	Qualitative Indicator*
Avoided Water Imports (Desalination)	+
Increased Water Sales Revenue	+
Improved Water Supply Reliability	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *North San Diego County Cooperative Demineralization Project* were not implemented, there would be potential shut down of the San Elijo Water Reclamation Facility (SEWRF) due to regulatory noncompliance with the facility's Master Recycled Water Permit, which prohibits the distribution of effluent that does not comply with certain numeric values, including total dissolved solids (TDS). If the facility were shut down, approximately 1,200 AFY of reclaimed water currently produced at the SEWRF would no longer be available to local water purveyors: Santa Fe Irrigation District (SFID), San Dieguito Water District (SDWD), and the City of Del Mar. These purveyors currently use or sell reclaimed water to customers including golf courses, school districts, homeowners associations, and others.⁸ At present, water that is not supplied by the SEWRF is largely conveyed to customers throughout the San Diego region by the San Diego County Water Authority (SDCWA). SDCWA's water supply is approximately 70 to 90 percent imported water, which is supplied to the region from either the Metropolitan Water District of Southern California (MWD) or the Imperial Irrigation District (IID).

⁸ San Elijo Joint Powers Authority Website, "Water Reclamation", Available at: <u>http://www.sejpa.org/index.php?parent_id=26&page_id=29</u> [Accessed December 2010].



Water Supply Benefits

This project would result in benefits associated with increasing the reclaimed water production capacity at the SEWRF by 560 AFY beginning in 2012. These water supply benefits include: avoided costs of imported water, increased water sales revenue, and increased water supply reliability.

Avoided Water Imports

Demineralization

The North San Diego County Cooperative Demineralization Project will increase the recycled water production capacity at the SEWRF by 560 AFY beginning in 2012. This increase in regional recycled water production would reduce local and regional demand for non-potable water by SDCWA member agencies including SFID, SDWD, City of Del Mar, and others currently purchasing reclaimed water from the SEJPA.

Implementation of the North San Diego County Cooperative Demineralization Project allows SEJPA to produce recycled water with TDS levels that meet requirements in the Water Quality Control Plan for the San Diego Basin 9 (Basin Plan). As such, the proposed project prevents the SEWRF from closure under a 'cease and desist' order issued by the San Diego RWQCB.⁹ If the entire SEWRF recycled water production capacity is utilized, which would require development of recycled water distribution capacity and an increase in recycled water demand by SDCWA member agencies, then the project would reduce purchases of SDCWA-supplied water by 3,340 AFY. Increasing local water supplies to SDCWA member agencies would reduce the local and regional demand for imported water, because the current SDCWA water supply is comprised of approximately 70 to 90 percent imported water.

The price of SDCWA untreated water is projected to increase from \$875 to \$1,724 per acre foot from 2012 to 2060, and average \$1,300 per acre foot. Given these values for untreated water, and assuming that the entire SEWRF recycled water capacity is utilized, the annual avoided costs of imported water purchases are expected to average \$4.34 million (before discounting) over the Project's lifetime (from 2012 to 2060). After discounting, the total present value associated with this water supply benefit is \$55,645,552.

Table 7-25: Avoided Imported Water Costs North San Diego County Cooperative Demineralization Project

	Units	Unit Cost	Years	Total Cost
Avoided Imported Water Costs	3,340 AFY	\$875-\$1,724	49	\$222,228,598
Total Avoided Costs after Discounting \$55,645,55				\$55,645,552

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 12 Annual Water Supply Benefits

Desalination

The North San Diego County Cooperative Demineralization Project will also include a feasibility study for constructing and operating a desalination plant. If this plant were to be constructed, it would potentially increase water supply for SDCWA member agencies by 1,122 AFY. Utilizing the aforementioned SDCWA untreated water costs, the increase in local water supply that would be provided by this project with respect to desalination would generate \$1.43 million (before discounting) in annual avoided imported water purchases. This benefit has not been monetized as part of the cost-benefit analysis for this project because initial and O&M costs of the potential desalination plant are not currently available.

Increased Water Sales Revenue

The North San Diego County Cooperative Demineralization Project will increase recycled water production capacity at the SEWRF by 3,340 AFY over the without project alternative. This increased

⁹ California Regional Water Quality Control Board, San Diego Region. July 7, 2010. Review of Monitoring Report for Order No. R9-2000-0010. Letter to Michael Thornton, General Manager, San Eliijo Joint Powers Authority.



water recycled production would increase water sales revenue to the SEJPA. This benefit has not been monetized because the revenue generated is dependent upon sales agreements that have not yet been developed.

Water Supply Reliability

The additional recycled water capacity that would be provided by the *North San Diego County Cooperative Demineralization Project* would also reduce TDS levels in the recycled water delivered by the SEWRF by 300 mg/L compared to current levels. Reducing TDS by this amount would ensure that SEWRF operates in compliance with its Master Recycled Water Permit, which prohibits the distribution of effluent that exceeds the annual average for TDS of 1200 mg/L or the maximum day values for TDS of 1300 mg/L. By ensuring that the SEWRF is in compliance with its required permit, the project would protect the beneficial use that is provided by the existing 2,780 AFY reclaimed water capacity at the SEWRF.

The reliability of a water supply refers to the ability to meet water demands on a consistent basis, even during times of drought or other water supply availability constraints. The existing SEWRF provides a local water source that helps to sustain local water supplies through droughts and through reductions in imported water allocations. This local water source helps to supplement the existing SDCWA water supply, which is primarily comprised of imported water from the State Water Project (SWP) and Colorado River Aqueduct (CRA). Due to SEWRF's role in supplementing SDCWA water supplies, the SEWRF also reduces the local and regional demand for imported water from the SWP and CRA. Reducing demands for statewide water supplies benefits all California residents and state and local government agencies involved in water management, by helping them prepare for drought years by reducing uncertainty about demand for water supplies. By assisting the SEWRF in meeting requirements of its Master Recycled Water Permit, the project would provide benefits associated with maintaining all of the aforementioned benefits that are provided by the SEWRF.

By increasing the reliability of the SEWRF, the project would also benefit SWP and CRA water users, including but not limited to other Southern California municipal water users, Central Valley agricultural, municipal, and industrial water users, and Imperial Valley agricultural water users, by increasing their water supply reliability. Studies have shown municipal water users throughout California are willing to pay a certain amount of money in order to avoid water shortages and reduce water scarcity.¹⁰ Jenkins, Lund, and Howitt (2001) estimated that San Diego County area residents would be willing to pay between \$5 and \$10 (constant \$1995) per person on average (at projected 2020 population levels) to avoid costs associated with water scarcity. Expressed in real 2009 dollar values, these willingness-to-pay estimates range from \$8 to \$15 per person at projected 2020 population levels.¹¹ These benefits were not monetized for the purpose of the benefits calculation for this project.

Distribution of Project Benefits and Identification of Beneficiaries

Table 7-26 summarizes the *North San Diego County Cooperative Demineralization Project*'s beneficiaries, which include local, regional, and statewide beneficiaries. Benefits associated with increased water sales revenue would be local in that any net increase in water sales along the value chain from SEJPA to the retail customer would accrue as a benefit.

Regional beneficiaries would include SWP contractors, Imperial Valley agriculture water users, and residents within the San Diego region. As stated in the benefits analysis, increasing and protecting reclaimed water production capacity at SEWRF reduces demand for SDCWA water by SDCWA member

¹⁰ Jenkins, Lund, and Howitt (2001) use programming methods to measure the per capita value of urban water scarcity by Detailed Analysis Unit (DAU) throughout California at projected population levels in the year 2020. The results show estimated scarcity values ranging between \$5 and \$20 per person in the San Diego Region DAUs (in constant \$1995). Scarcity values are measured as lost consumer surplus resulting from changes in quantity of water available for a given willingness-to-pay schedule and depend heavily on the estimated price elasticity of demand for urban water supplies.

¹¹ These values are based on the Consumer Price Index for all urban consumers in the San Diego Metropolitan Statistical Area.



agencies SFID, SDWD, City of Del Mar, and others. In turn, SDCWA may reduce its water imports from suppliers MWD and IID. Use values associated with incremental water supplies can accrue to all SWP and CRA contractors. In the case of increased water for agriculture, benefits would be measured as the marginal value of production, less the marginal cost of additional units of available SWP and IID water available at the farm gate. In addition, increasing water supplies available from the SEWRF would allow SDCWA member agencies to avoid costs associated with purchasing water supplies from SDCWA. In turn, SDCWA may reduce its water imports from MWD and IID, which would provide benefits to all SDCWA member agencies. This project would also benefit the *North San Diego County Regional Recycled Water Project* by creating an additional 560 AFY of recycled water supply that would be beneficially used by that project.

The project would also have statewide beneficiaries, because the project would increase water supply reliability in times of drought. If this benefit were to occur, California government agencies could more effectively manage future statewide droughts because the San Diego region will have created a local water supply from recycled water and reduced its demand for imported water. California citizens also benefit as water rationing (in drought years) will be less likely, and they are incrementally less likely to incur water scarcity costs.

Table 7-26: Project Beneficiaries Summary North San Diego County Cooperative Demineralization Project

Local	Regional	Statewide
SEJPA and SDCWA member agencies; project partners	SWP contractors, IID customers, SDCWA member agencies, residents, and project partners	California water regulatory and management agencies, and residents

Project Benefits Timeline Description

Water supply benefits from this project associated with avoiding water imports due to increasing reclaimed water and due to increasing desalinated water would begin in 2012 and span for at least the 48-year project lifetime (through 2060).

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be addressed and mitigated during the CEQA compliance process. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of the North San Diego County Cooperative Demineralization Project are summarized below in Table 7-27. Uncertainties regarding the benefits associated with the avoided cost of imported water are due to uncertainties regarding climate, regulatory/legal issues, water demands, SEWRF distributional capacity, untreated SDCWA water rates, demand for SEWRF recycled water, and the cost of recycled water. In addition, uncertainties regarding water supply reliability would generate uncertainties regarding the benefits that this Project would provide regarding water supply reliability.



Table 7-27: Omissions, Biases, and Uncertainties and the	eir Effect on the Project
North San Diego County Cooperative Demineral	ization Project

Benefit or Cost Category	Likely Impact on Net Benefits*	Comment
 Avoided Water Imports Climate 	+/-	Projected SDCWA real water prices are based on projected MWD prices. Projected water rates are based on "normal year" expectations, whereas dry year conditions will add additional cost pressures (and may move some water to higher cost Tier 2 levels). Increasing concerns about climate change, which may increase evaporation and transpiration resulting in reduced water supplies and putting upward pressure on water prices (holding demand constant). The future price of MWD, and therefore SDCWA, water may be understated and thus net benefits associated with this project would likely increase.
Regulatory / Legal	+	Recent regulatory/legal issues, specifically those surrounding the Bay-Delta ecosystem with respect to operation of the SWP, increase the likelihood that SDCWA surface water supplies from MWD and IID will be reduced in the future, even at existing demand levels. As a result, prices may increase at higher rates than experienced in the recent past. The future price of MWD, and therefore SDCWA, water may be understated and thus net benefits associated with this project would likely increase.
Increased Water Demands	+/-	SWP and CRA water users may increase demand, which may result in higher rates (holding supply constant). Population projections are forecasted based on a host of assumptions, that when violated, will result in uncertainty about actual future demand for California water.
SEWRF Distribution Capacity		Uncertainty exists as to when distributional capacity at the SEWRF will be expanded to fully utilize increased recycled water production resulting from the project. This uncertainty could decrease net benefits, because current calculations assume immediate use of the entire incremental recycled water capacity resulting from the project.
Untreated SDCWA Water Rate	+	Net benefits of avoided water imports are computed using the untreated SDCWA water rate as the cost of avoided water supply. If demand for non-potable water exceeds supply, potable water may be used to satisfy excess demand in the without project alternative, and the treated SDCWA water rate would be more appropriate for the cost of avoided water.
Demand for SEWRF Recycled Water	+/-	The SEWRF currently distributes 1,200 AFY of recycled water to SDCWA members and others in the San Diego area. This amounts to less than 50% of the existing 2,780 AFY recycled water capacity. Net benefits computations assume demand for recycled water will increase by 2,140 AFY by 2012. Uncertainty exists, but the IRWM Plan has set specific mandatory levels of growth in recycled water use from 14,380 AFY to 47,580 AFY.
Higher Cost of Recycled Water		SDCWA members pay more for recycled water from SEJPA than for untreated water from SDCWA. As a result, the project may increase the marginal cost of water for SDCWA members purchasing recycled water from SEWRF, which would mean that the avoided water supply cost net benefits of the project are overestimated.
Water Supply Reliability *Magnitude of effect on net bene	+	The monetized value of added reliability is not included in the benefit-cost comparison. Adding the present value benefit of improved water supply reliability into the overall benefit-cost analysis would increase net benefits.

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The benefits that are anticipated to result from implementation of the *Rural Disadvantaged Community (DAC) Partnership Project* are summarized below in Table 7-28, and the cost-benefit overview is summarized in Table 7-29. This project would result in qualitative and monetized water supply benefits, as well as qualitative and quantitative water quality and other benefits (refer to Attachment 8). Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

Table 7-28: Benefits Summary Rural DAC Partnership Project

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Avoided Water Supply Purchases	Monetized	Local
Water Supply Reliability	Qualitative	Local, regional, and statewide

Table 7-29: Benefit-Cost Analysis Overview Rural DAC Partnership Project

Present Value (\$2009)
\$707,463
\$172,718
Qualitative Indicator*
+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, the Rural Community Assistance Corporation (RCAC) would not have funding for rural disadvantaged communities (DAC) projects that address critical water supply and wastewater needs of rural DACs. Therefore, without this project, the identified benefits to water supply, water quality, and other water-related factors would not be realized.

Water Supply Benefits

This project would result in the water supply benefits associated with avoided water supply purchases. Detailed cost and benefit information associated with the Project, including present value calculations, is presented in Appendix 7-2.

Avoided Water Supply Purchases

The *Rural DAC Partnership Project* would potentially involve multiple small projects that address critical infrastructure improvements for rural DACs. For purposes of this analysis, two potential critical water resources projects were selected as proxies by which to estimate the potential benefits that would be a result of implementation of this project (*Sample Project 1: MGB Well Rehab and Treatment Plan Renovation* is discussed below).

Sample Project 1: MGB Well Rehab and Treatment Plan Renovation would modify a sole source well for increased production, which would replace iron and magnesium treatments for well water because these previous treatment mechanisms have previously been unsuccessful. Further, in this particular well, the water source does not meet existing demands, and therefore requires community rationing of the water supply. Because there is an inadequate water supply and inadequate groundwater quality, community members must purchase water (mainly bottled water) to supplement their water supply.

Sample Project 1: MGB Well Rehab and Treatment Plan Renovation would provide monetary benefits by reducing the need for residents to purchase alternative water supplies. For purposes of this analysis, the local resident population was assumed to be 50 in the project area, and it was assumed that on average half of the residents (25 people) purchase bottled water either to avoid consuming contaminated water or due to lack of available water. In addition, it was assumed that each person requires one gallon per day of drinking water, or 365 gallons per year. The cost of a gallon of water is estimated to be between \$1.50 and \$2.00, for an average of \$1.75 per gallon.

In total, the *Rural DAC Partnership Project* would result in water supply benefits during the lifetime of the project (from 2011 to 2030) and would total \$172,718 over that lifetime.

Table 7-30: Avoided Water Supply Purchases Rural DAC Partnership Project

	Affected Residents	Gallons per person (per year)	Alternative Water Supply Costs (per gallon)	Years	Total Costs
Avoided Water Supply Purchases	25	365	\$1.75	20	\$319,375
Total Avoided Water Supply Purchases after Discounting \$172,7			\$172,718		

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 12 Annual Water Supply Benefits

Water Supply Reliability

The reliability of a water supply refers to the ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Rural DAC Partnership Project* provides for imported water supply reliability through improving the availability of local water.

Although interest in water supply reliability is increasing, only a few studies have directly attempted to quantify its value. The results from these studies do indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Studies have shown municipal water users throughout California are willing to pay a certain amount of money in order to avoid water shortages and reduce water scarcity.¹² Jenkins, Lund, and Howitt (2001) estimated that San Diego County area residents would be willing to pay between \$5 and \$20 (constant \$1995) per person on average (at projected 2020 population levels) to avoid costs associated with water scarcity. Expressed in real 2009 dollar values, these willingness-to-pay estimates range from \$8 to \$15 per person at projected 2020 population levels.¹³ Due to the complexity and uncertainty regarding the monetary benefits that would result from increasing water supply reliability, these benefits were not monetized.

Distribution of Project Benefits and Identification of Beneficiaries

The *Rural DAC Partnership Project* would improve the local water supply reliability for small rural systems within the project area, thereby benefitting local residents.

Table 7-31: Project Beneficiaries Summary Rural DAC Partnership Project

Local	Regional	Statewide
Local residents	Not Applicable	Not Applicable

¹² Jenkins, Lund, and Howitt (2001) use programming methods to measure the per capita value of urban water scarcity by Detailed Analysis Unit (DAU). Scarcity values are measured as lost consumer surplus resulting from changes in quantity of water available for a given willingness-to-pay schedule and depend heavily on the estimated price elasticity of demand for urban water supplies.

¹³ These values are based on the Consumer Price Index for all urban consumers in the San Diego Metropolitan Statistical Area.



Project Benefits Timeline Description

The *Rural DAC Partnership Project* would provide water supply benefits over a twenty year period beginning in 2011 and ending in 2030.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of this project are summarized below in Table 7-32. Projected savings through avoiding water supply purchases represent best estimates based on the latest available data. Actual water supply benefits will vary.

Table 7-32: Omissions, Biases, and Uncertainties and their Effect on the Project Rural DAC Partnership Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Water Supply	+/-	The percentage of residents purchasing all daily drinking water is unknown. The cost of bottled drinking water is an estimate. Actual prices may be higher or lower than estimated.

* Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The benefits that are anticipated to result from implementation of the *Lake Hodges Water Quality and Quagga Mitigation Measures* project are summarized below in Table 7-33, and the cost-benefit overview is summarized in Table 7-34. This project would result in monetized water supply benefits, as well as qualitative and monetized water quality and other benefits (refer to Attachment 8). Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

Table 7-33: Benefits Summary Lake Hodges Water Quality and Quagga Mitigation Measures

Type of Benefit	Assessment Level	Beneficiaries	
Water Supply Benefits			
Increased Water Supply Usability	Monetized	Local, Regional, and Statewide	
Improved Water Supply Reliability	Qualitative	Local and Regional	

Table 7-34: Benefit-Cost Analysis Overview Lake Hodges Water Quality and Quagga Mitigation Measures

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,517,868
Monetizable Benefits	
Increased Water Supply Usability	\$41,783,290
Qualitative Benefits	Qualitative Indicator*
Improved Water Supply Reliability	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)



The "Without Project" Baseline

If this project were not implemented, there would be continued operation and maintenance costs and associated negative impacts on water supply associated with Quagga infestation. For further information regarding the without project baseline used to determine water quality and other benefits, please refer to Attachment 8.

Water Supply Benefits

This project would result in the water supply benefits water supply benefits associated with improved water supply reliability. Detailed cost and benefit information associated with the project, including present value calculations, is presented in Appendix 7-2.

Increased Water Supply Usability

The Lake Hodges Water Quality and Quagga Mitigation Measures project would increase water supply usability by reducing facility shutdowns at Lake Hodges due to Quagga mussel infestation. Such shutdowns render water supplies unusable and force SDCWA member agencies to purchase imported water instead of using local water. The project would avoid facility shutdown and result in an increase in usable water supplies from 9,000 AFY to 11,400 AFY, an increase of 2,400 AFY. As a result of this potential local annual yield, less imported water would be purchased. Additionally, the reduced shutdown would improve the facility's ability to pump water out of the reservoir during wet weather events, thus reducing the likelihood of a loss of water over the dam spillway. The value of this benefit would start in 2011 and continue until 2060.

As shown in Table 7-35, the monetized benefit is based on SDCWA untreated water rates and would represent a total present value of \$41,783,290 (in 2009 dollars).

Table 7-35: Avoided Imported Water Costs
Lake Hodges Water Quality and Quagga Mitigation Measures

	Units	Unit Cost	Years	Total Cost
Avoided Imported Water Costs	2,400 AFY	\$842-\$1,724	50	\$161,705,964
Total Avoided Costs after Discounting				\$41,783,290

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 12 Annual Water Supply Benefits

Improved Water Supply Reliability

The reliability of a water supply refers to the ability to meet water demands on a consistent basis, even in times of drought or other constraints on source water availability. The *Lake Hodges Water Quality and Quagga Mitigation Measures* project provides for imported water supply reliability through improving the availability of local water.

Although interest in water supply reliability is increasing, only a few studies have directly attempted to quantify its value. The results from these studies do indicate that residential and industrial (i.e., urban) customers seem to value supply reliability quite highly. Stated preference studies find that the annual value of reliability ranged from \$93 to \$489 per household (updated to 2009 dollars) for total reliability (i.e., a 0% probability of their water supply being interrupted in times of drought).¹⁴

The challenge for use of these values to determine a value of the project is recognizing how to reasonably interpret these survey-based household monetary values. The values noted above reflect a willingness-to-pay to ensure complete reliability (zero drought-related use restrictions in the future), whereas the *Lake Hodges Water Quality and Quagga Mitigation Measures* project enhances only overall reliability, but does not guarantee 100% reliability. Thus, the dollar values from the studies will probably

¹⁴ San Diego County Water Authority on behalf of the San Diego Regional Water Management Group. 2008. San Diego Integrated Regional Water Management Grant Application, IRWM Implementation Grant, Round 2, Step 2 Program.

overstate the reliability value provided by the project. As such, this assessment does not apply a specific monetized value to overall reliability, but acknowledges the benefits as qualitative.

Distribution of Project Benefits and Identification of Beneficiaries

This project would avoid importing an additional 2,400 AFY of MWD water supplies which would result in lower water rates paid by local ratepayers. The project would also potentially result in water supply benefits to MWD customers by reducing regional water import demands, therefore resulting in increased water supply availability to other MWD customers. Lastly, the project would potentially benefit statewide stakeholders by reducing the demand for imported water exports from the San Francisco San Joaquin Bay-Delta (Bay-Delta). Reducing demands on Bay-Delta water would benefit statewide stakeholders by increasing habitat quality and associated ecosystem conditions provided by the Bay-Delta ecosystem.

Table 7-36: Project Beneficiaries Summary Lake Hodges Water Quality and Quagga Mitigation Measures

Local	Regional	Statewide
Local water ratepayers	Regional MWD customers	Bay-Delta ecosystem

Project Benefits Timeline Description

This project would provide water supply benefits beginning in 2011 and continuing in excess of the 50year project lifetime.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of this project are summarized below in Table 7-37. Projected savings through the reduction of Quagga infestation represent best estimates based on the latest available data. Actual water savings will vary.

Table 7-37: Omissions, Biases, and Uncertainties and their Effect on the Project Lake Hodges Water Quality and Quagga Mitigation Measures

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Increased Water Supply Usability		
Water rate forecast	+/-	Margin of error implicit in forecasting.
Climate	+	Forecasts also are driven by "normal year" expectations, whereas dry year conditions will add additional cost pressures (and may move some of the imported water to higher cost Tier 2 levels).
Regulatory/legal	+	Regulatory/ legal issues combine to make it more likely than not that the future availability of MWD-provided imported waters will be increasingly constrained, and that costs will escalate at rates higher than experienced in the recent past.
 Increased water demands 	+	Other SWP users may increase their demand and may result in higher rates (holding supply constant).
Improved Water Supply Reliability	+	The monetized value of added reliability is not included in the benefit-cost comparison. If we had added the present value benefit of improved water supply reliability in the overall benefit-cost analysis, it would increase net benefits.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)



Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

The water supply benefits that are anticipated to result from implementation of the *Implementing Nutrient Management in the Santa Margarita River Watershed* project are summarized below in Table 7-38, and the cost-benefit overview is summarized in Table 7-39. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

Table 7-38: Benefits Summary Implementing Nutrient Management in the Santa Margarita River Watershed

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Avoided Water Imports	Monetized	Local

Table 7-39: Benefit-Cost Analysis Overview Implementing Nutrient Management in the Santa Margarita River Watershed

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,534,082
Monetizable Benefits	
Avoided Water Imports	\$40,866,899
Qualitative Benefits	Qualitative Indicator*
N/A	N/A

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, the Rancho California Water District (RCWD) would continue to purchase an average of 4,000 acre feet per year (AFY) of water from the Metropolitan Water District of Southern California (MWD) for delivery to the Santa Margarita River in order to augment flows in accordance with an agreement between RCWD and the Santa Margarita Watermaster. For further information regarding the without project baseline used to determine water quality and other benefits, please refer to Attachment 8.

Water Supply Benefits

This project would result in the water supply benefits associated with water cost savings. Detailed cost and benefit information associated with the Project, including present value calculations, is presented in Appendix 7-2.

Avoided Water Imports

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project could result in avoided water imports by RCWD if found that they could use recycled water instead of imported raw water to augment flows in the Santa Margarita River. The proposed project would study and refine water quality objectives for the Santa Margarita River watershed, which could possibly find that a broader range of water sources, such as recycled water, may be naturally sustained to the Santa Margarita River.

RCWD currently delivers an average of 4,000 AFY of untreated Tier 2 water supplies from MWD, and these costs are anticipated to increase over time (refer to Table 7-1-2 in Appendix 7-1). If recycled water could be used to meet RCWD's delivery requirements, the cost for this water would be lower than the cost of using untreated Tier 2 supplies.

The cost for production of recycled water by RCWD was assumed to be \$525/AF, and this cost was assumed to remain constant over the time for which water supply benefits would extend (2016 to 2045). The cost for recycled water takes into account current costs of recycled water, which are \$225/AF, and then assumes that the recycled water would need to be desalinated to meet the TDS standard of 500

ppm. This desalination effort would cost approximately \$300/AF, thereby rendering the cost of recycled water at approximately \$525/AF.

The price of MWD Tier 2 water is projected to increase from \$1,118 to \$2,662 per acre foot from 2016 to 2045, and average \$1,791 per acre foot. Given these values for untreated water, and assuming that the project would avoid purchasing 4,000 AFY of Tier 2 water supplies from MWD from 2016 to 2045, the annual avoided costs of imported water purchases are expected to average \$7.2 million (before discounting).

After discounting, and taking into account the costs associated with recycled water, the total present value associated with this water supply benefit is \$40,866,899.

Table 7-40: Avoided Water Import Costs Implementing Nutrient Management in the Santa Margarita River Watershed

	Units	Unit Cost	Years	Total Cost
Avoided Water Import Costs	4,000 AFY	\$1,118 - 2,662	30	\$214,893,698
Costs of Recycled Water	4,000 AFY	\$525/AF	30	-\$63,000,000
Total Avoided Water Import Costs \$151,893,698				
Tota	I Avoided Water	Import Costs after	Discounting	\$40,866,899

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 7-2, Table 14 Annual Other Water Supply Benefits

Distribution of Project Benefits and Identification of Beneficiaries

Project beneficiaries include local, regional, and statewide beneficiaries, and are summarized in Table 7-41 below. As a result of this project, RCWD would potentially decrease their imported water costs for supplies delivered to the Santa Margarita River. These cost savings could potentially benefit local RCWD water ratepayers served by decreasing local water costs. The project would also potentially result in water supply benefits to MWD customers by reducing regional water import demands, therefore resulting in increased water supply availability to other MWD customers. Lastly, the project would potentially benefit statewide stakeholders by reducing the demand for imported water exports from the San Francisco San Joaquin Bay-Delta (Bay-Delta). Reducing demands on Bay-Delta water would benefit statewide stakeholders by increasing habitat quality and associated ecosystem conditions provided by the Bay-Delta ecosystem.

Table 7-41: Project Beneficiaries Summary Implementing Nutrient Management in the Santa Margarita River Watershed

Local	Regional	Statewide
Local water ratepayers	Regional MWD customers	Bay-Delta ecosystem

Project Benefits Timeline Description

This project would provide water supply benefits beginning in 2016 and continuing through 2045.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the California Environmental Quality Act compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

The potential water supply benefit would only occur after approval by the San Diego RWQCB to use recycled water instead of imported raw water to augment flows in the Santa Margarita River. This potential benefit could only be realized if the recycled water met the developed site-specific water quality objectives for nutrients in the Santa Margarita River (Phase II).

Table 7-42: Omissions, Biases, and Uncertainties and their Effect on the Project Implementing Nutrient Management in the Santa Margarita River Watershed

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Water Imports		This potential benefit could only be realized if the recycled water met the developed site-specific water quality objectives for nutrients in Santa Margarita River (Phase II).

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The benefits that are anticipated to result from implementation of the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project are summarized below in Table 7-43, and the cost-benefit overview is summarized in Table 7-44. This project would not result in quantifiable and/or monetized water supply benefits. Detailed cost and benefit information associated with the Project, including present value calculations, is provided in Appendix 7-2.

Table 7-43: Benefits Summary

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Not Applicable	Not Applicable	Not Applicable

Table 7-44: Benefit-Cost Analysis Overview

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

	Present Value (\$2009)
Costs – Total Capital and O&M	\$4,168,512
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
N/A	N/A

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Water Supply Benefits

There are no expected water supply benefits associated with this project.



Project 8: Pilot Concrete Channel Infiltration Project

The benefits that are anticipated to result from implementation of the *Pilot Concrete Channel Infiltration Project* are summarized below in Table 7-45, and the cost-benefit overview is summarized in Table 7-46. This project would not result in quantifiable and/or monetized water supply benefits, but would generate quantifiable and monetized benefits to water quality (refer to Attachment 8). Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

Table 7-45: Benefits SummaryPilot Concrete Channel Infiltration Project

Type of Benefit	Assessment Level	Beneficiaries		
Water Supply Benefits				
Groundwater Recharge	Qualitative	Regional		

Table 7-46: Benefit-Cost Analysis OverviewPilot Concrete Channel Infiltration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$281,294
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Groundwater Recharge	+/-

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

This project would not result in quantifiable and/or monetized water supply benefits, therefore there is no without project baseline for this project with respect to water supply benefits. For further information regarding the without project baseline used to determine water quality and other benefits, please refer to Attachment 8.

Water Supply Benefits

This project would result in potential future water supply benefits which have not been quantified and/or monetized. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 7-2.

Groundwater Recharge

The *Pilot Concrete Channel Infiltration Project* is located within the City of Santee, overlying two hydrologic sub areas, the Santee Hydrologic Sub Area (907.12) and the El Cajon Hydrologic Sub Area (907.13). According to the *Water Quality Control Plan for the San Diego Basin 9* (Basin Plan), these two hydrologic sub areas are designated for municipal and agricultural uses. The Santee Hydrologic Sub Area is also designated for industrial and processing use, and the El Cajon Hydrologic Sub Area is designated as having the potential to provide this use.

The project would facilitate water infiltration in open bottom concrete channels rather than conveying water to surface water bodies, which would likely help to restore the pre-development hydrology of the project area (Woodglen Vista Creek and its tributaries). Infiltration and restoration of historical hydrology will likely provide groundwater recharge benefits to the aforementioned hydrologic sub areas. Although groundwater in the Santee and El Cajon Hydrologic Sub Areas is designated for municipal, agricultural, and industrial use, groundwater in the project area is currently used in a very limited capacity for irrigation at a local mobile home park. It is likely that groundwater will be used in a broader capacity in the near future, because the Padre Dam Municipal Water District (Padre Dam MWD) has proposed a groundwater recharge project near the southern end of Woodglen Vista Creek for water supply purposes. Because



groundwater in the project area is not currently used as a supply source, however, the groundwater recharge (water supply) benefits that would be provided by the project have not been quantified and/or monetized.

This project also has the potential to provide further water supply benefits if it is used as a pilot project and successfully implemented in other locations where infiltration would provide direct groundwater recharge benefits to usable groundwater supplies. These potential benefits have not been quantified or monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Project beneficiaries include regional beneficiaries, and are summarized in Table 7-47 below. If Padre Dam MWD begins using local groundwater for municipal and industrial (M&I) supply as planned, its customers may have additional groundwater supplies available due to infiltration of stormwater runoff into the groundwater basin.

Table 7-47: Project Beneficiaries SummaryPilot Concrete Channel Infiltration Project

Local	Local Regional Statew	
Not Applicable	Padre Dam MWD customers	Not Applicable

Project Benefits Timeline Description

As described previously, this project would potentially result in future benefits associated with groundwater recharge. However, because these benefits were not monetized or quantifiable, there is no timeline associated with these water supply benefits.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of this proposed project.

Uncertainty of Benefits

Uncertainties relating to the water supply benefits of this project are summarized below in Table 7-48. Water supply benefits associated with this project will increase if groundwater becomes a source of M&I water supplies in the Santee or El Cajon Hydrologic Sub Areas. If groundwater within the project area becomes used as a water supply source, this project would increase local groundwater supplies and potentially offset the need for future alternative water supplies. Due to the uncertainty associated with these water supply benefits, they can be considered negligible or unknown.

Table 7-48: Omissions, Biases, and Uncertainties and their Effect on the Project Pilot Concrete Channel Infiltration Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Groundwater Recharge	+/-	If groundwater becomes a source of M&I water supplies in the future, this project would increase local groundwater supplies that could offset need for alternative supplies

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)



Project 9: San Diego Regional Water Quality Assessment and Outreach Project

The San Diego Regional Water Quality Assessment and Outreach Project would not result in water supply benefits. The overall benefits of the project are summarized below in Table 7-49. The magnitude of benefits, which were monetized when possible, is summarized in Table 7-50. Detailed cost and benefit information associated with implementation of this project, including present value calculations, is available in Appendix 7-2.

Table 7-49: Benefits SummarySan Diego Regional Water Quality Assessment and Outreach Project

Type of Benefit Assessment Level Beneficiaries			
Water Supply Benefits			
Not Applicable	Not Applicable	Not Applicable	

Table 7-50: Benefit-Cost Analysis Overview San Diego Regional Water Quality Assessment and Outreach Project

	Present Value (\$2009)	
Costs – Total Capital and O&M	\$924,578	
Monetizable Benefits		
N/A	N/A	
Qualitative Benefits	Qualitative Indicator*	
N/A	N/A	

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

This project would not result in quantifiable and/or monetized water supply benefits, therefore there is no without project baseline for this project with respect to water supply benefits. For further information regarding the without project baseline used to determine water quality and other benefits, please refer to Attachment 8.

Water Supply Benefits

There are no expected water supply benefits associated with this project.

Project 10: Chollas Creek Integration Project

The *Chollas Creek Integration Project* would not result in water supply benefits, but would result in water quality, flood damage reduction and other benefits. These benefits are summarized below in Table 7-51. The magnitude of benefits, which were monetized when possible, is summarized in Table 7-52. Detailed cost and benefit information associated with implementation of this Project, including present value calculations, is available in Appendix 7-2.

Table 7-51: Benefits Summary Chollas Creek Integration Project

Type of Benefit Assessment Level Beneficiaries			
Water Supply Benefits			
Not Applicable	Not Applicable	Not Applicable	

Table 7-52: Benefit-Cost Analysis Overview Chollas Creek Integration Project

	Present Value (\$2009)	
Costs – Total Capital and O&M	\$1,018,096	
Monetizable Benefits		
N/A	N/A	
Qualitative Benefits	Qualitative Indicator*	
N/A	N/A	

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *Chollas Creek Integration Project* were not implemented, there would be no restoration of native floodplain habitat or associated flood hazard reductions within Chollas Creek. Please refer to Attachment 8 for a detailed description of the without project water quality and ecological baseline for the project.

Water Supply Benefits

There are no water supply benefits associated with this project.

Project 11: Regional Water Data Management Program

The *Regional Water Data Management Program* would not result in water supply benefits. The overall benefits of the project are summarized below in Table 7-53. The magnitude of benefits, which were not monetized, is summarized in Table 7-54. Detailed cost and benefit information associated with implementation of this project, including present value calculations, is available in Appendix 7-2.

Table 7-53: Benefits Summary Regional Water Data Management Program

Type of Benefit Assessment Level Beneficiaries				
Water Supply Benefits				
Not Applicable Not Applicable Not Applicable				

Table 7-54: Benefit-Cost Analysis Overview Regional Water Data Management Program

	Present Value (\$2009)	
Costs – Total Capital and O&M	\$540,043	
Monetizable Benefits		
N/A	N/A	
Qualitative Benefits	Qualitative Indicator*	
N/A	N/A	

* Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Water Supply Benefits

There are no expected water supply benefits associated with this project.



Appendix 7-1:

Estimating the Avoided Future Imported Water Supply Costs from Developing Local Supplies in the San Diego Region

Introduction

Water produced by conservation, recycling, groundwater extraction, and other "local sources" will offset the need to use imported water supply. Imported water supply in the San Diego region is derived from the State Water Project (SWP) and/or Colorado River Aqueduct (CRA) from the Metropolitan Water District of Southern California (MWD). The value of adding new local supplies can thus be estimated based on the costs avoided by reducing local demands for imported water. This assumes that expanding local desalinated capacity beyond levels already anticipated would be more expensive than increasing imports, at the margin.¹⁵

The cost savings arising from reducing demands for imported water should be estimated based on the projected future cost of imports, at the margin. This in turn requires a projection of the cost of providing additional imported water, at the levels needed in the future if local resources are not expanded in accordance with the *San Diego IRWM Implementation Grant Proposal*. The key empirical question for valuation is thus, "What is the future cost, at the margin, of acquiring another acre-foot (AF) of imported water, and having it delivered (and treated, where applicable) to the users of the local supply alternatives?"¹⁶

In addition to avoiding water imports, which would affect the San Diego region's water supply availability, there are project-specific avoided costs that need to be considered and included on a project-by-project basis. For example, an indirect potable reuse (IPR) project would have both the avoided cost of importing water plus the avoided cost of off-loading wastewater treatment and ocean discharge. Another example is a new local groundwater source that is of high enough quality that it can be put directly into the potable system; thus, avoiding the cost of conventional potable treatment [of raw imported water]. Each project assessed in this proposal contains a discussion of project-specific avoided costs.

There are several empirical and conceptual challenges to forecasting the future avoided cost of import water. This appendix discusses these issues and how they were addressed to develop the avoided water supply costs that are used to evaluate the benefits of those projects that provide local water (or conserve water) in the San Diego region.

MWD Wholesale Water Supplies

MWD wholesales water supply to 26 cities and water districts that serve nearly 19 million people in Los Angeles, Orange, San Diego, Riverside, San Bernardino, and Ventura counties. San Diego County Water Authority (SDCWA), who provides water to retailers in the San Diego region, is a member agency of MWD. Rancho California Water District (RCWD), who serves water to customers in the Riverside County portion of the shared Santa Margarita River watershed, purchases water imports from MWD through Eastern Municipal Water District (EMWD) and Western Municipal Water District (WMWD). MWD currently delivers an average of 1.7 billion gallons of water per day to a 5,200-square mile service area.¹⁷ The district imports water from the SWP and CRA to supplement local supplies, and helps its members to develop increased water conservation, recycling, storage, and other resource-management programs.

¹⁵ If imported water is not readily available at the levels necessary in the future to meet local demand, then the avoided water supply costs would need to be estimated based on the projected cost of expanded future use (i.e., more than currently planned) "local" desalination.

¹⁶ Cost of treatment and delivery need to be included in the avoided import water costs, to provide a suitable "applesto-apples" comparison of import water costs to the local supplies. This is because the costs used in these analyses for local supplies are generally inclusive of treatment and delivery.

¹⁷ MWD. 2010. About MWD website: http://www.mwdh2o.com/mwdh2o/pages/about/about01.html.

Many factors affecting supply and demand for MWD water have impacted water rates over the last several years. Court decisions beginning in 2007 severely impacted Sacramento-San Joaquin Delta exports and reduced dramatically the availability of SWP water to MWD. Concurrently, court decisions and several years of drought have reduced the availability of Colorado River water, historically also a major source of MWD water. These factors have affected the available supply of MWD at all price levels. Additional factors affecting the supply side include changes in the costs of productive inputs such as labor, power, and chemicals for water treatment. Factors affecting the demand for MWD water include conservation efforts, efficient technologies, and the availability of substitute water supply sources, among others. Drought, legal rulings, and basic supply and demand will continue to have important, but at present unknown, impacts on water availability and prices in the future, making both short-term and long-term projections subject to uncertainties characteristic of the forecasting process.

The appropriate unit price for valuing avoided costs of imported water purchases depends upon the type of local supply developed, and in turn, the type of water that would have been used in its place under the without project alternative. It was assumed that increases in water produced locally within the San Diego region through conservation, recycling, and groundwater extraction will replace purchases of MWD water at the full service Tier 1 rate. Application of the treated or untreated full service Tier 1 rate depends on the specifics of each local water supply project.¹⁸

MWD full service treated and untreated Tier 1 water rates were projected beginning with calendar year 2011. Actual MWD full service Tier 1 and replenishment water rates effective January 1, 2009, September 1, 2009 and January 1, 2010 were used for 2009-2010.¹⁹ Water rates published by MWD as effective January 1, 2011 and January 1, 2012 are used for 2011-2012. Rates projected for 2013-2060 were based on projected year-over-year percentage changes in MWD water rates as reported at the MWD Member Agency Manager Meeting on the Long Range Finance Plan (July 2010). A 6 percent annual percentage change was used to forecast MWD rates for 2013-2020, while a 3 percent annual change is used to forecast MWD rates for 2021-2060.²⁰ These annual percentage changes are nominal percentage changes, because they include the effect of inflation on water rates, and projected MWD full service Tier 1 water rates are nominal as a result.

The resulting nominal MWD water rates projected for each year 2009–2060 are deflated to real 2009 dollar values using the Consumer Price Index (all items) for All Urban Consumers (CPI-U) in the Los Angeles-Riverside County-Orange County Metropolitan Statistical Area, for which the actual value was used for 2009 and projected values were used for 2010-2060.²¹ Annual nominal water rates were deflated to 2009 dollar values by the following formula:

Real Water Rate_t = Nominal Water Rate_t \div (CPI-U_t \div CPI-U₂₀₀₉)

SDCWA Wholesale Water Supplies

SDCWA, who purchases water imports from MWD, wholesales water to 24 member agencies within its service area. The two key uses for water within the service area are municipal and industrial (M&I), which accounts for 85 percent to 90 percent of total consumption; and agricultural, which accounts for the remaining 10 to 15 percent of the total.

¹⁸ To the extent future water use under the without project alternative is supplied by local Tier 2 water rather than imported Tier 1 water, the total value of avoided water import costs presented in this analysis will be understated by the price differential between full service Tier 2 and Tier 1 MWD rates.

¹⁹ Calendar year 2009 water rates were computed as the weighted average of rates effective January-August and September-December.

²⁰ These percentages are used to forecast untreated and treated Tier 1 and untreated replenishment rates.

²¹ For the 2009, the actual value of the CPI-U for the Los Angeles area was utilized. Values for 2010-2020 were projected based on Congressional Budget Office projections for annual changes in the national CPI-U for 2010-2020. In other words, the CPI-U in Los Angeles was assumed to change at the same rate as the CPI-U for the entire nation. For 2021-2060, CPI-U values for the Los Angeles were projected at the average annual percentage change in the national CPI-U for 2012-2014 (1.7%) and 2015-2020 (2.3%).



Since experiencing severe shortages during the 1987-1992 drought, SDCWA has diversified its sources to enhance overall reliability.²² Today, water supplies within the SDCWA service area include imports from MWD, SDCWA supplies (transfer water from IID and canal-lining water), and local supplies of member agencies. Historically, imports have accounted for the single largest proportion of total supplies, followed by SDCWA supplies and local supplies. Imports from MWD are wholesaled to SDCWA from both SWP and CRA supplies. One of 26 MWD member agencies, SDCWA is the largest agency in terms of deliveries, purchasing 518.625 AF or about 25 percent of all the water MWD delivered in FY 05.23 Both MWD sources have been severely restricted since 2006, however, due to the drought and regulatory restrictions discussed above. Other sources of imported water include the long-term transfer agreement with IID and conserved water from projects lining the All-American and Coachella Canals.²⁴ SDCWA entered into a Water Conservation and Transfer Agreement with IID, an agricultural district in neighboring Imperial County, to receive an annually increasing volume of water from 30,000 AFY in 2005 to 200,000 AFY in 2021. Additionally, the Quantification Settlement Agreement (QSA) on the Colorado River assigned SDCWA rights to 77,700 AFY of conserved water from projects to line the All-American and Coachella Canals. SDCWA also periodically arranges short-term water transfers from agencies in Northern California.

Local water sources for the region include surface water, groundwater, and recycled water. (A seawater desalination plant is expected to go on-line within five years.²⁵) In 1991, local supplies comprised only 5 percent of the Authority's total requirements and MWD imported supplies comprised the remaining 95 percent. By 2010, SDCWA intends to decrease reliance on MWD imports to 62 percent, with increased use of IID transfers and canal-lining waters (21 percent) and local sources (17 percent).²⁶ The local supply goal for 2020 is 40 percent made up of 11 percent from conservation, 10 percent from seawater desalination, 6 percent from recycled water, 7 percent from local surface water, and 6 percent from groundwater.²⁷

Projected Water Rates

SDCWA sells both untreated and treated water to its member agencies. As the name suggests, untreated water is raw and has not been processed to meet minimum standards acceptable for human consumption. Treated water has been treated and meets federal drinking water standards. Because treated water is subject to processing more than the untreated resource, treated water is more expensive. The current treated water surcharge for SDCWA (effective January 1, 2011) is \$215 per AF. Treatment costs have increased to that level from \$125 per AF in calendar year 2006.²⁸

SDCWA has established a two-tier rate structure intended to provide both assurances of needed supplies and encouragement for the local development of water resources by member agencies.²⁹ Including both Tier 1 and Tier 2 classes, SDCWA's water rate schedule parallels that of MWD. Tier 2 rates reflect the cost of developing additional water supplies to enhance the efficient use of local resources.³⁰

For this analysis, only SDCWA Tier 1 rates are projected, as the extent of Tier 2 versus Tier 1 future usage is unknown. The projected future water costs used to calculate the avoided costs of imported water

²² San Diego County Water Authority. 2008. Long-Range Financing Plan 2008. San Diego.

²³ San Diego County Water Authority. 2005. 2005 Urban Water Management Plan Update.

²⁴ For 2011, total IID supply cost to the City of San Diego is \$817 per AF. Note that this is substantially more expensive than comparable untreated MWD imports (\$527 per AF).

²⁵ San Diego County Water Authority. 2008. Long-Range Financing Plan 2008. San Diego.

²⁶ San Diego County Water Authority. 2005. 2005 Urban Water Management Plan Update.

²⁷ Ibid.

²⁸ San Diego County Water Authority. Historical Rates and Charges. Website <u>http://www.sdcwa.org/historical-rates-and-charges</u>, accessed December 13, 2010.

²⁹ Bostad, Dennis, <u>et.al.</u> 2008. Identification of Purchase Quantity of Desalinated Water: Sweetwater Authority. American Water Works Association Sustainable Water Sources Conference.

³⁰ MWD. Water Rates and Charges Effective 1/1/2010, 1/1/2011, and 1/1/2012. Website: <u>http://www.mwdh2o.com/mwdh2o/pages/finance/finance_03.html</u>, accessed December 14, 2010.



reflect a melded supply rate and transportation charges. The melded supply rate for untreated water is a weighted average of the MWD Tier 1 full service volumetric rate, Canal lining water rate, and IID supply cost (\$527 per AF, \$383 per AF, and \$817 per AF, respectively, effective January 1, 2011), and aggregates to \$597 per AF effective that date. The corresponding melded supply rate for treated water is \$812 per AF. The transportation charges on both treated and untreated water are \$75 per AF.

SDCWA water prices include both fixed and variable charges. The variable rates, described above, include the untreated and treated melded supply rates plus transportation charges on a per AF basis. Fixed charges are those which are primarily invariant with water volume and include, across all SDCWA water sources, MWD capacity and readiness-to serve charges; and SDCWA customer service, emergency storage, infrastructure access, and property taxes/in-lieu charges. With transportation charges, the SDCWA melded supply rate for untreated water is \$672 per AF and for treated water is \$887 per AF. With all fixed costs included, SDCWA will charge its member agencies \$811 per AF for untreated water and \$1,026 per AF for treated water, effective January 1, 2011. The difference is the treatment surcharge of \$215 per AF.³¹

In addition to the SDCWA rate for Tier 1 water supply, agencies must pay additional MWD fixed charges, including capacity charge and readiness to serve charge. The amount that each member agency pays for water varies slightly due to translation of the MWD and SDCWA fixed rates into volumetric terms. For example, the City of San Diego's total cost for untreated M&I water is \$904 per AF and for treated water is \$1,119 per AF.³² For this analysis, those MWD fixed charges have been translated into volumetric terms based on the 2011 City of San Diego rates.³³

Table 7-1-1 shows the total "all in" rates for imported water supply, including both SDCWA and MWD charges. The total "all in" water rates for M&I supplies purchased from SDCWA are \$864 for untreated water and \$1,079 for treated water (in 2010 dollars).

	Untreated (\$/AF)	Treated (\$/AF)
Volumetric Charges ¹		
Melded Supply Rate	\$597	\$812
Transportation	\$75	\$75
Melded Tier 1	\$672	\$887
Fixed Charges (in Volumetric Terms) ¹		
Storage	\$95	\$95
Customer Service	\$44	\$44
Total Fixed Charges	\$139	\$139
Total SDCWA Costs for M&I Water	\$811	\$1,026
Additional MWD Fixed Charges ²		
Capacity Charge	\$14	\$14
Readiness to Serve Charge	\$39	\$39
Total "All In" Costs for M&I Water	\$864	\$1,079

Table 7-1-1: San Diego Region Water Rates Effective January 1, 2011 (\$2010)

Sources:

1 San Diego County Water Authority. June 24, 2010. Public Hearing: Recommended CY 2011 Rates and Charges. 2 City of San Diego. October 27, 2010. CY 2011 Rate Fact Sheet: SDCWA Water Rates for the City of San Diego Effective January 1, 2011.

³¹ San Diego County Water Authority. June 24, 2010. Public Hearing: Recommended CY 2011 Rates and Charges.

³² City of San Diego. October 27, 2010. CY 2011 Rate Fact Sheet: SDCWA Water Rates for the City of San Diego Effective January 1, 2011.

³³ City of San Diego. October 27, 2010. CY 2011 Rate Fact Sheet: SDCWA Water Rates for the City of San Diego Effective January 1, 2011.



For this study, changes in imported water costs pertinent for SDCWA are based on distinct sources. Actual rates were used for 2008-2010. For 2011, the calendar year 2011 rates proposed by SDCWA are used. The nominal prices in that sheet are divided by the projected 2011 calendar year average Consumer Price Index for All Urban Consumers (CPI-U) in the San Diego region for a real price equivalent. For the period from 2012 through 2014, changes in nominal water rates are based on projections from the SDCWA Long-Range Financing Plan³⁴ as measured in percentage terms. The nominal price change for each year is then deflated by the projected CPI-U for that year. For the period 2015 through 2060, increases in water rates are assumed to be equal to the projected increases in real rates for both treated and untreated MWD supplies.

As with the above MWD rates, future rates beyond 2012 were projected assuming 6 percent annual nominal increases from 2013 through 2020 and 3 percent annual nominal increases thereafter. For 2011, the resulting nominal price was then deflated by the CPI-U for the Los Angeles area, for which the actual value was used for 2009 and projected values were used for 2010-2060. For prices from 2012 through 2060, the price in each year was multiplied by the sum of (1+ real change in CPI) for each year. For example, the real untreated water rate for 2012 was found using the calculation shown below.

Real untreated water rate for 2012 = (Real untreated water rate for 2011) * (1+% change in CPI for 2012) = \$881 * (1+ 0.0574) = \$930.

As shown in Table 7-1-2, the real price of untreated water purchased from SDCWA increases from \$708 per AF in 2009 to \$1,819 per AF in 2060. The real price of treated water increases from \$876 per AF in 2009 to \$2,332 per AF in 2060.

These values are used in the avoided cost analysis for all San Diego region projects except the Implementing Nutrient Management in the Santa Margarita River Watershed project, for which MWD's Tier 2 water rates are used for RCWD imports.

Year	SDCWA Real Water Rates (\$/AF)	
Teal	Untreated	Treated
2009	\$649	\$817
2010	\$745	\$956
2011	\$842	\$1,051
2012	\$875	\$1,111
2013	\$909	\$1,143
2014	\$943	\$1,179
2015	\$977	\$1,222
2016	\$1,013	\$1,266
2017	\$1,049	\$1,312
2018	\$1,087	\$1,359
2019	\$1,126	\$1,409
2020	\$1,167	\$1,459
2021	\$1,179	\$1,474
2022	\$1,190	\$1,488
2023	\$1,202	\$1,503
2024	\$1,214	\$1,518
2025	\$1,226	\$1,532
2026	\$1,238	\$1,547
2027	\$1,250	\$1,563
2028	\$1,262	\$1,578

Table 7-1-2: SDCWA Projected Real Treated and Untreated Water Rates, 2009-2060 (\$2009)

³⁴ San Diego County Water Authority. 2008. Long-Range Financing Plan 2008. San Diego.

Year	SDCWA Real Wa	ter Rates (\$/AF)
Teal	Untreated	Treated
2029	\$1,274	\$1,593
2030	\$1,287	\$1,609
2031	\$1,299	\$1,625
2032	\$1,312	\$1,641
2033	\$1,325	\$1,657
2034	\$1,338	\$1,673
2035	\$1,351	\$1,689
2036	\$1,364	\$1,706
2037	\$1,378	\$1,723
2038	\$1,391	\$1,740
2039	\$1,405	\$1,757
2040	\$1,419	\$1,774
2041	\$1,433	\$1,791
2042	\$1,447	\$1,809
2043	\$1,461	\$1,827
2044	\$1,475	\$1,844
2045	\$1,490	\$1,863
2046	\$1,504	\$1,881
2047	\$1,519	\$1,899
2048	\$1,534	\$1,918
2049	\$1,549	\$1,937
2050	\$1,564	\$1,956
2051	\$1,579	\$1,975
2052	\$1,595	\$1,994
2053	\$1,611	\$2,014
2054	\$1,626	\$2,033
2055	\$1,642	\$2,053
2056	\$1,658	\$2,074
2057	\$1,675	\$2,094
2058	\$1,691	\$2,114
2059	\$1,708	\$2,135
2060	\$1,724	\$2,156

The water supply benefits of local water supply development and conservation projects are typically characterized according to the avoided costs of obtaining the added yields from the least expensive of the other viable supply options. For the San Diego region, such projects avoid the "all in" water supply costs for imported water, as furnished to the region by SDCWA. In the future, the least expensive avoided costs could pertain to local desalination, if that were to become less expensive than imports. Treatment and distribution costs also need to be factored into the cost of avoided import water, because the local options typically include the cost of delivering treated water to the relevant users.

SDCWA's projected "all in" supply rates – which include the MWD Tier 1 full service volumetric rate, Canal lining water rate, IID supply cost, and various fixed charges – provide a sound basis for beginning the exercise of estimating the avoided cost of imported water. We believe that the avoided costs developed here are generally conservative projections because at the margin, and especially in dry years (but also conceivably in normal ones), offset supplies may need to reflect Tier 2 water rather than Tier 1 water, which are generally more expensive.



RCWD Water Supplies

RCWD lies outside of the San Diego region in southwestern Riverside County. RCWD is a member of the Upper Santa Margarita IRWM program and is a project partner in the *Implementing Nutrient Management in the Santa Margarita River Watershed* project being jointly proposed by the San Diego and Upper Santa Margarita regions. The proposed project could result in avoided water imports by RCWD if found that they could use recycled water instead of imported raw water to augment flows in the Santa Margarita River.

In addition to groundwater (Temecula and Pauba groundwater basins) and recycled water supplies, RCWD purchases water supply from MWD through EMWD and WMWD. Annual imported water purchases by RCWD totaled 51,000 AFY in 2005, or 53 percent of supply.³⁵ To simplify the analysis of avoided imported water costs for RCWD, MWD's Tier 2 untreated water rates in Table 7-1-3 are used for the imported raw water that augments flows in the Santa Margarita River.

	Re	al MWD Water Rates (\$//	4 <i>F)</i>
		Tier 2	
Year	Tier 2	Peaking*	Total
2010	\$811	\$10	\$821
2011	\$869	\$10	\$879
2012	\$920	\$10	\$930
2013	\$953	\$10	\$963
2014	\$1,000	\$10	\$1,010
2015	\$1,049	\$11	\$1,060
2016	\$1,107	\$11	\$1,118
2017	\$1,144	\$11	\$1,155
2018	\$1,186	\$12	\$1,198
2019	\$1,222	\$12	\$1,234
2020	\$1,259	\$13	\$1,271
2021	\$1,296	\$13	\$1,310
2022	\$1,335	\$14	\$1,349
2023	\$1,375	\$14	\$1,389
2024	\$1,417	\$14	\$1,431
2025	\$1,459	\$15	\$1,474
2026	\$1,503	\$15	\$1,518
2027	\$1,548	\$16	\$1,564
2028	\$1,594	\$16	\$1,611
2029	\$1,642	\$17	\$1,659
2030	\$1,692	\$17	\$1,709
2031	\$1,742	\$18	\$1,760
2032	\$1,795	\$18	\$1,813
2033	\$1,848	\$19	\$1,867
2034	\$1,904	\$19	\$1,923
2035	\$1,961	\$20	\$1,981
2036	\$2,020	\$20	\$2,040
2037	\$2,080	\$21	\$2,101
2038	\$2,143	\$22	\$2,165
2039	\$2,207	\$22	\$2,229

Table 7-1-3: MWD Projected Tier 2 Real Water Rates, 2009-2060 (\$2009)

³⁵ Rancho California Water District. 2005. Urban Water Management Plan Update.



	Re	al MWD Water Rates (\$//	AF)
F	Tier 2		
Year	Tier 2	Peaking*	Total
2040	\$2,273	\$23	\$2,296
2041	\$2,341	\$24	\$2,365
2042	\$2,412	\$24	\$2,436
2043	\$2,484	\$25	\$2,509
2044	\$2,559	\$26	\$2,585
2045	\$2,635	\$27	\$2,662
2046	\$2,714	\$28	\$2,742
2047	\$2,796	\$28	\$2,824
2048	\$2,880	\$29	\$2,909
2049	\$2,966	\$30	\$2,996
2050	\$3,055	\$31	\$3,086
2051	\$3,147	\$32	\$3,179
2052	\$3,241	\$33	\$3,274
2053	\$3,338	\$34	\$3,372
2054	\$3,439	\$35	\$3,473
2055	\$3,542	\$36	\$3,578
2056	\$3,648	\$37	\$3,685
2057	\$3,757	\$38	\$3,796
2058	\$3,870	\$39	\$3,909
2059	\$3,986	\$40	\$4,027
2060	\$4,106	\$42	\$4,147

* MWD's peaking charge is asses on a per CFS basis once a year, the value shown here is the approximate \$/AF cost assuming that any local supply offset reduces peak demands proportionally Source: MWD, draft long term water rates presented at Member Agency Long Range Finance group (July 2010) through 2019 (after 2019, extended using 3% escalation per year)



Appendix 7-2: Economic Analysis Tables

✓ Project 1: Sustainable Landscapes Program

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	Attached

✓ Project 2: North San Diego County Regional Recycled Water Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	Attached

✓ Project 3: North San Diego County Cooperative Demineralization Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	Attached

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	Attached

✓ Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	Attached
Table 15 – Total Water Supply Benefits	

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	Not Applicable
Table 15 – Total Water Supply Benefits	Not Applicable



✓ Project 8: Pilot Concrete Channel Infiltration Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	
Project 9: San Diego Regional Water Quality Assessment and Outreach P	••

✓ Project 9: San Diego Regional Water Quality Assessment and Outreach Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	
Table 15 – Total Water Supply Benefits	

✓ Project 10: Chollas Creek Integration Project

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	
Table 14 – Annual Other Water Supply Benefits	Not Applicable
Table 15 – Total Water Supply Benefits	

✓ Project 11: Regional Water Data Management Program

Table 11 – Annual Cost of Project	Attached
Table 12 – Annual Water Supply Benefits	
Table 13 – Annual Costs of Avoided Projects	Not Applicable
Table 14 – Annual Other Water Supply Benefits	Not Applicable
Table 15 – Total Water Supply Benefits	Not Applicable

					nual Cost of Projec d be in 2009 dollars				
				Project: Sustainab		gram			
	Initial Costs	(1)		Operations and Ma		(0)		1	ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g) Tatal Casta	(h)	(i)
Year	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs (x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	
2010	\$60,784	\$0	\$0	\$0	\$0	\$0	\$60,784	0.94	\$57,319
2011	\$353,457	\$0	\$0	\$0	\$0	\$0	\$353,457	0.89	\$314,577
2012 2013	\$358,340	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$358,340	0.84	\$301,005
2013	\$358,340 \$269,080	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$358,340 \$269,080	0.79	\$283,805 \$201,003
2014	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	0.71	\$0
2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.67	\$0
2017	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.63	\$0
2018	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.59	\$0
2019	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.56	\$0
2020	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.53	\$0
2021	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.50	\$0 \$0
2022	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.47	\$0
2023	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	0.44	\$0
2024	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	\$0	0.39	\$0
2026	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0
2028	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.33	\$0
2029	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.31	\$0
2030	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.29	\$0
2031 2032	\$0	\$0 ¢0	\$0	\$0	\$0	\$0	\$0 \$0	0.28	\$0
2032	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.26	\$0 \$0
2033	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.23	\$0
2035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.22	\$0
2036	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.21	\$0
2037	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.20	\$0
2038	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.19	\$0
2039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.17	\$0
2040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2041 2042	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.16	\$0 \$0
2042	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	0.13	\$0
2044	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.13	\$0
2045	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2046	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2047	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.11	\$0
2048		\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2049		\$0 ¢0	\$0	\$0	\$0	\$0	\$0 ¢0	0.10	\$0
2050 2051		\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.09	\$0 \$0
2051	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.09	\$0 \$0
2052		\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	0.08	\$0
2054		\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2055		\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2056		\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2057		\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058		\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059		\$0 \$0	\$0	\$0 ¢0	\$0	\$0	\$0	0.05	\$0
2060 FOTALS	\$0 \$1,400,000	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$1,400,000	0.05 \$17	\$0 \$1,157,709
Project Life	\$1, 4 00,000	Ψ	γu	Ψ				(Sum of Column (i))	¥1,137,703

Lomments: Cost estimates are based on 2010 figures. This pilot will end in 2014, however the benefits will continue beyond. The retrofit require our involvement in the first year of participation via an incentive and/or education and technical assistance.

	(b) Type of Be	nefit: <mark>Avoid</mark> e	ed imported wat	er supply co	sts	(b) Type of Be	enefit:				(b) Type of B							
	(C) Measure o	f Benefit [Un	it]: Acre-Feet pe	er year		(C) Measure o	of Benefit [Ur	nit]:		r	(C) Measure	of Benefit [U	nit]:		r	Discounting Co	lculations for Ec	onomic Benefi
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	Annual Benefits (\$)	(i) Discount Value	(j) Discounte Benefits [h x i]
2009 2010			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	1.000 0.943	\$0 \$0
2011			0.0		\$0			0		\$0			0		\$0	\$0	0.890	\$0
2012 2013	-4.0 -8.0	0.0	4.0 8.0	\$1,111 \$1,143	\$4,466 \$9,188			0		\$0 \$0			0		\$0 \$0	\$4,466 \$9,188	0.840	\$3,751 \$7,277
2013	-18.0	0.0	18.0	\$1,143	\$21,227			0		\$0			0		\$0	\$21,227	0.747	\$15,856
2015	-18.0	0.0	18.0	\$1,222	\$21,994			0		\$0			0		\$0	\$21,994	0.705	\$15,506
2016 2017	-18.0 -18.0	0.0	18.0 18.0	\$1,266 \$1,312	\$22,790 \$23,614			0		\$0 \$0			0		\$0 \$0	\$22,790 \$23,614	0.665	\$15,155 \$14,806
2018	-18.0	0.0	18.0	\$1,359	\$24,468			0		\$0			0		\$0	\$24,468	0.592	\$14,485
2019	-18.0	0.0	18.0	\$1,409	\$25,353			0		\$0			0		\$0	\$25,353	0.558	\$14,147
2020	-18.0	0.0	18.0	\$1,459	\$26,270			0		\$0			0		\$0	\$26,270	0.527	\$13,844
2021 2022	-18.0 -18.0	0.0	18.0 18.0	\$1,474 \$1,488	\$26,528 \$26,788			0		\$0 \$0			0		\$0 \$0	\$26,528 \$26,788	0.497	\$13,184 \$12,563
2022	-18.0	0.0	0.0	\$1,466	\$20,788			0		\$0 \$0			0		\$0	\$20,788	0.469	\$12,565
2023			0.0		\$0 \$0			0		\$0			0		\$0 \$0	\$0	0.442	\$0 \$0
2025			0.0	1	\$0			0		\$0		1	0		\$0	\$0	0.390	\$0
2026			0.0		\$0			0		\$0			0		\$0	\$0	0.371	\$0
2027			0.0		\$0			0		\$0			0		\$0	\$0	0.350	\$0
2028			0.0		\$0			0		\$0		ļ	0		\$0	\$0	0.331	\$0
2029			0.0		\$0			0		\$0			0		\$0	\$0	0.312	\$0
2030 2031			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.294	\$0 \$0
2031			0.0		\$0			0		\$0			0		\$0	\$0	0.262	\$0 \$0
2033			0.0		\$0			0		\$0			0		\$0	\$0	0.247	\$0
2034			0.0		\$0			0		\$0			0		\$0	\$0	0.233	\$0
2035			0.0		\$0			0		\$O			0		\$0	\$0	0.220	\$0
2036			0.0		\$0			0		\$0			0		\$0	\$0	0.207	\$0
2037			0.0		\$0			0		\$0			0		\$0	\$0	0.196	\$0
2038 2039			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.185	\$0 \$0
2039			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.174	\$0 \$0
2040			0.0		\$0			0		\$0			0		\$0	\$0	0.155	\$0 \$0
2042			0.0		\$0			0		\$0			0		\$0	\$0	0.146	\$0
2043			0.0		\$0			0		\$0			0		\$0	\$0	0.138	\$0
2044			0.0		\$0			0		\$0			0		\$0	\$0	0.130	\$0
2045			0.0		\$0			0		\$0			0		\$0	\$0	0.123	\$0
2046			0.0		\$0			0		\$0			0		\$0	\$0	0.116	\$0
2047 2048			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.109	\$0 \$0
2040			0.0		\$0 \$0			0		\$0			0		\$0	\$0	0.097	\$0 \$0
2050			0.0		\$0			0		\$0			0		\$0	\$0	0.092	\$0
2051			0.0		\$0			0		\$0			0		\$0	\$0	0.087	\$0
2052			0.0		\$0			0		\$0			0		\$0	\$0	0.082	\$0
2053	ļ		0.0		\$0			0		\$0			0		\$0	\$0	0.077	\$0
2054			0.0		\$0			0		\$0			0		\$0 \$0	\$0 \$0	0.073	\$0 \$0
2055 2056			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.069	\$0 \$0
2056			0.0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	0.065	\$0 \$0
2058			0.0		\$0			0		\$0			0		\$0	\$0	0.058	\$0
2059			0.0		\$0			0		\$0			0		\$0	\$0	0.054	\$0
2060			0.0		\$0			0		\$0			0		\$0	\$0	0.051	\$0
TOTAL	(174)	-	174	\$14,422	\$232,685	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$232,685	\$14	\$140,57
												Total Pres	ent Value of Disc	counted Be	nefits over Pr			\$140
																	ject Allocation:	100
														sent Value	of Discounted	Benefits (Mone	tized Benefits):	\$140,
	(SDCWA "All In financial bene, Sustainable La During year so have up to 224	n" 2011 Tier 1 fit of this pro indscape Retr of retrofit inc 4 participants	enefit: Using Tier Untreated Wate ject over the 10 y rofits is \$145,980 entive, it is antici The benefit liste	er Rate) the lear life of th or \$14,598 pated the pr ed is proport	projected ne per year. rogram will	Narrative Des		enent.			Narrative De		enem.					
	number of site	s completed	during that year.															
rall Table	Comments:																	

Table 15 - Total Water Supply Benefits (2009 dollars) Project: Sustainable Landscapes Program											
(a) Total Discounted Water Supply Benefits	(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]								
\$140,576	\$0	\$0	\$140,576								
Comments:											

				Il costs should be in 20 ego North Regional R	-	oject			
	Initial Costs		Оре	rations and Maintena	nce Costs	-	-	Discountir	ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs (x (h)
Year 2009	\$0	\$0	\$0	\$0	\$0	έΩ	\$0	1.00	¢0
2009	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.94	\$0 \$0
2010	\$500,000	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$500,000	0.89	\$445,000
2011	\$1,000,000	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$1,000,000	0.84	\$840,000
2013	\$500,000	\$0	\$0	\$0	\$0	\$0	\$500,000	0.79	\$396,000
2014	\$4,125,000	\$0	\$0	\$0	\$0	\$0	\$4,125,000	0.75	\$3,081,375
2015	\$3,125,000	\$0	\$0	\$0	\$0	\$0	\$3,125,000	0.71	\$2,203,125
2016	\$3,125,000	\$0	\$227,500	\$227,500	\$113,750	\$0	\$3,693,750	0.67	\$2,456,344
2017	\$3,125,000	\$0	\$227,500	\$227,500	\$113,750	\$0	\$3,693,750	0.63	\$2,315,981
2018	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.59	\$336,700
2019	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.56	\$317,363
2020	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.53	\$299,731
2021	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.50	\$282,669
2022 2023	\$0 \$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.47	\$266,744
2023	\$0	\$0 \$0	\$227,500 \$227,500	\$227,500 \$227,500	\$113,750 \$113,750	\$0 \$0	\$568,750 \$568,750	0.44	\$251,388 \$237,169
2024	\$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.39	\$221,813
2025	\$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.37	\$211,006
2020	\$0 \$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.35	\$199,063
2028	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.33	\$188,256
2029	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.31	\$177,450
2030	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.29	\$167,213
2031	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.28	\$158,113
2032	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.26	\$149,013
2033	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.25	\$140,481
2034	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.23	\$132,519
2035	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.22	\$125,125
2036	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.21	\$117,731
2037 2038	\$0 \$0	\$0 \$0	\$227,500 \$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.20 0.19	\$111,475
2038	\$0	\$0 \$0	\$227,500	\$227,500 \$227,500	\$113,750 \$113,750	\$0 \$0	\$568,750 \$568,750	0.19	\$105,219 \$98,963
2039	\$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.17	\$93,275
2040	\$0 \$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.16	\$88,156
2042	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.15	\$83,038
2043	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.14	\$78,488
2044	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.13	\$73,938
2045	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.12	\$69,956
2046	T -	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.12	\$65,975
2047		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.11	\$61,994
2048		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.10	\$58,581
2049		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.10	\$55,169
2050		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.09	\$52,325
2051	\$0 \$0	\$0 \$0	\$227,500 \$227,500	\$227,500	\$113,750	\$0	\$568,750	0.09	\$49,481
2052 2053	\$0 \$0	\$0 \$0	\$227,500 \$227,500	\$227,500 \$227,500	\$113,750 \$113,750	\$0 \$0	\$568,750 \$568,750	0.08	\$46,638 \$43,794
2053		\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.08	\$43,794
2054	\$0	\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.07	\$39,244
2055		\$0 \$0	\$227,500	\$227,500	\$113,750	\$0 \$0	\$568,750	0.07	\$36,969
2057	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.06	\$34,694
2058		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.06	\$32,988
2059		\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.05	\$30,877
2060	\$0	\$0	\$227,500	\$227,500	\$113,750	\$0	\$568,750	0.05	\$29,129
TOTALS	\$15,500,000	\$0	\$10,237,500	\$10,237,500	\$5,118,750	\$0	\$41,093,750	\$17	\$17,199,249
Project Life					Total Preser	it Value of I	Discounted Costs	(Sum of Column (i))	
				Transfer to Tabl				Benefit Summaries	

following percentages: Operation at 40%, Maintenance at 40%, and Replacement at 20%.

Picture <									an Diego Nor		y Benefits (<mark>al Recycled</mark>								
Image Image <t< th=""><th></th><th>(b) Type of Be</th><th>nefit: Avoide</th><th>ed purchase of i</th><th>mported wo</th><th>nter</th><th>(b) Type of Be</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>		(b) Type of Be	nefit: Avoide	ed purchase of i	mported wo	nter	(b) Type of Be												
μ μ									nit]:			(C) Measure	of Benefit [U	nit]:			Discounting Co	alculations for E	conomic Benefit
m m		• •		Resulting from Project [e - d] 0		Value [f x g] \$0	• •		Resulting from Project [e - d]		\$ Value [f x g] \$0			Resulting from Project [e - d] 0		\$ Value [f x g] \$0	Annual Benefits (\$) \$0	Value 1.000	[h x i] \$0
m m																			
383 - 0																			
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327 4.40 0 4.40 51.05 54.568.24 0.10 5.00				0		\$0			0					0			\$0	0.705	
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2023 -4,40 0.0 -4,40 5.12 5.88,7.10 0.0 0.0 0.0 0.0 0.0 5.88,82,10 0.02 5.18,7.36 2034 -4,40 0.0 -4,40 5.13 5.88,7.36 0.0 0.0 0.0 0.0 5.88,82,10 0.0 5.18,7.36 2035 -4,40 0.0 -4,40 5.13 5.89,7.36 0.0 0.0 0.0 0.0 0.0 5.89,9.36 0.23 5.13,18,73 2036 -4,440 0.0 -4,400 5.1,78 5.00,793 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 5.00,593 0.207 5.13,193 2037 -4,440 0.0 -4,440 5.1,730 0.0 0.0 0.0 0.0 0.0 0.0 5.00,593 0.404 5.14,230 2038 -4,440 0.0 -4,440 5.1,730 0.0 0.0 0.0 0.0 0.0 0.0 5.00,831 0.1424 2038 -4,440 0. 4,440 1.143																			\$1,603,946
233 4.40 0.0 4.40 51.38 55.940.98 0.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.134 51.94.23 51.94.94.23 51.94.23 <td>2032</td> <td>-4,440</td> <td>0</td> <td>4,440</td> <td>\$1,312</td> <td>\$5,826,149</td> <td></td> <td></td> <td>0</td> <td></td> <td>\$0</td> <td></td> <td></td> <td>0</td> <td></td> <td>\$0</td> <td>\$5,826,149</td> <td>0.262</td> <td>\$1,526,451</td>	2032	-4,440	0	4,440	\$1,312	\$5,826,149			0		\$0			0		\$0	\$5,826,149	0.262	\$1,526,451
2385 4.440 0 4.440 51,314 56,999,99 C 0 50 50 C 0 50 56,997,99 0.20 51,334.34 2337 4.440 0 4.440 51,315 56,177,30 C C 0 50 50 C 0 50 56,079,93 O.30 51,329,00 2338 4.440 0 4.440 54,415 56,177,30 C 0 50 C 0 50 56,177,30 O.38 51,124,01 2040 4.440 0 4.440 54,413 56,297,02 C 0 50 C 0 50 56,297,92 O.144 51,083,04 2040 4.440 0 4.440 4.440 54,413 56,299,079 C 0 50 56,299,079 O.144 51,083,04 2041 4.440 0 4.440 54,413 56,293,079 C 0 50 56,293,079 O.164 51,083,04 2044 4.440 0 4.440 51,442,359 56,083,135	2033	-4,440	0	4,440		\$5,883,262			0		\$0			0		\$0	\$5,883,262	0.247	\$1,453,166
2385 4.440 0 4.440 51,314 56,999,99 C 0 50 50 C 0 50 56,997,99 0.20 51,334.34 2337 4.440 0 4.440 51,315 56,177,30 C C 0 50 50 C 0 50 56,079,93 O.30 51,329,00 2338 4.440 0 4.440 54,415 56,177,30 C 0 50 C 0 50 56,177,30 O.38 51,124,01 2040 4.440 0 4.440 54,413 56,297,02 C 0 50 C 0 50 56,297,92 O.144 51,083,04 2040 4.440 0 4.440 4.440 54,413 56,299,079 C 0 50 56,299,079 O.144 51,083,04 2041 4.440 0 4.440 54,413 56,293,079 C 0 50 56,293,079 O.164 51,083,04 2044 4.440 0 4.440 51,442,359 56,083,135	2034	-4,440	0	4,440	\$1,338	\$5,940,936			0		\$0			0		\$0	\$5,940,936	0.233	\$1,384,238
2027 4,440 0 4,440 0 4,440 5,117,390 5,114,310 5,113,310 5,113,310 5,113,310 5,113,310 5,113,310 5,114,310 <	2035		0						0					0					\$1,319,819
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2000 -4,400 0 6,613,959 0.123 \$81,617 2046 -4,400 0 -4,400 0 -4,400 0 -4,400 0 -4,400 5,567,7472 0 0 50 0 0 50 5,744,727 0.106 57,744,727 0.106 50 5,744,727 0.107	2038	-4,440	0	4,440	\$1,391	\$6,177,363			0		\$0			0		\$0	\$6,177,363	0.185	\$1,142,812
2040 -4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0 4,440 0,440 51,431 56,360,831 0 0 50 0 0 0 50 56,433,190 0.164 53,937,86 2043 -4,440 0 4,440 51,447 56,483,150 0 0 50 0 0 0 56,433,150 0.164 53,937,85 0.136 58,937,85 0.136 58,147,250 0.165 58,147,250 0.166 57,44,721 0 0 0 0 50 56,613,959 0.123 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,147,72 0.130 58,157,130 0.123 58,157,139 0.123 58,157	2039	-4,440	0	4,440	\$1,405	\$6,237,922			0		\$0			0		\$0	\$6,237,922	0.174	\$1,085,399
2042 -4,440 0 4,440 51,447 56,423,190 0 50 50 0 55,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 585,49,75 61.30 587,45,72 60 50 50 60 50 56,74,72 60 50 50 60 50 56,74,72 60.00 50 56,74,710 60,70 56,74,72 60 50 60 50 66,76,79 60,70 56,74,710 60,70 56,74,710 60,70 56,71,60 60,70 56,71,60 60,70 56,70,71,716 60,70 50 50,7			0						0					0					\$1,033,049
2043 -4,440 0 4,440 51,461 \$6,486,156 0 \$0 <t< td=""><td>2041</td><td>-4,440</td><td>0</td><td>4,440</td><td>\$1,433</td><td>\$6,360,831</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td>\$6,360,831</td><td>0.155</td><td>\$985,929</td></t<>	2041	-4,440	0	4,440	\$1,433	\$6,360,831			0		\$0			0		\$0	\$6,360,831	0.155	\$985,929
2044 4,440 0 4,440 51,475 56,549,745 0 \$0 <th< td=""><td>2042</td><td>-4,440</td><td>0</td><td>4,440</td><td>\$1,447</td><td>\$6,423,190</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td>\$6,423,190</td><td>0.146</td><td>\$937,786</td></th<>	2042	-4,440	0	4,440	\$1,447	\$6,423,190			0		\$0			0		\$0	\$6,423,190	0.146	\$937,786
2045 4,440 0 4,440 51,490 56,613,959 1 0 50 50 0 5	2043	-4,440	0	4,440	\$1,461	\$6,486,156			0		\$0			0		\$0	\$6,486,156	0.138	\$895,090
2046 -4,440 0 4,440 \$1,504 \$6,678,799 0 \$0 \$0 0 \$0 <t< td=""><td>2044</td><td>-4,440</td><td>0</td><td>4,440</td><td>\$1,475</td><td>\$6,549,745</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td>\$6,549,745</td><td>0.130</td><td>\$851,467</td></t<>	2044	-4,440	0	4,440	\$1,475	\$6,549,745			0		\$0			0		\$0	\$6,549,745	0.130	\$851,467
2047 -4,440 0 -4,440 51,519 \$6,744,272 0.09 \$735,126 2048 -4,440 0 -4,440 51,534 \$56,810,394 0 50 0 0 \$50 \$6,810,394 0.097 \$670,471 2049 -4,440 0 -4,440 51,546 \$56,817,160 0 \$50 0 0 \$50 \$6,817,160 0.097 \$667,085 2050 -4,440 0 -4,440 \$1,559 \$7,012,668 0 \$50 0 0 \$50	2045	-4,440	0	4,440	\$1,490	\$6,613,959			0		\$0			0		\$0	\$6,613,959	0.123	\$813,517
2048 .4,40 0 4,440 0 4,440 51,534 56,810,394 0 50 50 0 50 <t< td=""><td>2046</td><td>-4,440</td><td>0</td><td>4,440</td><td>\$1,504</td><td>\$6,678,799</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td>\$6,678,799</td><td>0.116</td><td>\$774,741</td></t<>	2046	-4,440	0	4,440	\$1,504	\$6,678,799			0		\$0			0		\$0	\$6,678,799	0.116	\$774,741
2049 -4,440 0 4,440 \$1,549 \$6,877,160 0 \$0 <t< td=""><td>2047</td><td>-4,440</td><td>0</td><td>4,440</td><td>\$1,519</td><td>\$6,744,272</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td></td><td></td><td>0</td><td></td><td>\$0</td><td>\$6,744,272</td><td>0.109</td><td>\$735,126</td></t<>	2047	-4,440	0	4,440	\$1,519	\$6,744,272			0		\$0			0		\$0	\$6,744,272	0.109	\$735,126
2050 -4,40 0 4,40 \$1,54 \$6,94,578 0.092 \$638,901 2051 -4,400 0 4,400 \$1,579 \$7,012,668 0 0 \$0 0 0 \$0 \$7,012,668 0.082 \$580,676 2052 -4,440 0 -4,440 \$1,579 \$7,012,668 0 0 \$0 0 0 \$0 \$7,012,668 0.082 \$580,676 2053 -4,440 0 -4,440 \$1,611 \$7,150,843 0 0 \$0 \$0 \$0 \$50,615 \$50,615 2054 -4,440 0 -4,440 0 -4,440 \$1,626 \$7,220,950 0 0 \$0 \$0 \$0 \$50,615 2055 -4,440 0 -4,440 4,440 \$1,626 \$7,220,930 0 0 \$0 \$0 \$0 \$7,21,739 0.069 \$503,130 2056 -4,440 0 -4,440 51,651 \$7,23,312 0 0 \$0 \$0 \$0 \$0 \$7,363,222 0.06	2048	-4,440	0	4,440	\$1,534	\$6,810,394			0		\$0			0		\$0	\$6,810,394	0.103	\$701,471
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2052 -4,440 0 4,440 \$1,595 \$7,081,415 0 0 \$0 0 \$50 \$0 \$0 \$0 \$50 \$0 \$0 \$0 \$50 \$0 \$0 \$0 \$50 \$0 \$0 \$0 \$50 \$0 \$0 \$7,20,93 0.007 \$550,615 \$50,20,93 0.007 \$550,615 \$0 \$7,220,950 0.07 \$550,615 \$0 \$0 \$7,220,950 0.07 \$550,615 \$0 \$0 \$7,220,950 0.069 \$503,130 \$0 \$0 \$7,220,950 0.069 \$503,130 \$0 \$0 \$0 \$7,220,950 0.069 \$503,130 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 <td></td>																			
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2058 -4,440 0 4,440 \$1,691 \$7,508,311 0 0 \$0 \$0 \$0 \$0 \$7,508,311 0.058 \$435,482 2059 -4,440 0 4,440 \$1,708 \$7,581,927 0 0 \$0 \$0 \$0 \$0 \$50 \$0 0 \$0 \$50 \$57,581,927 0.054 \$411,610 2060 -4,440 0 4,440 \$1,724 \$7,656,259 0 0 \$0 0 \$0 \$57,586,357 0.051 \$392,119 TOTAL -199,800 0 199,800 62,811 278,969,397 0 0 0 0 0 0 278,969,397 10 61,324,264 TOTAL -199,800 62,811 278,969,397 0 0 0 0 0 0 278,969,397 10 61,324,264 TotAL -199,800 62,811 278,969,397 0 0 0 0 0 0 278,969,397 10 61,324,264 Contracting an analysis			-																
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Total Present Value of Discounted Benefits over Project Life (Monetized Benefits): \$61,324, Project Allocation: 100. Total Present Value of Discounted Benefits (Monetized Benefits): \$61,324, State Present Value of Discounted Benefits (Monetized Benefits): \$61,324,																			\$392,119
Project Allocation: 100. Total Present Value of Discounted Benefits (Monetized Benefits): \$61,324,i	TOTAL	-199,800	0	199,800	62,831	278,969,397	0	0	0	0	0	0	-		-		•		
Total Present Value of Discounted Benefits (Monetized Benefits): \$61,324,													Total Preser	nt Value of Disco	unted Bene	efits over Pro	ject Life (Monet	ized Benefits):	\$61,324,20
																	Pro	ject Allocation:	100.0
														Total Prese	ent Value of	Discounted	Benefits (Monet	ized Benefits):	\$61,324,2
		Narrative des	cription of be	enefits:			Narrative des	cription of b	enefits:			Narrative de	scription of b	enefits:					

Table 15 - Total Water Supply Benefits (2009 dollars) Project: San Diego North Regional Recycled Water Project											
(a) Total Discounted Water Supply Benefits	(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]								
\$61,324,268	\$0	\$0	\$61,324,268								
Comments:											

					nual Cost of Projec				
			Project: North	San Diego County		-	n Project		
	Initial Costs			Operations and M	aintenance Costs	-		Discountir	ng Calculations
-	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Year	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs (x (h)
2009	\$159,699	\$2,000	\$60,000	\$10,000	\$0	\$0	\$231,699	1.00	\$231,699
2010	\$431,434	\$2,000	\$60,000	\$10,000	\$0	\$0	\$503,434	0.94	\$474,738
2011	\$4,411,944	\$2,000	\$60,000	\$10,000	\$0	\$0	\$4,483,944	0.89	\$3,990,710
2012	\$6,381,723 \$7,333,333	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$0 \$0	\$0 \$0	\$6,453,723 \$7,405,333	0.84	\$5,421,127 \$5,865,024
2013	\$7,333,333	\$2,000	\$60,000	\$10,000	\$0 \$0	\$0 \$0	\$7,405,333	0.79	\$5,531,784
2014	\$7,333,333	\$2,000	\$60,000	\$10,000	\$0	\$0 \$0	\$7,405,333	0.75	\$5,220,760
2016	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.67	\$47,880
2017	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.63	\$45,144
2018	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.59	\$42,624
2019 2020	\$0 \$0	\$2,000	\$60,000	\$10,000	\$0 \$250.000	\$0	\$72,000	0.56	\$40,176
2020	\$0 \$0	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$250,000	\$0 \$0	\$322,000 \$72,000	0.53	\$169,694 \$35,784
2021	\$0 \$0	\$2,000	\$60,000	\$10,000	\$0	\$0 \$0	\$72,000	0.47	\$33,768
2023	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.44	\$31,824
2024	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.42	\$30,024
2025	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.39	\$28,080
2026	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.37	\$26,712
2027	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.35	\$25,200
2028	\$0 \$0	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$0 \$0	\$0 \$0	\$72,000 \$72,000	0.33	\$23,832 \$22,464
2023	\$0 \$0	\$2,000	\$60,000	\$10,000	\$250,000	\$0 \$0	\$322,000	0.29	\$94,668
2031	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.28	\$20,016
2032	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.26	\$18,864
2033	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.25	\$17,784
2034	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.23	\$16,776
2035	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.22	\$15,840
2036 2037	\$0 \$0	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$0 \$0	\$0 \$0	\$72,000 \$72,000	0.21 0.20	\$14,904 \$14,112
2037	\$0 \$0	\$2,000	\$60,000	\$10,000	\$0	\$0 \$0	\$72,000	0.19	\$13,320
2039	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.17	\$12,528
2040	\$0	\$2,000	\$60,000	\$10,000	\$250,000	\$0	\$322,000	0.16	\$52,808
2041	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.16	\$11,160
2042	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.15	\$10,512
2043	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.14	\$9,936
2044 2045	\$0 \$0	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$0 \$0	\$0 \$0	\$72,000 \$72,000	0.13	\$9,360 \$8,856
2043	\$0 \$0	\$2,000	\$60,000	\$10,000	\$0	\$0 \$0	\$72,000	0.12	\$8,350
2047	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.11	\$7,848
2048	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.10	\$7,416
2049	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.10	\$6,984
2050	\$0	\$2,000	\$60,000	\$10,000	\$250,000	\$0	\$322,000	0.09	\$29,624
2051	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.09	\$6,264
2052 2053	\$0 \$0	\$2,000 \$2,000	\$60,000 \$60,000	\$10,000 \$10,000	\$0 \$0	\$0 \$0	\$72,000 \$72,000	0.08	\$5,904 \$5,544
2053	\$0 \$0	\$2,000	\$60,000	\$10,000	\$0	\$0 \$0	\$72,000	0.08	\$5,256
2055	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.07	\$4,968
2056	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.07	\$4,680
2057	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.06	\$4,392
2058	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.06	\$4,176
2059	\$0	\$2,000	\$60,000	\$10,000	\$0	\$0	\$72,000	0.05	\$3,909
2060 Totals	\$0 \$33 384 800	\$2,000	\$60,000	\$10,000	\$250,000	\$0 \$0	\$322,000	0.05	\$16,491
Project Life	\$33,384,800	\$104,000	\$3,120,000	\$520,000		nt Value of I		\$17 Sum of Column (i)) Benefit Summaries	\$27,802,301

Comments: Administration costs include general administrative activities including but not limited to ordering parts, coordination with vendors, and tracking costs and time (assumed \$2000 annually).

Operations costs include labor for daily operation of facilities, energy costs, and chemical costs (assumed \$60,000 annually). Maintenance costs includes labor and parts for routine and emergency maintenance, as needed (assumed \$10,000 annually).

Replacement costs includes routine replacement of membranes, pumps, electrical equipment, etc. over the life of the project (assumed \$250,000 every 10 years).

	(b) Type of Be reclaimed wa		ed cost of impor	ted water (d	lue to	(b) Type of Be (desalination)		ed cost if impor	ted water				
	(C) Measure o	f Benefit [Un	it]: Acre-feet p	er year		(C) Measure o	of Benefit [Ui	nit]: Acre-feet	per year		Discounting Co	lculations for Ec	onomic Benefit
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(h) Total Annual Benefits (\$)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009 2010			0		\$0 \$0					\$0	\$0 \$0	1.000	\$0 \$0
2010			0		\$0 \$0					\$0 \$0	\$0 \$0	0.943 0.890	\$0
2012	-3,340	0	3,340	\$875	\$2,923,924	-1,122	0	1,122	\$875	\$0	\$2,923,924	0.840	\$2,456,097
2013 2014	-3,340 -3,340	0	3,340 3,340	\$909 \$943	\$3,035,232 \$3,150,079	-1,122 -1,122	0	1,122 1,122	\$909 \$943	\$0 \$0	\$3,035,232 \$3,150,079	0.792	\$2,403,904 \$2,353,109
2015	-3,340	0	3,340	\$977	\$3,264,006	-1,122	0	1,122	\$977	\$0	\$3,264,006	0.705	\$2,301,124
2016 2017	-3,340 -3,340	0	3,340 3,340	\$1,013 \$1,049	\$3,382,058 \$3,504,385	-1,122 -1,122	0	1,122 1,122	\$1,013 \$1,049	\$0 \$0	\$3,382,058 \$3,504,385	0.665	\$2,249,068 \$2,197,250
2017	-3,340	0	3,340	\$1,045	\$3,631,135	-1,122	0	1,122	\$1,045	\$0 \$0	\$3,631,135	0.592	\$2,149,632
2019	-3,340	0	3,340	\$1,126	\$3,762,470	-1,122	0	1,122	\$1,126	\$0	\$3,762,470	0.558	\$2,099,458
2020	-3,340	0	3,340	\$1,167	\$3,898,548	-1,122	0	1,122	\$1,167	\$0	\$3,898,548	0.527	\$2,054,535
2021 2022	-3,340	0	3,340	\$1,179 \$1,190	\$3,936,764	-1,122	0	1,122	\$1,179	\$0 \$0	\$3,936,764	0.497	\$1,956,572
2022	-3,340 -3,340	0	3,340 3,340	\$1,190	\$3,975,366 \$4,014,337	-1,122 -1,122	0	1,122 1,122	\$1,190 \$1,202	\$0 \$0	\$3,975,366 \$4,014,337	0.469	\$1,864,446 \$1,774,337
2023	-3,340	0	3,340	\$1,202	\$4,053,687	-1,122	0	1,122	\$1,214	\$0 \$0	\$4,053,687	0.417	\$1,690,387
2025	-3,340	0	3,340	\$1,226	\$4,093,425	-1,122	0	1,122	\$1,226	\$0	\$4,093,425	0.390	\$1,596,436
2026	-3,340	0	3,340	\$1,238	\$4,133,551	-1,122	0	1,122	\$1,238	\$0	\$4,133,551	0.371	\$1,533,547
2027	-3,340	0	3,340	\$1,250	\$4,174,075	-1,122	0	1,122	\$1,250	\$0	\$4,174,075	0.350	\$1,460,926
2028 2029	-3,340	0	3,340	\$1,262	\$4,214,996	-1,122	0	1,122	\$1,262	\$0	\$4,214,996	0.331	\$1,395,164
2029	-3,340 -3,340	0	3,340 3,340	\$1,274 \$1,287	\$4,256,316 \$4,298,046	-1,122 -1,122	0	1,122 1,122	\$1,274 \$1,287	\$0 \$0	\$4,256,316 \$4,298,046	0.312	\$1,327,970 \$1,263,625
2030	-3,340	0	3,340	\$1,299	\$4,340,188	-1,122	0	1,122	\$1,299	\$0 \$0	\$4,340,188	0.278	\$1,206,572
2032	-3,340	0	3,340	\$1,312	\$4,382,733	-1,122	0	1,122	\$1,312	\$0	\$4,382,733	0.262	\$1,148,276
2033	-3,340	0	3,340	\$1,325	\$4,425,697	-1,122	0	1,122	\$1,325	\$0	\$4,425,697	0.247	\$1,093,147
2034	-3,340	0	3,340	\$1,338	\$4,469,083	-1,122	0	1,122	\$1,338	\$0	\$4,469,083	0.233	\$1,041,296
2035	-3,340	0	3,340	\$1,351	\$4,512,895	-1,122	0	1,122	\$1,351	\$0	\$4,512,895	0.220	\$992,837
2036 2037	-3,340 -3,340	0	3,340 3,340	\$1,364 \$1,378	\$4,557,139 \$4,601,820	-1,122 -1,122	0	1,122 1,122	\$1,364 \$1,378	\$0 \$0	\$4,557,139 \$4,601,820	0.207	\$943,328 \$901,957
2037	-3,340	0	3,340	\$1,378	\$4,646,935	-1,122	0	1,122	\$1,378	\$0 \$0	\$4,646,935	0.195	\$859,683
2039	-3,340	0	3,340	\$1,405	\$4,692,491	-1,122	0	1,122	\$1,405	\$0	\$4,692,491	0.174	\$816,493
2040	-3,340	0	3,340	\$1,419	\$4,738,496	-1,122	0	1,122	\$1,419	\$0	\$4,738,496	0.164	\$777,113
2041	-3,340	0	3,340	\$1,433	\$4,784,949	-1,122	0	1,122	\$1,433	\$0	\$4,784,949	0.155	\$741,667
2042	-3,340	0	3,340	\$1,447	\$4,831,859	-1,122	0	1,122	\$1,447	\$0	\$4,831,859	0.146	\$705,451
2043 2044	-3,340 -3,340	0	3,340 3,340	\$1,461 \$1,475	\$4,879,226 \$4,927,061	-1,122 -1,122	0	1,122 1,122	\$1,461 \$1,475	\$0 \$0	\$4,879,226 \$4,927,061	0.138	\$673,333 \$640,518
2045	-3,340	0	3,340	\$1,490	\$4,975,365	-1,122	0	1,122	\$1,490	\$0	\$4,975,365	0.123	\$611,970
2046	-3,340	0	3,340	\$1,504	\$5,024,142	-1,122	0	1,122	\$1,504	\$0	\$5,024,142	0.116	\$582,800
2047	-3,340	0	3,340	\$1,519	\$5,073,393	-1,122	0	1,122	\$1,519	\$0	\$5,073,393	0.109	\$553,000
2048	-3,340	0	3,340	\$1,534	\$5,123,134	-1,122	0	1,122	\$1,534	\$0	\$5,123,134	0.103	\$527,683
2049 2050	-3,340 -3,340	0	3,340 3,340	\$1,549 \$1,564	\$5,173,359 \$5,224,074	-1,122 -1,122	0	1,122 1,122	\$1,549 \$1,564	\$0 \$0	\$5,173,359 \$5,224,074	0.097	\$501,816 \$480,615
2050	-3,340	0	3,340	\$1,504	\$5,275,295	-1,122	0	1,122	\$1,579	\$0 \$0	\$5,275,295	0.032	\$458,951
2052	-3,340	0	3,340	\$1,595	\$5,327,011	-1,122	0	1,122	\$1,595	\$0	\$5,327,011	0.082	\$436,815
2053	-3,340	0	3,340	\$1,611	\$5,379,238	-1,122	0	1,122	\$1,611	\$0	\$5,379,238	0.077	\$414,201
2054	-3,340	0	3,340	\$1,626	\$5,431,976	-1,122	0	1,122	\$1,626	\$0	\$5,431,976	0.073	\$396,534
2055	-3,340	0	3,340	\$1,642	\$5,485,227	-1,122	0	1,122	\$1,642	\$0	\$5,485,227	0.069	\$378,481
2056 2057	-3,340	0	3,340 3,340	\$1,658 \$1,675	\$5,539,000 \$5,593,308	-1,122 -1,122	0	1,122 1,122	\$1,658 \$1,675	\$0 \$0	\$5,539,000 \$5,593,308	0.065	\$360,035 \$341,192
2057	-3,340	0	3,340	\$1,675	\$5,648,144	-1,122	0	1,122	\$1,675	\$0 \$0	\$5,593,308 \$5,648,144	0.051	\$341,192
2059	-3,340	0	3,340	\$1,708	\$5,703,522	-1,122	0	1,122	\$1,708	\$0	\$5,703,522	0.054	\$309,635
2060	-3,340	0	3,340	\$1,724	\$5,759,438	-1,122	0	1,122	\$1,724	\$0	\$5,759,438	0.051	\$294,972
TOTAL	-163,660	0	163,660	66,536	222,228,598	-54,978	0	54,978	66,536	0	222,228,598	14	55,645,552
							Total Prese	nt Value of Disc	ounted Ber	efits over Pro	oject Life (Mone	tized Benefits):	\$55,645,5
											Pro	ject Allocation:	100.0
	demineralizati production ca need for 560 A	on facilities t pacity of the s NFY of importe ction capacit	nefits: This proj hat will increase SEWRF by 560 A ed water. In add y of 2,780 AFY b	the local re FY, thereby dition the pro	cycled water reducing the oject protects	feasibility stur water produc basin is not cu proof" supply source. Howe	dy for expand tion by 1120 urrently utilize which could ver values an	enefits: This pro ling brackish gro AFY. This repres ed. This also rep result in a highly e represented as	oject will pro oundwater t ents "new" resents a "o y reliable ne s "zero" bec	vide a o potable water as the lrought w water uase initial	Benefits (Mone	tized Benefits):	\$55,645,5
	production ca need for 560 A existing produ	pacity of the s FY of importection capacit mpliance.	SEWRF by 560 A ed water. In ado y of 2,780 AFY b ment for the SE	FY, thereby i dition the pro y ensuring p IPA Recycled	reducing the oject protects ermit and	water produc basin is not cu proof" supply source. Howe and O&M cos	tion by 1120 urrently utilize which could ver values an its for a desal	AFY. This repres ed. This also rep result in a highly e represented as ination facility c	ents "new" resents a "o y reliable ne s "zero" bec ne not curre	water as the Irought w water uase initial			

Table 15 - Total Water Supply Benefits (2009 dollars) Project: North San Diego County Cooperative Demineralization Project											
(a) Total Discounted Water Supply Benefits	(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]								
\$55,645,552	\$0	\$0	\$55,645,552								
Comments:	<u>.</u>										

	Initial Costs		Floject. Kt	Iral Disadvantaged	Maintenance Cost		oject	Discounti	ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
' ear	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs (x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.94	\$0
2011	\$51,667	\$0	\$0	\$0	\$0	\$312,000	\$363,667	0.89	\$323,663
2012	\$103,333	\$0	\$0	\$0	\$0	\$0	\$103,333	0.84	\$86,800
2013	\$375,000	\$0	\$0	\$0	\$0	\$0	\$375,000	0.79	\$297,000
2014	\$0 \$0	\$0 ¢0	\$0 ¢0	\$0	\$0	\$0 ¢0	\$0 \$0	0.75	\$0
2015 2016	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.71 0.67	\$0 \$0
2016	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.67	\$0 \$0
2017	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	0.59	\$0
2019	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.56	\$0
2020	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.53	\$0
2021	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.50	\$0
2022	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.47	\$0
2023	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.44	\$0
2024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.42	\$0
2025	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.39	\$0
2026	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0
2028	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.33	\$0
2029	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.31	\$0
2030	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.29	\$0
2031	\$0 \$0	\$0	\$0	\$0	\$0	\$0	\$0	0.28	\$0
2032 2033	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.26	\$0 \$0
2033	\$0	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	0.23	\$0
2034	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	0.23	\$0
2036	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.21	\$0
2037	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.20	\$0
2038	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.19	\$0
2039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.17	\$0
2040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2042	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.15	\$0
2043	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.14	\$0
2044	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.13	\$0
2045	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2046	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2047 2048	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.11 0.10	\$0 \$0
2048	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.10	\$0 \$0
2049	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.10	\$0 \$0
2050	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	0.09	\$0 \$0
2051	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0
2053	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0
2054	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2055	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2056	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2057	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
2060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
DTALS	\$530,000	\$0	\$0	\$0	\$0	\$312,000	\$842,000	\$17	\$707,463

Comments: Implementation of the two sample projects include \$251,000 for Sample Project 1: MGB Well Rehab and Treatment Plant Renovation and \$566,000 for Sample Project 2: SCWWD Robbins Wastewater Rehabilitation = \$817,000. Assuming that \$505,000 of the proposed budget goes to project implementation, approximately \$312,000 in additional capital costs will be sought from U.S. Department of Agriculture (USDA) Rural Development, U.S. Environmental Protection Agency (USEPA) Region 9, Indian Health Services, and Rural Community Assistance Partnership.

The above table will be completed upon project selection. RCAC will solicit and select DAC projects in 2011, at that time it is anticipated that several projects will be selected (at least one tribal) that will address critical water and/or wastewater needs. DAC projects may not have the ecconomic base to fully support ongoing 0&M needs. In addition, DACs may not have adequately trained personell that can provide effective 0&M of new infrastructure. To offset these shortcomings RCAC will do the following: 1. In the selection process determine how the project will be sustained. 2. Whenever possible select technologies that are straight forward and require less technical expertise and expense to operate. 3. RCAC will go the childra with outside entities such as the Indian Health Services and the California Rural Water Association to further support the 0&M of each project through ongoing technical assistance. This additional TA will not use Prop 84 unds but will be provided by other RCAC resources leveraging Prop 84

to drinking (c) Weisburg 2009 2010 2011 9,125 2012 2013 9,125 2014 9,125 2015 9,125 2014 9,125 2015 9,125 2019 9,125 2021 2022 9,125 2023 2024 9,125 2027 9,125 2029 2021 9,125 2022 9,125 2023 2024 9,125 2030 2031 2032 2033 2034 2035 2034 2035 2036 2037 2038	water constr e of Benefit [L	Unit]: Gallons per (f) Change Resulting		(h) Annual \$ Value [f x g] \$0 \$15,969	(b) Type of B (C) Measure (d) Without Project	enefit: of Benefit [U (e) With Project	nit]: (f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f × g]	(b) Type of B (C) Measure (d) Without Project		nit]: (f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(h) Total Annual Benefits (\$) \$0 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	(i) Discount Value 1.000 0.943 0.890 0.792 0.792 0.795 0.665 0.665 0.527 0.558 0.527 0.497 0.469 0.442	(j) Discounte Benefits [h xi] 50 514,212 513,414 512,647 510,619 510,619 510,619 510,619 510,619 510,619 510,619 510,619 510,619 51,936 57,936 57,938
(c) Measure y Vear Project 2009 Project 2010 -9,125 2011 -9,125 2013 -9,125 2016 -9,125 2017 -9,125 2018 -9,125 2019 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2030 -9,125 2031 -9,125 2033 -9,125 2034 -9,125 2033 -9,125 2034 -9,125 2035 -2034 2036 -2037 2037 -2038	e of Benefit [L (e) With Project 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Unit]: Gallons per (f) Change Resulting from Project [e - d] 0 9,125 9,1	(g) Unit \$ Value 51.75	(h) Annual \$ Value [f x g] \$0 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	(C) Measure (d) Without	of Benefit [U	(f) Change Resulting from Project		\$ Value	(C) Measure (d) Without	of Benefit [U (e) With	(f) Change Resulting from Project		\$ Value	(h) Total Annual Benefits (\$) \$0 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	(i) Discount Value 1.000 0.943 0.840 0.747 0.792 0.747 0.705 0.665 0.627 0.552 0.558 0.557 0.497 0.469	(j) Discount Benefits [h x i] \$0 \$14,212 \$13,414 \$12,647 \$11,929 \$11,258 \$10,619 \$10,012 \$9,454 \$8,911 \$8,416 \$7,936 \$7,7396 \$7,789
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2010 -9,125 2011 -9,125 2013 -9,125 2014 -9,125 2015 -9,125 2016 -9,125 2017 -9,125 2019 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2028 -9,125 2029 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2037 -9,125 2038 -9,125 2031 -2032 2033 -2033 2034 -2035 2037 -2038	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 9,125	\$1.75 \$1.75	\$0 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$0 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.943 0.890 0.840 0.792 0.747 0.705 0.665 0.665 0.627 0.592 0.558 0.558 0.527 0.497	\$0 \$14,212 \$13,414 \$12,647 \$11,929 \$11,258 \$10,619 \$10,012 \$9,454 \$8,911 \$8,911 \$8,416 \$7,936 \$7,489
2012 -9,125 2013 -9,125 2014 -9,125 2015 -9,125 2016 -9,125 2017 -9,125 2018 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2029 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2032 -9,125 2033 -9,125 2034 -9,125 2035 -2036 2034 -2035 2035 -2036 2037 -2037 2038 -2038	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$\begin{array}{c} 9,125\\ 9,$	\$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.840 0.792 0.747 0.705 0.665 0.627 0.592 0.558 0.527 0.497 0.469	\$13,414 \$12,647 \$11,925 \$11,925 \$10,619 \$10,012 \$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2013 -9,125 2014 -9,125 2015 -9,125 2016 -9,125 2017 -9,125 2018 -9,125 2019 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2030 -9,125 2031 -9,125 2033 -2034 2034 -2035 2035 -2034 2035 -2037 2038 -2037	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.792 0.747 0.705 0.665 0.627 0.592 0.558 0.527 0.497 0.469	\$12,647 \$11,929 \$11,258 \$10,619 \$10,012 \$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2014 -9,125 2015 -9,125 2016 -9,125 2017 -9,125 2018 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2022 -9,125 2022 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2029 -9,125 2030 -9,125 2031 -9,125 2032 -9,125 2033 -9,125 2034 -9,125 2035 -9,125 2036 -9,125 2037 -9,125 2038 -9,125	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.747 0.705 0.665 0.627 0.592 0.558 0.527 0.497 0.469	\$11,925 \$11,258 \$10,615 \$10,012 \$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2016 -9,125 2017 -9,125 2018 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2030 -9,125 2030 -9,125 2031 -9,125 2033 -9,125 2034 -9,125 2035 -9,125 2036 -9,125 2037 -9,125 2038 -9,125	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.665 0.627 0.592 0.558 0.527 0.497 0.469	\$10,619 \$10,017 \$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2017 -9,125 2018 -9,125 2019 -9,125 2020 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2029 -9,125 2030 -9,125 2031 -9,125 2032 -2033 2033 -2033 2034 -2035 2035 -2034 2035 -2037 2037 -2038	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.627 0.592 0.558 0.527 0.497 0.469	\$10,012 \$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2018 -9,125 2020 -9,125 2021 -9,125 2021 -9,125 2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2028 -9,125 2030 -9,125 2031 -9,125 2032 -2033 2033 -2034 2034 -20,125 2035 -2034 2035 -2037 2038 -2037	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969	0.592 0.558 0.527 0.497 0.469	\$9,454 \$8,911 \$8,416 \$7,936 \$7,489
2020 -9,125 2021 -9,125 2022 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2029 -9,125 2030 -9,125 2031 - 2033 - 2034 - 2035 - 2036 - 2037 - 2038 -	0 0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969 \$15,969	0.527 0.497 0.469	\$8,416 \$7,936 \$7,489
2021 -9,125 2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2028 -9,125 2030 -9,125 2030 -9,125 2031 -2032 2033 -2033 2034 -2035 2035 -2037 2038 -2037	0 0 0 0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969 \$15,969	0.497 0.469	\$7,936 \$7,489
2022 -9,125 2023 -9,125 2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2029 -9,125 2030 -9,125 2030 -9,125 2031 -2032 2033 -2033 2034 -2035 2035 -2037 2038 -2038	0 0 0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969 \$15,969	0.469	\$7,489
2023 -9,125 2024 -9,125 2025 -9,125 2027 -9,125 2029 -9,125 2030 -9,125 2031 -9,125 2033 -9,125 2034 -9,125 2033 -9,125 2034 -9,125 2035 -9,125 2036 -9,125 2037 -9,125 2038 -9,125	0 0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969											\$15,969		
2024 -9,125 2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2030 -9,125 2031 -9,125 2033 -2032 2033 -2033 2034 -2035 2036 -2037 2038 -2037	0 0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969 \$15,969												0.442	\$7,058
2025 -9,125 2026 -9,125 2027 -9,125 2028 -9,125 2030 -9,125 2030 -9,125 2031 -2032 2033 -2033 2034 -2034 2035 -2034 2036 -2037 2038 -2038	0 0 0 0 0	9,125 9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969 \$15,969				1							\$15,969	0.417	\$6,659
2026 -9,125 2027 -9,125 2028 -9,125 2020 -9,125 2030 -9,125 2031 - 2032 - 2033 - 2034 - 2035 - 2036 - 2037 - 2038 -	0 0 0 0	9,125 9,125 9,125 9,125 9,125	\$1.75 \$1.75 \$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969 \$15,969										<u> </u>	\$15,969 \$15,969	0.417	\$6,659
2027 -9,125 2028 -9,125 2029 -9,125 2031 -9,125 2031 2032 2033 20034 2035 2036 2037 2038	0 0 0	9,125 9,125 9,125	\$1.75 \$1.75 \$1.75	\$15,969 \$15,969 \$15,969									1		\$15,969	0.330	\$5,924
2028 -9,125 2029 -9,125 2030 -9,125 2031 - 2033 - 2034 - 2036 - 2037 -	0	9,125 9,125	\$1.75 \$1.75	\$15,969 \$15,969					1			1		1	\$15,969	0.350	\$5,589
2030 -9,125 2031												1			\$15,969	0.331	\$5,286
2031 2032 2033 2034 2035 2036 2037 2038	0	9,125	\$1.75	645 OCO											\$15,969	0.312	\$4,982
2032 2033 2033 2034 2035 2036 2037 2038 2038 2038 2038 2038 2038 2038 2038				\$15,969											\$15,969	0.294	\$4,695
2033 2034 2035 2036 2037 2038 2038 2038 2038 2038 2038 2038 2038															\$0	0.278	\$0
2034 2035 2036 2037 2038		_													\$0	0.262	\$0
2035 2036 2037 2038															\$0	0.247	\$0
2036 2037 2038		-													\$0 \$0	0.233	\$0 \$0
2037 2038															\$0 \$0	0.220	\$0 \$0
2038															\$0	0.196	\$0
															\$0	0.185	\$0
2039												1			\$0	0.174	\$0
2040															\$0	0.164	\$0
2041															\$0	0.155	\$0
2042															\$0	0.146	\$0
2043		_													\$0	0.138	\$0
2044		-													\$0 \$0	0.130	\$0 \$0
2045															\$0 \$0	0.125	\$0 \$0
2047															\$0	0.110	\$0
2048															\$0	0.103	\$0
2049															\$0	0.097	\$0
2050															\$0	0.092	\$0
2051															\$0	0.087	\$0
2052	_			ļ	 		ļ	I		ļ		ļ		I	\$0	0.082	\$0
2053	_	+												ļ	\$0	0.077	\$0
2054	-		<u> </u>			<u> </u>		<u> </u>					<u> </u>		\$0 \$0	0.073	\$0 \$0
2055		+	-		+	-	-	-	1			-		-	\$0 \$0	0.069	\$0 \$0
2057					+			<u> </u>	1			1		<u> </u>	\$0	0.065	\$0 \$0
2058		1	1		1	1	1	1	1	1		1	1	1	\$0	0.058	\$0
2059			İ		1	1	1	1	1	İ	1	1	İ	1	\$0	0.054	\$0
2060															\$0	0.051	\$0
OTAL -182,500	0	182,500	35	319,375	0	0	0	0	0	0	0	0	0	0	319,375	15	172,71
											Total Prese	nt Value of Disco	ounted Ben	efits over Pro	ject Life (Monet	ized Benefits):	\$172
															Pro	ject Allocation:	10
												Total Prese	ent Value of	f Discounted	Benefits (Monet	tized Benefits):	\$172
increased p worked. So rationing. F	roduction and urce does not Public purchas	benefits: To moa d replace iron/mg d t meet existing der ses bottled water t opulation uses bot	treatment th mands; comi to avoid pub	hat has never munity	Narrative de	scription of b	enefits:			Narrative de	scription of b	penefits:					

Table 15 - Total Water Supply Benefits (2009 dollars) Project: Rural Disadvantaged Community (DAC) Partnership Project											
(a) Total Discounted Water Supply Benefits	(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]								
\$172,718	\$0	\$0	\$172,718								
Comments:	<u>.</u>										

					nual Cost of Projec Id be in 2009 dollars				
				Hodges Water Qua	lity and Quagga M	-	leasures		
	Initial Costs			Operations and Ma					ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Year	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010	\$57,391	\$0	\$0	\$0	\$0	\$0	\$57,391	0.94	\$54,119
2011	\$323,828	\$0	\$0	\$0	\$0	\$0	\$323,828	0.89	\$288,207
2012 2013	\$311,021	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$311,021	0.84	\$261,258
2013	\$507,760 \$0	\$0 \$10,240	\$0 \$6,000	\$0	\$0 \$0	\$0 \$0	\$507,760 \$46,240	0.79	\$402,146 \$34,541
2014	\$0	\$9,600	\$6,000	\$25,000	\$0 \$0	\$0 \$0	\$40,600	0.71	\$28,623
2016	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.67	\$24,871
2017	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.63	\$23,450
2018	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.59	\$22,141
2019	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.56	\$20,869
2020	\$0	\$9,600	\$6,000	\$35,000	\$0	\$0	\$50,600	0.53	\$26,666
2021 2022	\$0 \$0	\$6,400 \$6,400	\$6,000 \$6,000	\$25,000 \$25,000	\$0 \$0	\$0 \$0	\$37,400 \$37,400	0.50	\$18,588
2022	\$0 \$0	\$6,400	\$6,000	\$25,000	\$0 \$0	\$0 \$0	\$37,400	0.47	\$17,541 \$16,531
2023	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.42	\$15,596
2025	\$0	\$9,600	\$6,000	\$35,000	\$20,000	\$0	\$70,600	0.39	\$27,534
2026	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.37	\$13,875
2027	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.35	\$13,090
2028	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.33	\$12,379
2029	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.31	\$11,669
2030	\$0	\$9,600	\$6,000	\$35,000	\$0	\$0	\$50,600	0.29	\$14,876
2031 2032	\$0 \$0	\$6,400 \$6,400	\$6,000 \$6,000	\$25,000 \$25,000	\$0 \$0	\$0 \$0	\$37,400 \$37,400	0.28	\$10,397 \$9,799
2032	\$0 \$0	\$6,400	\$6,000	\$25,000	\$0 \$0	\$0 \$0	\$37,400	0.26	\$9,799
2033	\$0 \$0	\$6,400	\$6,000	\$25,000	\$0	\$0 \$0	\$37,400	0.23	\$8,714
2035	\$0	\$9,600	\$6,000	\$35,000	\$20,000	\$0	\$70,600	0.22	\$15,532
2036	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.21	\$7,742
2037	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.20	\$7,330
2038	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.19	\$6,919
2039	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.17	\$6,508
2040 2041	\$0 \$0	\$9,600 \$6,400	\$6,000 \$6,000	\$35,000 \$25,000	\$0 \$0	\$0 \$0	\$50,600 \$37,400	0.16	\$8,298 \$5,797
2041	\$0 \$0	\$6,400	\$6,000	\$25,000	\$0 \$0	\$0 \$0	\$37,400	0.10	\$5,460
2042	\$0 \$0	\$6,400	\$6,000	\$25,000	\$0	\$0 \$0	\$37,400	0.13	\$5,161
2044	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.13	\$4,862
2045	\$0	\$9,600	\$6,000	\$35,000	\$20,000	\$0	\$70,600	0.12	\$8,684
2046	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.12	\$4,338
2047	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.11	\$4,077
2048	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.10	\$3,852
2049	\$0	\$6,400	\$6,000 \$6,000	\$25,000	\$0	\$0	\$37,400	0.10	\$3,628
2050 2051	\$0 \$0	\$9,600 \$6,400	\$6,000 \$6,000	\$35,000 \$25,000	\$0 \$0	\$0 \$0	\$50,600 \$37,400	0.09	\$4,655 \$3,254
2051	\$0	\$6,400	\$6,000	\$25,000	\$0 \$0	\$0 \$0	\$37,400	0.08	\$3,067
2053	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.08	\$2,880
2054	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.07	\$2,730
2055	\$0	\$9,600	\$6,000	\$35,000	\$20,000	\$0	\$70,600	0.07	\$4,871
2056	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.07	\$2,431
2057	\$0	\$6,400	\$6,000	\$25,000	\$0	\$0	\$37,400	0.06	\$2,281
2058	\$0	\$6,400 \$6,400	\$6,000 \$6,000	\$25,000	\$0	\$0	\$37,400	0.06	\$2,169
2059 2060	\$0 \$0	\$6,400 \$9,600	\$6,000 \$6,000	\$25,000 \$35,000	\$0 \$0	\$0 \$0	\$37,400 \$50,600	0.05	\$2,030 \$2,592
TOTAL	\$0 \$1,200,000	\$9,600 \$336,640	\$8,000 \$282,000	\$35,000 \$1,270,000	\$0 \$80,000	\$0 \$0	\$3,168,640	\$17	\$2,592 \$1,517,868
Project Life	+-,0,000		+	Transfer to Tabl	Total Presen	t Value of D	Discounted Costs (Sum of Column (i))	\$1,517,800

study and prioritization effort included in this project. The estimates above are based on construction of quagga control measures at Lake Hodges Pumped Storage Facility. Administration, operations, and maintenanace costs are based on SDCWA experience managing the Lake Hodges Pumped Storage Facility. Major maintenanace and cleaning is anticipated in 5-year increments. Complete replacement of some facilities is anticipated at 10-year increments.

	(b) Type of Be	nefit: Increa	sed Water Supp	alv Usabilitu		(b) Type of Be		odges Water (Quality an	d Quagga I	(b) Type of B							_
			it]: Acre-Feet p			(C) Measure		nit]:				of Benefit [U	nit]:			Discounting Co	alculations for Ec	onomic Benefi
(a) Year 2009	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d] 0	(g) Unit \$ Value	(h) Annual \$ Value [f x g] \$0	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d] 0	(g) Unit \$ Value	(h) Annual \$ Value [f x g] \$0	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d] 0	(g) Unit \$ Value	(h) Annual \$ Value [f x g] \$0	(h) Total Annual Benefits (\$) \$0	(i) Discount Value 1.000	(j) Discounte Benefits [h x i] \$0
2003			0		\$0 \$0			0		\$0			0		\$0	\$0	0.943	\$0 \$0
2011 2012	9,000 9,000	11,400 11,400	2,400 2,400	\$842 \$875	\$2,020,744 \$2,101,024			0		\$0 \$0			0		\$0 \$0	\$2,020,744 \$2,101,024	0.890	\$1,798,462 \$1,764,860
2012	9,000	11,400	2,400	\$909	\$2,101,024 \$2,181,005			0		\$0 \$0			0		\$0 \$0	\$2,101,024 \$2,181,005	0.840	\$1,727,356
2014	9,000	11,400	2,400	\$943	\$2,263,530			0		\$0			0		\$0	\$2,263,530	0.747	\$1,690,857
2015 2016	9,000 9,000	11,400 11,400	2,400 2,400	\$977 \$1,013	\$2,345,393 \$2,430,221			0		\$0 \$0			0		\$0 \$0	\$2,345,393 \$2,430,221	0.705	\$1,653,502 \$1,616,097
2010	9,000	11,400	2,400	\$1,013	\$2,518,121			0		\$0			0		\$0	\$2,518,121	0.627	\$1,578,862
2018	9,000	11,400	2,400	\$1,087	\$2,609,199			0		\$0			0		\$0	\$2,609,199	0.592	\$1,544,646
2019	9,000	11,400	2,400	\$1,126	\$2,703,571			0		\$0			0		\$0	\$2,703,571	0.558	\$1,508,593
2020 2021	9,000 9,000	11,400 11,400	2,400	\$1,167 \$1,179	\$2,801,352 \$2,828,812			0		\$0 \$0			0		\$0 \$0	\$2,801,352 \$2,828,812	0.527	\$1,476,312 \$1,405,920
2021	9,000	11,400	2,400	\$1,179	\$2,828,812			0		\$0 \$0			0		\$0 \$0	\$2,826,812	0.497	\$1,405,920
2022	9,000	11,400	2,400	\$1,202	\$2,884,553			0		\$0			0		\$0	\$2,884,553	0.403	\$1,274,973
2023	9,000	11,400	2,400	\$1,214	\$2,912,829			0		\$0			0		\$0	\$2,912,829	0.417	\$1,214,650
2025	9,000	11,400	2,400	\$1,226	\$2,941,384			0	1	\$0	İ		0	İ	\$0	\$2,941,384	0.390	\$1,147,140
2026	9,000	11,400	2,400	\$1,238	\$2,970,216			0		\$0			0		\$0	\$2,970,216	0.371	\$1,101,950
2027	9,000	11,400	2,400	\$1,250	\$2,999,335			0		\$0			0		\$0	\$2,999,335	0.350	\$1,049,767
2028	9,000	11,400	2,400	\$1,262	\$3,028,740			0		\$0			0		\$0	\$3,028,740	0.331	\$1,002,513
2029	9,000	11,400	2,400	\$1,274	\$3,058,430			0		\$0			0		\$0	\$3,058,430	0.312	\$954,230
2030 2031	9,000 9,000	11,400 11,400	2,400	\$1,287 \$1,299	\$3,088,416 \$3,118,698			0		\$0 \$0			0		\$0 \$0	\$3,088,416 \$3,118,698	0.294	\$907,994 \$866,998
2031	9,000	11,400	2,400	\$1,299	\$3,118,098			0		\$0 \$0			0		\$0 \$0	\$3,118,698	0.278	\$825,109
2032	9,000	11,400	2,400	\$1,325	\$3,180,142			0		\$0			0		\$0	\$3,140,142	0.247	\$785,495
2034	9,000	11,400	2,400	\$1,338	\$3,211,317			0		\$0			0		\$0	\$3,211,317	0.233	\$748,237
2035	9,000	11,400	2,400	\$1,351	\$3,242,799			0		\$0			0		\$0	\$3,242,799	0.220	\$713,416
2036	9,000	11,400	2,400	\$1,364	\$3,274,591			0		\$0			0		\$0	\$3,274,591	0.207	\$677,840
2037	9,000	11,400	2,400	\$1,378	\$3,306,697			0		\$0			0		\$0	\$3,306,697	0.196	\$648,113
2038	9,000	11,400	2,400	\$1,391	\$3,339,115			0		\$0			0		\$0	\$3,339,115	0.185	\$617,736
2039	9,000	11,400	2,400	\$1,405	\$3,371,850			0		\$0 ¢0			0		\$0 \$0	\$3,371,850	0.174	\$586,702
2040 2041	9,000 9,000	11,400 11,400	2,400	\$1,419 \$1,433	\$3,404,908 \$3,438,287			0		\$0 \$0			0		\$0 \$0	\$3,404,908 \$3,438,287	0.164	\$558,405 \$532,934
2041	9,000	11,400	2,400	\$1,433	\$3,438,287			0		\$0			0		\$0	\$3,438,287	0.135	\$506,911
2043	9,000	11,400	2,400	\$1,461	\$3,506,031			0		\$0 \$0			0		\$0 \$0	\$3,506,031	0.138	\$483,832
2044	9,000	11,400	2,400	\$1,475	\$3,540,403			0		\$0			0		\$0	\$3,540,403	0.130	\$460,252
2045	9,000	11,400	2,400	\$1,490	\$3,575,113			0		\$0			0		\$0	\$3,575,113	0.123	\$439,739
2046	9,000	11,400	2,400	\$1,504	\$3,610,162			0		\$0			0		\$0	\$3,610,162	0.116	\$418,779
2047	9,000	11,400	2,400	\$1,519	\$3,645,552			0		\$0			0		\$0	\$3,645,552	0.109	\$397,365
2048	9,000	11,400	2,400	\$1,534	\$3,681,294			0		\$0			0		\$0	\$3,681,294	0.103	\$379,173
2049 2050	9,000 9,000	11,400 11,400	2,400 2,400	\$1,549 \$1,564	\$3,717,384 \$3,753,826			0		\$0 \$0			0		\$0 \$0	\$3,717,384 \$3,753,826	0.097	\$360,586 \$345,352
2050	9,000	11,400	2,400	\$1,504	\$3,790,631			0		\$0			0		\$0 \$0	\$3,790,631	0.092	\$329,785
2051	9,000	11,400	2,400	\$1,595	\$3,827,792			0		\$0			0		\$0	\$3,827,792	0.082	\$313,879
2053	9,000	11,400	2,400	\$1,611	\$3,865,320			0		\$0			0		\$0	\$3,865,320	0.077	\$297,630
2054	9,000	11,400	2,400	\$1,626	\$3,903,216			0		\$0			0		\$0	\$3,903,216	0.073	\$284,935
2055	9,000	11,400	2,400	\$1,642	\$3,941,480			0		\$0			0		\$0	\$3,941,480	0.069	\$271,962
2056	9,000	11,400	2,400	\$1,658	\$3,980,120			0		\$0			0		\$0	\$3,980,120	0.065	\$258,708
2057 2058	9,000	11,400	2,400	\$1,675	\$4,019,143			0		\$0 \$0			0		\$0 \$0	\$4,019,143	0.061	\$245,168
2058	9,000 9,000	11,400 11,400	2,400 2,400	\$1,691 \$1,708	\$4,058,547 \$4,098,339	+		0	<u> </u>	\$0 \$0			0		\$0 \$0	\$4,058,547 \$4,098,339	0.058	\$235,396 \$222,492
2059	9,000	11,400	2,400	\$1,708	\$4,098,539 \$4,138,518			0	1	\$0 \$0			0		\$0 \$0	\$4,098,539	0.054	\$222,492
TOTAL	450,000	570,000	120,000	67,377	161,705,964	0	0	0	0	0	0	0	0	0	0	161,705,964	15	41,783,290
	,	,,	,													ject Life (Monet		\$41,783,2
																	ject Allocation:	100.0
													Total Proc	ent Value of	Discounted	Benefits (Monet		\$41,783,2
	purchased by unavailable or water can be	member ager unusable. If ourchased. V	enefits: Based o ncies if water fro annual yield beo Vith the ability to 5, loss of water o	om Lake Hoo comes usabl o pump wat	lges is e, less imported er out of the	Narrative des	cription of b	enefits:			Narrative de	scription of b				· · ·	· · ·	<u> </u>
nments:	.csscneu.																	

Р	Table 15 - Total Water Supp roject: Lake Hodges Water Quality	• • •	
(a) Total Discounted Water Supply Benefits	(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]
\$41,783,290	\$0	\$0	\$41,783,290
Comments:			·

(All costs should be in 2009 dollars) Project: Implementing Nutrient Management in the Santa Margarita River Watershed												
	Initial Costs	Trojec	e. impictive tenting	Operations and M		Marganta	aver watershea	Discountir	ng Calculations			
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)			
	Grand Total Cost	Admin	Operation	Maintenance	Replacement	Other	Total Costs	Discount Factor	Discounted Costs			
	from Table 7 (row (i),						(a)++(f)		x (h)			
Year	column (d))											
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0			
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.94	\$0			
2011	\$98,601	\$0	\$0	\$0	\$0	\$0	\$98,601	0.89	\$87,755			
2012	\$197,133	\$0	\$0	\$0	\$0	\$0	\$197,133	0.84	\$165,592			
2013	\$197,133	\$0	\$0	\$0	\$0	\$0	\$197,133	0.79	\$156,129			
2014	\$197,133	\$0	\$0	\$0	\$0	\$0	\$197,133	0.75	\$147,258			
2015	, ,	\$0	\$0	\$0	\$0	\$0	\$377,500	0.71	\$266,138			
2016	. ,	\$0	\$0	\$0	\$0	\$0	\$377,500	0.67	\$251,038			
2017	\$377,500	\$0	\$0	\$0	\$0	\$0	\$377,500	0.63	\$236,693			
2018	. ,	\$0	\$0	\$0	\$0	\$0	\$377,500	0.59	\$223,480			
2019	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	0.56	\$0			
2020 2021	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.53	\$0 \$0			
2021	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	0.30	\$0			
2022	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.44	\$0			
2024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.42	\$0			
2025	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.39	\$0			
2026		\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0			
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0			
2028	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.33	\$0			
2029	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.31	\$0			
2030	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.29	\$0			
2031	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.28	\$0			
2032	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.26	\$0			
2033	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.25	\$0			
2034	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.23	\$0			
2035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.22	\$0			
2036		\$0	\$0	\$0	\$0	\$0	\$0	0.21	\$0			
2037	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.20	\$0			
2038	\$0	\$0 ¢0	\$0	\$0	\$0	\$0	\$0	0.19	\$0			
2039 2040	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.17 0.16	\$0 \$0			
2040	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.16	\$0			
2041	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	0.15	\$0			
2042	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0	0.14	\$0			
2043	\$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	0.13	\$0			
2045	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0			
2046		\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0			
2047		\$0	\$0	\$0	\$0	\$0	\$0	0.11	\$0			
2048		\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0			
2049	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0			
2050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0			
2051		\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0			
2052		\$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0			
2053		\$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0			
2054	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0			
2055		\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0			
2056		\$0	\$0	\$0 \$0	\$0	\$0	\$0 ¢0	0.07	\$0			
2057	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	0.06	\$0 \$0			
2058		\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.06	\$0 \$0			
2059 2060		\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.05	\$0 \$0			
TALS	\$0 \$2,200,000	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$2,200,000	\$17	\$0 \$1,534,082			
	<i>γε</i> ,200,000	ŞU	οÇ	οÇ	ο¢	ŞU	<i>32,200,000</i>	Ş17	91,554,082			
Project Life	: Not applicable			Transfer to Tabl				(Sum of Column (i)) Benefit Summaries	\$ 1,534,0			

	Duele sty June	monting Nutriest Menogenet	in the Conto Morganite Diversit/star	chod		
_			in the Santa Margarita River Water	sned		_
	(b) Type of Benefit: Water Cost Savings	(b) Type of Benefit:	(b) Type of Benefit:			
	(C) Description of Benefit: Reduced water costs to meet water quality objectives	(C) Description of Benefit:	(C) Description of Benefit:			
	meet water quanty objectives			Discounting Co	alculations for Ec	onomic Benefi
				(d) Total		(j) Discounte
				Annual	(i) Discount	Benefits
(a) Year	(d) Annual Benefit (\$)	(d) Annual Benefit (\$)	(d) Annual Benefit (\$)	Benefits (\$)	Value	[h x i]
2009				\$0	1.000	\$0
2010				\$0	0.943	\$0
2011				\$0	0.890	\$0
2012 2013				\$0 \$0	0.840	\$0 \$0
2013				\$0	0.792	\$0 \$0
2014				\$0	0.705	\$0
2016	\$2,372,576			\$2,372,576	0.665	\$1,577,76
2017	\$2,521,690			\$2,521,690	0.627	\$1,581,10
2018	\$2,691,919			\$2,691,919	0.592	\$1,593,61
2019	\$2,837,591			\$2,837,591	0.558	\$1,583,376
2020	\$2,985,719			\$2,985,719	0.527	\$1,573,474
2021	\$3,138,290			\$3,138,290	0.497	\$1,559,73
2022	\$3,295,439			\$3,295,439	0.469	\$1,545,56
2023	\$3,457,302			\$3,457,302	0.442	\$1,528,12
2024	\$3,624,021			\$3,624,021	0.417	\$1,511,21
2025	\$3,795,742			\$3,795,742	0.390	\$1,480,33
2026	\$3,972,614			\$3,972,614	0.371	\$1,473,84
2027	\$4,154,792			\$4,154,792	0.350	\$1,454,17
2028	\$4,342,436			\$4,342,436	0.331	\$1,437,34
2029	\$4,535,709			\$4,535,709	0.312	\$1,415,14
2030	\$4,734,780			\$4,734,780	0.294	\$1,392,02
2031	\$4,939,824			\$4,939,824	0.278	\$1,373,27
2032	\$5,151,019			\$5,151,019	0.262	\$1,349,56
2033	\$5,368,549			\$5,368,549	0.247	\$1,326,03
2034	\$5,592,606			\$5,592,606	0.233	\$1,303,07
2035	\$5,823,384			\$5,823,384	0.220	\$1,281,144
2036	\$6,061,085			\$6,061,085	0.207	\$1,254,64
2037	\$6,305,918			\$6,305,918	0.196	\$1,235,96
2038	\$6,558,095			\$6,558,095	0.185	\$1,213,24
2039	\$6,817,838			\$6,817,838	0.174	\$1,186,30
2040	\$7,085,373			\$7,085,373	0.164	\$1,162,00
2041	\$7,360,935			\$7,360,935	0.155	\$1,140,94
2042	\$7,644,763			\$7,644,763	0.146	\$1,116,13
2043	\$7,937,105			\$7,937,105	0.138	\$1,095,32
2044	\$8,238,219			\$8,238,219	0.130	\$1,070,96
2045	\$8,548,365			\$8,548,365	0.123	\$1,051,44
2046	1-12-12-12			\$0	0.116	\$0
2047				\$0	0.109	\$0
2048		1		\$0	0.103	\$0 \$0
2048				\$0	0.097	\$0 \$0
2045				\$0	0.092	\$0 \$0
2051				\$0	0.032	\$0 \$0
2051				\$0	0.087	\$0 \$0
2052				\$0	0.082	\$0 \$0
2055				\$0	0.077	\$0 \$0
2054				\$0	0.073	\$0 \$0
2055				\$0		\$0 \$0
2056		-		\$0	0.065	\$0 \$0
2058				\$0	0.058	\$0 ¢0
2059				\$0	0.054	\$0
2060	6454 000 000	**		\$0	0.051	\$0
TOTAL	\$151,893,698	\$0	\$0	\$151,893,698	\$11	\$40,866,89
		Tota	al Present Value of Discounted Benefits ov	er Project Life (Mone	tized Benefits):	\$40,866,
				Pro	ject Allocation:	100

Comments: Perry Louck of Rancho Water District indicated that on average RCWD discharges 4,000 acre feet per year under an agreement to the SMR Watermaster. RCWD is currently using MWD Tier 2 untreated water to make up these flows. With the project, treated recycled water could be used at a cost savings. Source: MWD, draft long term water rates presented at Member Agency Long Range Finance group (July 2010) through 2019 (after 2019, extended using 3% escalation per year)

Table 15 - Total Water Supply Benefits (2009 dollars) Project: Implementing Nutrient Management in the Santa Margarita River Watershed												
(b) Total Discounted Avoided Project Costs	(c) Other Discounted Water Supply Benefits	(d) Total Value of Discounted Benefits [a + c] or [b + c]										
\$0	\$40,866,899	\$40,866,899										
		·										
	mplementing Nutrient Managemer (b) Total Discounted Avoided Project Costs	(b) Total Discounted Avoided Project Costs Costs										

	Pro	oject: Bannock	Ave. Neighbor	(All costs shou hood Streetscape I	ld be in 2009 dollars Enhancements for	-	reek Watershed F	Protection	
	Initial Costs	,		Operations and M					ng Calculations
_	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
f	Grand Total Cost rom Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs x (h)
2009	\$2,945	\$0	\$0	\$0	\$0	\$0	\$2,945	1.00	\$2,945
2005	\$3,311	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$3,311	0.94	\$3,122
2011	\$3,311	\$0	\$0	\$0	\$0	\$0	\$3,311	0.89	\$2,947
2012	\$440,262	\$0	\$0	\$0	\$0	\$0	\$440,262	0.84	\$369,820
2013	\$1,675,354	\$0	\$0	\$0	\$0	\$0	\$1,675,354	0.79	\$1,326,881
2014	\$1,418,117	\$2,500	\$0	\$4,500	\$156,219	\$0	\$1,581,336	0.75	\$1,181,258
2015	\$0	\$2,500	\$0	\$4,500	\$151,063	\$0	\$158,063	0.71	\$111,435
2016	\$0	\$2,500	\$0	\$4,500	\$146,078	\$0	\$153,078	0.67	\$101,797
2017	\$0	\$2,500	\$0	\$4,500	\$141,258	\$0	\$148,258	0.63	\$92,958
2018	\$0	\$2,500	\$0	\$4,500	\$136,596	\$0	\$143,596	0.59	\$85,009
2019	\$0	\$2,625	\$0	\$4,725	\$132,089	\$0	\$139,439	0.56	\$77,807
2020	\$0	\$2,625	\$0	\$4,725	\$127,730	\$0	\$135,080	0.53	\$71,187
2021	\$0	\$2,625	\$0	\$4,725	\$123,515	\$0	\$130,865	0.50	\$65,040
2022	\$0	\$2,625	\$0	\$4,725	\$119,439	\$0	\$126,789	0.47	\$59,464
2023	\$0	\$2,625	\$0	\$4,725	\$115,497	\$0	\$122,847	0.44	\$54,298
2024 2025	\$0 \$0	\$4,888 \$2,888	\$0 \$0	\$35,198 \$5,198	\$111,686 \$108,000	\$0 \$0	\$151,771 \$116,085	0.42	\$63,288 \$45,273
2025	\$0 \$0	\$2,888	\$0 \$0	\$5,198	\$108,000	\$0 \$0	\$116,085	0.39	\$45,273
2028	\$0 \$0	\$2,888	\$0 \$0	\$5,198	\$104,436	\$0 \$0	\$109,075	0.37	\$38,176
2027	\$0	\$2,888	\$0	\$5,198	\$97,657	\$0 \$0	\$105,742	0.33	\$35,001
2020	\$0 \$0	\$4,000	\$0 \$0	\$41,497	\$94,434	\$0 \$0	\$139,931	0.31	\$43,659
2030	\$0	\$3,500	\$0	\$6,497	\$91,318	\$0	\$101,315	0.29	\$29,787
2031	\$0	\$3,500	\$0	\$6,497	\$88,305	\$0	\$98,301	0.28	\$27,328
2032	\$0	\$3,500	\$0	\$6,497	\$85,390	\$0	\$95,387	0.26	\$24,991
2033	\$0	\$3,500	\$0	\$6,497	\$82,573	\$0	\$92,569	0.25	\$22,865
2034	\$0	\$14,375	\$0	\$121,021	\$79,848	\$0	\$215,244	0.23	\$50,152
2035	\$0	\$4,375	\$0	\$8,121	\$77,213	\$0	\$89,709	0.22	\$19,736
2036	\$0	\$4,375	\$0	\$8,121	\$74,665	\$0	\$87,161	0.21	\$18,042
2037	\$0	\$4,375	\$0	\$8,121	\$72,201	\$0	\$84,697	0.20	\$16,601
2038	\$0	\$4,375	\$0	\$8,121	\$69,818	\$0	\$82,314	0.19	\$15,228
2039	\$0	\$10,250	\$0	\$52,182	\$67,514	\$0	\$129,946	0.17	\$22,611
2040	\$0	\$5,250	\$0	\$12,182	\$65,286	\$0	\$82,718	0.16	\$13,566
2041	\$0	\$5,250	\$0	\$12,182	\$63,132	\$0	\$80,563	0.16	\$12,487
2042	\$0	\$5,250	\$0	\$12,182	\$61,048	\$0	\$78,480	0.15	\$11,458
2043	\$0	\$5,250	\$0	\$12,182	\$59,034	\$0	\$76,465	0.14	\$10,552
2044 2045	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.13 0.12	\$0 \$0
2045	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.12	\$0
2046	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.12	\$0 \$0
2047	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.11	\$0
2048	\$0 \$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.10	\$0 \$0
2045	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.09	\$0 \$0
2051	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0	0.09	\$0
2052	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0
2053	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.08	\$0
2054	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2055	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2056	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2057	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
2060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
OTALS	\$3,543,300	\$123,188	\$0	\$424,011	\$3,004,031	\$0	\$7,094,529	\$17	\$4,168,512
Project Life				Transfer to Tabl				(Sum of Column (i)) Benefit Summaries	\$4,168,

treatment system will require major maintenance and cleaning at 5 years, 10 years, 15 years, 20 years, and 25 years in their useful life. Maintenance costs will increase in increments after the lifecycle milestones are past. Replacement cost is a straight line depreciation over 30 years of the assets constructed and installed in the project for which will need to be completely or significantly replaced.

			Prov	•	ld be in 2009 dollars	-			
	Initial Costs		Proj	ject: Pilot Concrete Operations and M		on Project		Discountin	ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
/ear	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.94	\$0
2011	\$27,097	\$0	\$0	\$0	\$0	\$0	\$27,097	0.89	\$24,117
2012 2013	\$306,303 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$306,303 \$0	0.84	\$257,178 \$0
2013	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.75	\$0
2015	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.70	\$0
2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.67	\$0
2017	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.63	\$0
2018	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.59	\$0
2019	\$0	\$0	\$0	\$0	\$0	\$0	\$0 ¢0	0.56	\$0
2020 2021	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.53	\$0 \$0
2021	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.30	\$0
2023	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.44	\$0
2024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.42	\$0
2025	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.39	\$0
2026	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0
2028 2029	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.33	\$0 \$0
2029	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.29	\$0
2031	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	0.28	\$0 \$0
2032	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.26	\$0
2033	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.25	\$0
2034	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.23	\$0
2035	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	0.22	\$0
2036 2037	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.21 0.20	\$0 \$0
2037	\$0 \$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.18	\$0
2039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.17	\$0
2040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.15	\$0
2042	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.15	\$0
2043	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.14	\$0
2044 2045	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.13	\$0 \$0
2043		\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	0.12	\$0
2047	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.11	\$0
2048	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2049	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0
2051	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 ¢0	0.09	\$0 \$0
2052 2053	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.08	\$0 \$0
2053	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	0.08	\$0
2055	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0	0.07	\$0
2056	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2057	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059	\$0	\$0 \$0	\$0	\$0	\$0	\$0	\$0 ¢0	0.05	\$0 ¢0
2060 ALS	\$0 \$333,400	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$333,400	0.05 \$17	\$0 \$281,294
	2333,400	γu	οÇ	30 30	οÇ	ŞU	4333,400	\$17	3201,234
oject .ife				Transfer to Tab				(Sum of Column (i)) Benefit Summaries	\$281

	Initial Costs			Operations and N	Aaintenance Costs			Discountir	ng Calculations
ļ	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
Year	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs (g x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.94	\$0
2011 2012	\$36,731 \$275,887	\$0 \$2,500	\$0 \$110,526	\$0 \$7,125	\$0 \$0	\$0 \$1,099	\$36,731 \$397,137	0.89	\$32,691 \$333,595
2012	\$243,002	\$2,300	\$110,320	\$14,250	\$0 \$0	\$1,099	\$485,502	0.84	\$384,518
2013	\$111,380	\$2,500	\$110,526	\$7,125	\$0 \$0	\$1,100	\$232,630	0.75	\$173,775
2015	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.71	\$0
2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.67	\$0
2017	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.63	\$0
2018	\$0	\$0 ¢0	\$0	\$0	\$0	\$0	\$0	0.59	\$0
2019 2020	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.56	\$0 \$0
2020	\$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0	0.55	\$0
2021	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0 \$0	0.47	\$0
2023	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.44	\$0
2024	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.42	\$0
2025	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.39	\$0
2026	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0
2028 2029	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.33	\$0 \$0
2029	\$0	\$0 \$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0	0.29	\$0
2030	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.28	\$0
2032	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.26	\$0
2033	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.25	\$0
2034	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.23	\$0
2035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.22	\$0
2036 2037	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.21 0.20	\$0 \$0
2037	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.20	\$0
2030	\$0	\$0 \$0	\$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	0.17	\$0
2040	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2041	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.16	\$0
2042	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.15	\$0
2043	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.14	\$0
2044	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.13	\$0 \$0
2045 2046	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.12	\$0 \$0
2040	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.12	\$0
2048	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2049	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0
2051	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0
2052	\$0	\$0 ¢0	\$0	\$0	\$0	\$0 ¢0	\$0	0.08	\$0
2053 2054	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.08	\$0 \$0
2054	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.07	\$0 \$0
2055	\$0	\$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.07	\$0
2057	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
2060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
TALS	\$667,000	\$10,000	\$442,102	\$28,500	\$0	\$4,398	\$1,152,000	\$17	\$924,578

				(All costs shou	nual Cost of Projec Id be in 2009 dollars	5)			
				-	reek Integration P	roject			<u></u>
	Initial Costs	(b)	(0)	Operations and M	1	(f)	(a)		ng Calculations
Year	(a) Grand Total Cost from Table 7 (row (i), column (d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	Other	(g) Total Costs (a)++(f)	(h) Discount Factor	(i) Discounted Costs (x (h)
2009		\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010		\$0	\$0	\$0	\$0	\$0	\$71,604	0.94	\$67,551
2011	, ,	\$0	\$0	\$0	\$0	\$0	\$196,760	0.89	\$175,116
2012		\$9,000	\$2,000	\$9,500	\$5,000	\$0	\$451,146	0.84	\$378,791
2013 2014	, ,	\$7,200	\$2,000	\$9,000	\$2,500	\$0 \$0	\$321,190	0.79	\$254,413
2014		\$7,200 \$7,200	\$1,000 \$500	\$8,000 \$7,000	\$2,500 \$0	\$0 \$0	\$18,700 \$14,700	0.75	\$13,974 \$10,363
2013		\$7,200	\$300 \$0	\$7,000	\$0 \$0	\$0 \$0	\$14,200	0.67	\$9,444
2010		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.63	\$6,651
2017		\$3,600	\$0	\$7,000	\$0	\$0 \$0	\$10,600	0.59	\$6,274
2019		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.56	\$5,919
2020		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.53	\$5,584
2021		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.50	\$5,268
2022	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.47	\$4,970
2023	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.44	\$4,688
2024		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.42	\$4,423
2025		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.39	\$4,173
2026		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.37	\$3,936
2027		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.35	\$3,714
2028		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.33	\$3,503
2029		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.31	\$3,305
2030		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.29	\$3,118
2031		\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.28	\$2,942 \$2,775
2032		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.26	\$2,618
2033		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.23	\$2,470
2034		\$3,600	\$0	\$7,000	\$0	\$0 \$0	\$10,600	0.22	\$2,330
2036		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.21	\$2,198
2037		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.20	\$2,074
2038	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.18	\$1,956
2039	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.17	\$1,846
2040		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.16	\$1,741
2041		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,643
2042		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,550
2043		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.14	\$1,462
2044		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.13	\$1,379
2045		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.12	\$1,301
2046		\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.12 0.11	\$1,227 \$1,158
2047		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.11	\$1,158
2048		\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.10	\$1,032
2049		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.09	\$972
2050		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.09	\$917
2052		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$865
2053		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$816
2054	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.07	\$770
2055		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.07	\$727
2056		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$685
2057		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$647
2058		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$610
2059		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.05	\$575
2060		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.05	\$543
DTALS	\$994,500	\$196,200	\$5,500	\$348,500	\$10,000	\$0	\$1,554,700	\$17	\$1,018,096
Project Life				Transfer to Tab				(Sum of Column (i)) Benefit Summaries	\$1,018,0

replacement costs are limited to irrigation components for the first three years until the planted vegetation matures.

				(All costs shou	nual Cost of Projec Id be in 2009 dollars	5)			
				-	reek Integration P	roject			<u></u>
	Initial Costs	(b)	(0)	Operations and M	1	(f)	(a)		ng Calculations
Year	(a) Grand Total Cost from Table 7 (row (i), column (d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	Other	(g) Total Costs (a)++(f)	(h) Discount Factor	(i) Discounted Costs (x (h)
2009		\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010		\$0	\$0	\$0	\$0	\$0	\$71,604	0.94	\$67,551
2011	, ,	\$0	\$0	\$0	\$0	\$0	\$196,760	0.89	\$175,116
2012		\$9,000	\$2,000	\$9,500	\$5,000	\$0	\$451,146	0.84	\$378,791
2013 2014	, ,	\$7,200	\$2,000	\$9,000	\$2,500	\$0 \$0	\$321,190	0.79	\$254,413
2014		\$7,200 \$7,200	\$1,000 \$500	\$8,000 \$7,000	\$2,500 \$0	\$0 \$0	\$18,700 \$14,700	0.75	\$13,974 \$10,363
2013		\$7,200	\$300 \$0	\$7,000	\$0 \$0	\$0 \$0	\$14,200	0.67	\$9,444
2010		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.63	\$6,651
2017		\$3,600	\$0	\$7,000	\$0	\$0 \$0	\$10,600	0.59	\$6,274
2019		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.56	\$5,919
2020		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.53	\$5,584
2021		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.50	\$5,268
2022	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.47	\$4,970
2023	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.44	\$4,688
2024		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.42	\$4,423
2025		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.39	\$4,173
2026		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.37	\$3,936
2027		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.35	\$3,714
2028		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.33	\$3,503
2029		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.31	\$3,305
2030		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.29	\$3,118
2031		\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.28	\$2,942 \$2,775
2032		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.26	\$2,618
2033		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.23	\$2,470
2034		\$3,600	\$0	\$7,000	\$0	\$0 \$0	\$10,600	0.22	\$2,330
2036		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.21	\$2,198
2037		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.20	\$2,074
2038	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.18	\$1,956
2039	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.17	\$1,846
2040		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.16	\$1,741
2041		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,643
2042		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,550
2043		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.14	\$1,462
2044		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.13	\$1,379
2045		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.12	\$1,301
2046	1.5	\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.12 0.11	\$1,227 \$1,158
2047		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.11	\$1,158
2048		\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.10	\$1,032
2049		\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.09	\$972
2050		\$3,600	\$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.09	\$917
2052		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$865
2053		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$816
2054	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.07	\$770
2055		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.07	\$727
2056		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$685
2057		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$647
2058		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.06	\$610
2059		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.05	\$575
2060		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.05	\$543
DTALS	\$994,500	\$196,200	\$5,500	\$348,500	\$10,000	\$0	\$1,554,700	\$17	\$1,018,096
Project Life				Transfer to Tab				(Sum of Column (i)) Benefit Summaries	\$1,018,0

replacement costs are limited to irrigation components for the first three years until the planted vegetation matures.

San Diego Integrated Regional Water Management Implementation Grant Proposal Appendix 7-2

			Proje	ct: Regional Wate	ld be in 2009 dollars r Data Manageme	-			
	Initial Costs			Operations and M	aintenance Costs			Discountir	ng Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs x (h)
Year 2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2005	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.94	\$0
2011	\$65,961	\$0	\$0	\$0	\$0	\$0	\$65,961	0.89	\$58,705
2012	\$91,577	\$0	\$0	\$0	\$0	\$0	\$91,577	0.84	\$76,925
2013	\$45,789	\$0	\$0	\$0	\$0	\$0	\$45,789	0.79	\$36,265
2014	\$175,000	\$0	\$0	\$0	\$0	\$0	\$175,000	0.75	\$130,725
2015	\$175,000	\$0 ¢0	\$0	\$0	\$0	\$0	\$175,000	0.71	\$123,375
2016	\$0 \$0	\$0 \$0	\$0 \$0	\$22,000	\$0 \$0	\$0 \$0	\$22,000	0.67	\$14,630
2017	\$0 \$0	\$0 \$0	\$0 \$0	\$22,000 \$22,000	\$0 \$0	\$0 \$0	\$22,000 \$22,000	0.63 0.59	\$13,794 \$13,024
2010	\$0	\$0 \$0	\$0	\$22,000	\$0 \$0	\$0 \$0	\$22,000	0.56	\$12,276
2020	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.53	\$11,594
2021	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.50	\$10,934
2022	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.47	\$10,318
2023	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.44	\$9,724
2024	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.42	\$9,174
2025	\$0	\$0	\$0	\$22,000	\$0	\$0	\$22,000	0.39	\$8,580
2026	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.37	\$0
2027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.35	\$0
2028 2029	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.33	\$0 \$0
2029	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.31	\$0 \$0
2030	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.25	\$0
2032	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.26	\$0
2033	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.25	\$0
2034	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.23	\$0
2035	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.22	\$0
2036	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.21	\$0
2037	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.20	\$0
2038	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.19	\$0
2039	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.17	\$0
2040 2041	\$0 \$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	0.16	\$0 \$0
2041	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.16	\$0 \$0
2042	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0	0.13	\$0
2043	\$0	\$0	\$0	\$0	\$0	\$0 \$0	\$0	0.13	\$0
2045	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2046		\$0	\$0	\$0	\$0	\$0	\$0	0.12	\$0
2047	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.11	\$0
2048	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2049	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.10	\$0
2050	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0
2051	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.09	\$0
2052 2053	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.08	\$0 \$0
2053	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	0.08	\$0 \$0
2054	\$0	\$0 \$0	\$0 \$0	\$0	\$0 \$0	\$0 \$0	\$0 \$0	0.07	\$0
2056	\$0	\$0 \$0	\$0	\$0	\$0	\$0 \$0	\$0	0.07	\$0
2057	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2058	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.06	\$0
2059	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
2060	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.05	\$0
ral 🛛	\$553,327	\$0	\$0	\$220,000	\$0	\$0	\$773,327	\$17	\$540,043
roject Life				Transfer to Tabl				(Sum of Column (i)) Benefit Summaries	

Attachment 8

Water Quality and Other Expected Benefits



San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Water Quality and Other Expected Benefits

Attachment 8 consists of the following items:

- Water Quality and Other Expected Benefits. The body of this attachment provides an overview of the water quality and other expected benefits of this proposed funding package, as well as the benefits associated with each individual project.
- Appendix 8-1. Appendix 8-1 of this attachment contains information regarding the qualitative and quantitative non-water supply benefits of each individual project contained within this proposal.

This attachment provides information regarding benefits that may be derived from projects within this *San Diego IRWM Implementation Grant Proposal*, which extend beyond the water supply benefits described in Attachment 7. Table 8-1 contains a summary of the costs and benefits for all projects.

Section 1 provides a summary of the regional water quality background of the San Diego region.

Section 2 contains a narrative description of the expected water quality and other benefits of each project. Where possible, each benefit was quantified and presented in physical or economic terms. In cases where quantitative analyses were not feasible, this attachment provides complimentary qualitative analyses. In addition, this attachment provides a description of economic factors that may affect or qualify the amount of economic benefits to be realized. This attachment also includes a discussion regarding uncertainties about the future that might affect the level of benefit received. Appendix 8-1 contains detailed information regarding the benefits anticipated to occur as a result of this proposal.

1. Regional Water Quality Background

The San Diego IRWM region lies entirely within the jurisdiction of the San Diego Regional Water Quality Control Board (RWQCB), which regulates water quality and discharges to surface waters. Municipal stormwater runoff within the region is regulated through a single National Pollutant Elimination System (NPDES) Municipal Separate Storm Sewer System Permit (MS4 Permit), which is issued by the San Diego RWQCB to 21 Copermitees (Order No. R9-2007-0001, NPDES CAS0108758) with the County of San Diego is designated as the Principal Copermitee.

The San Diego RWQCB has identified over 40 inland surface water bodies, located in ten of the region's eleven hydrologic units as not attaining applicable water quality objectives. Primary water quality constituents of concern for the region's surface waters include coliform bacteria, sediment, nutrients, salinity, metals, and toxic organic compounds. The RWQCB has completed Total Daily Maximum Loads (TMDLs) for several of these non-complying waters, and has initiated TMDLs for a number of additional impaired waters.

#	Project	Project Sponsor	Total Present Value Project Costs	Total Present Value Water Quality and Other Benefits
1	Sustainable Landscapes Program	San Diego County Water Authority	\$1,157,709	\$2,398,775
2	North San Diego County Regional Recycled Water Project	Olivenhain Municipal Water District	\$17,199,249	\$0
3	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	\$27,802,301	\$0
4	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corporation	\$707,463	\$0
5 Lake Hodges Water Quality and Quagga Mitigation Measures		San Diego County Water Authority	\$1,517,868	\$12,113,701
6	Implementing Nutrient Management in the Santa Margarita River Watershed	County of San Diego	\$1,534,082	\$0
7	Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	City of San Diego - Storm Water	\$4,168,512	\$1,072,816
8	Pilot Concrete Channel Infiltration Project	City of Santee	\$281,294	\$1,809,240
9	San Diego Regional Water Quality Assessment and Outreach Project	San Diego Coastkeeper	\$924,578	\$698,146
10	Chollas Creek Integration Project	Jacobs Center for Neighborhood Innovation	\$1,018,096	\$0
11	Regional Water Data Management	County of San Diego	\$540,043	\$0
	TOTAL		\$56,851,195	\$18,092,678

2. Water Quality and Other Benefits of Proposed Projects

The following sections provide information about the water quality and other benefits associated with each proposed project within this *San Diego IRWM Implementation Grant Proposal*. The summary of total project costs is based on Table 16 in DWR's Implementation Grant Proposal Solicitation Package (DWR 2010). Appendix 8-1 contains the complete Table 16 exports for each proposed project.

The projects within this proposal are anticipated to result in significant water quality and other benefits to the region. Five projects specifically focus on water quality benefits: Lake Hodges Water Quality and Quagga Mitigation Measures, Implementing Nutrient Management in the Santa Margarita River Watershed, Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection, Pilot Concrete Channel Infiltration Project, and San Diego Regional Water Quality Assessment and Outreach Project. While these projects are anticipated to directly result in significant water quality benefits, the remaining project would also have indirect or complementary benefits to the region's water quality.

Project 1: Sustainable Landscapes Program

The water quality and other benefits that are anticipated to result from implementation of the *Sustainable Landscapes Program* are summarized below in Table 8-2, and the cost-benefit overview is summarized in Table 8-3. This project would generate monetized and qualitative water quality and other benefits. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-2: Benefits SummarySustainable Landscapes Program

Type of Benefit	Assessment Level	Beneficiaries		
Water Quality and Other Benefits				
Avoided Wastewater Treatment	Monetized	Local and regional		
Reduced Ocean Pollution Discharge	Qualitative	Local and regional		
Power Cost Savings	Monetized	Local, regional, and statewide		
Reduction in Runoff	Physical Quantification	Local and regional		
Green Waste Reduction	Physical Quantification	Local, regional, and statewide		
CO ₂ Emissions Reduction	Physical Quantification	Local, regional, and statewide		

Table 8-3: Benefit-Cost Analysis Overview Sustainable Landscapes Program

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,157,709
Monetizable Benefits	
Avoided Wastewater Treatment	\$2,019,207
Power Cost Savings	\$379,568
Qualitative Benefits	Qualitative Indicator*
Reduced Ocean Pollution Discharge	+
Green Waste Reduction	+
Reduction in Runoff	+
CO ₂ Emissions Reduction	+

* Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, current water use efficiency, water demand, and stormwater runoff would remain at current levels. Additionally, there would be no benefit received from reduced water demand, increased water supply reliability, improved water quality, or other conservation-related benefits.

Water Quality and Other Benefits

This project would provide several water quality and other expected benefits. These benefits are described in detail below and are summarized in Table 8-2.

Avoided Wastewater Treatment

Within the next year, total maximum daily loads (TMDLs) may be established for the majority of receiving waters in the San Diego region. TMDLs require receiving waters (ocean, creeks, bays, etc.) to be in attainment of water quality standards within a specified timeframe (usually 10 to 20 years). While treatment of runoff from residential areas is not explicitly required by existing water quality regulations, to meet the TMDLs and other water quality standards, treatment may be required to reduce solids, nitrate, chloride, dissolved copper, and dissolved cadmium. Source reduction programs that would be provided by this project, such as landscape conversions, are anticipated to reduce the overall amount of runoff that

enters receiving waters, thereby reducing the amount of treatment that would be required to achieve compliance with TMDLs and other water quality standards.

The water quality benefits that would occur as a result of the *Sustainable Landscapes Program* are expected to be equivalent to water quality benefits that would occur from implementing other water treatment mechanisms. Treatment costs were estimated from cost per square mile of developed area estimations, and were based on the total project area of 6.25 acres. Published reports estimate treatment costs to be between \$18.5 million and \$72.8 million per developed square miles of watershed.¹ In terms of costs per acre, these costs would translate to an average of \$70,312 per acre. Once the project is fully implemented it would cover 6.25 acres, and accrue approximately \$438,453 per year.

Avoided water treatment costs from the project would increase over time with respect to the amount of land area covered by the project. Therefore, the avoided water treatment costs associated with the project are estimated to be \$32,474 in 2012, \$64,948 in 2013, \$145,484 from 2014 to 2015, and \$439,453 from 2016 to 2022. In total, the discounted avoided water treatment cost would be \$2,019,207 over the lifetime of the project. Note that these monetized benefits are an estimate, and would potentially change if water quality benefits associated with the project do not occur within the same watershed.

	Unit Cost (\$/acre)	Project Area	Years	Total Cost
Avoided Wastewater Treatment Costs (2012)	\$70,312	.5	1	\$32,474
Avoided Wastewater Treatment Costs (2013)	\$70,312	1	1	\$64,948
Avoided Wastewater Treatment Costs (2014- 2015)	\$70,312	2	2	\$290,968
Avoided Wastewater Treatment Costs (2015- 2022)	\$70,312	6.25	7	\$3,076,171
Total Avoided Wastewater Treatment Costs				\$3,464,561
Total Avoided Wastewater Treatment Costs after Discounting				\$2,019,207

Table 8-4: Avoided Wastewater Treatment Costs Sustainable Landscapes Program

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 8-1, Table 16 Annual Water Quality and Other Expected Benefits.

Reduced Ocean Pollution Discharge

The Sustainable Landscapes Program would include low impact development (LID) features, would promote on-site water retention measures such as rain harvesting, and would include source reduction programs, all of which would reduce urban runoff from entering watersheds within the Project area. Many of the San Diego region's watersheds drain into the Pacific Ocean, so it is possible that reducing stormwater runoff into regional watersheds would ultimately reduce the amount of stormwater that enters the ocean. Stormwater runoff associated with landscaping activities that would be addressed by the Project may include pollutants such as solids, nitrate, chloride, dissolved copper, and dissolved cadmium. By implementing the project and reducing stormwater runoff, the Sustainable Landscapes Program would potentially provide water quality benefits associated with reducing these stormwater-related pollutants from entering the ocean. This water quality benefit has not been quantified or monetized.

Power Cost Savings

The Sustainable Landscapes Program would reduce power consumption associated with landscape maintenance by 136,768 kWh (in 2012), 273,518 kWh (in 2013), and 612,720 kWh per year (from 2014 to 2022). These power cost savings were monetized using approximate unit values for power of \$0.10/kWh. Based on these approximate unit values of power, the project would result in annual power savings of \$14,292 in 2012, \$28,583 in 2013, and \$64,029 from 2014 to 2022, which would result in a total discounted power benefit of \$379,568 over the lifetime of the Project.

¹ Los Angeles County Department of Public Works. 2004. *Sun Valley Watershed Management Plan Environmental Impact Report.* Available at: http://www.sunvalleywatershed.org/ceqa_docs/plan.asp

Table 8-5: Power Cost SavingsSustainable Landscapes Program

	Units (kWh)	Unit Cost (\$/kWh)	Years	Total Cost
Power Cost Savings (2012)	136,768	\$0.10	1	\$14,292
Power Cost Savings (2013)	273,518	\$0.10	1	\$28,583
Power Cost Savings (2014-2022)	612,720	\$0.10	9	\$576,263
		Total Powe	r Cost Savings	\$619,138
	Total Power	Cost Savings aft	er Discounting	\$379,568

Notes: For further information regarding how these numbers were calculated, please refer to Appendix 8-1, Table 16 Annual Water Quality and Other Expected Benefits

Green Waste Reduction

This project has the potential to reduce green waste by 53%, which would correspond to approximately 33,000 pounds per year. These green waste reductions were based on the City of Santa Monica's Garden\Garden Case Study². This benefit has not been monetized.

Reduction in Runoff

Based on information obtained from the Center for Watershed Protection and the Chesapeake Stormwater Network³, higher runoff coefficients are anticipated in areas that have been graded. This project is expected to reduce runoff conditions by restoring landscapes to more natural conditions, which would improve soil retention. The project is anticipated to reduce runoff coefficients within project site locations by a factor of 0.10 to 0.20. This benefit has not been monetized.

CO₂ Emissions Reduction

The Sustainable Landscapes Program has the potential to reduce labor hours associated with maintaining landscapes, because native landscapes that would be implemented as part of the project require less labor to maintain. Reducing labor hours associated with mowing, blowing, driving, and other activities would potentially reduce CO₂ emissions provided that these labor activities require energy to complete. Information regarding this potential benefit was derived from the City of Santa Monica's Garden\Garden Case Study.⁴ This benefit has not been monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-6 summarizes the anticipated beneficiaries of water quality benefits that would be provided by this Project. The water quality and other improvements would benefit local, regional, and statewide stakeholders.

Local water purveyors would benefit from reduced wastewater treatment costs, and could potentially pass those cost savings on to local water ratepayers. Other water quality benefits such as benefits associated with reducing CO_2 would accrue to society as a whole, including local residents, residents throughout the San Diego region, and residents throughout California.

Table 8-6: Project Beneficiaries Summary Sustainable Landscapes Program

Local	Regional	Statewide
Local water purveyors and local residents	Regional residents	Statewide residents

² Sustainable Site Initiative, A Comparison in Santa Monica <u>http://www.sustainablesites.org/cases/show.php?id=1</u>, accessed December 28, 2010.

³ Technical Memorandum: The Runoff Reduction Method , Center for Watershed Protection, April 18, 2008. http://www.vwrrc.vt.edu/swc/documents/pdf/TechnicalMemo.pdf, accessed December 28, 2010.

⁴ Sustainable Site Initiative, A Comparison in Santa Monica <u>http://www.sustainablesites.org/cases/show.php?id=1</u>, accessed December 28, 2010.



Project Benefits Timeline Description

Water quality benefits from this project associated with avoided wastewater treatment costs, avoided stormwater discharge to the ocean, power cost savings, green waste reductions, reductions in runoff, and reduced CO2 emissions would accrue from 2012 to 2022.

Potential Adverse Effects from the Project

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No short-term or long-term adverse effects are expected as a result of this project.

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Uncertainty of Benefits

Uncertainties relating to the water quality benefits of the *Sustainable Landscapes Program* are summarized below in Table 8-7. Uncertainties relating to water quality benefits that could not be monetized, water quality benefits associated with avoided stormwater discharge, green waste reduction, pollution reduction, and CO_2 emissions reduction, would have very little impact on the net water quality benefits associated with this project. These uncertainties would be minimal, because these values were not quantified and/or monetized. Uncertainties regarding monetized water quality benefits could potentially have a significant negative impact on the net benefits associated with this Project. The probability of constructing a treatment facility to address pollution within the Project area is unknown, therefore the certainty of achieving these monetized benefits is also unknown.

Table 8-7: Omissions, Biases, and Uncertainties and their Effect on the Project
Sustainable Landscapes Program

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Benefit or Cost Category	Likely Impact on Net Benefits*	Comment
Avoided Wastewater Treatment		The probability of treatment costs being required without the project is unknown.
Avoided Ocean Pollution Discharge	+	Not monetized. The success of landscape conservation efforts in reducing pollutants is dependent on property owner maintenance practices.
Power Cost Savings	+/-	Potential changes in power costs over time could affect the amount of cost savings accrued.
Green Waste Reduction	+	Not monetized. The success of landscape conservation efforts in reducing green waste is dependent on property owner maintenance practices.
Reduction in Runoff	+	Not monetized. The success of landscape conservation efforts in reducing runoff and erosion is dependent on property owner maintenance practices.
CO ₂ Emissions Reduction	+	Not monetized. Labor hours associated with landscape maintenance are dependent on property owners.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)



Project 2: North San Diego County Regional Recycled Water Project

The benefits that are anticipated to result from implementation of the *North San Diego County Regional Recycled Water Project* are summarized below in Table 8-8, and the cost-benefit overview is summarized in Table 8-9. This project would generate quantifiable and monetized other benefits. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-8: Benefits SummaryNorth San Diego County Regional Recycled Water Project

Type of Benefit	Assessment Level	Beneficiaries	
Water Quality and Other Benefits			
Reduction in Wastewater Discharges	Physical Quantification	Regional	
Habitat Protection	Qualitative	Regional / Statewide	

Table 8-9: Benefit-Cost Analysis Overview North San Diego County Regional Recycled Water Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$17,199,249
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Reduction in Wastewater Discharges	+/-
Regional Habitat Protection	+/-
Bay–Delta Habitat Protection	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the North San Diego County Regional Recycled Water Project were not implemented, there would be continued use of potable water for municipal and industrial (M&I) purposes that could use recycled water. Additionally, there would be no benefit received from increased water supply reliability or the additional sales revenue associated with recycled water purchases.

Expected Benefits of Project

This project would provide several water quality and other expected benefits. These benefits are described in detail below and are summarized in Table 8-8.

Reduction in Wastewater Discharges

The North San Diego County Regional Recycled Water Project would increase recycled water production capacity by 5,000 AFY. In turn, the proposed project reduces the discharge of wastewater from the existing secondary treatment facility into the Pacific Ocean by 5,000 AFY. The annual quantity of wastewater discharge reduced by the project is a physical quantification of benefits resulting from the proposed project and was not monetized.

Habitat Protection

Regional

Habitat protection benefits that would occur from implementing the project would protect and enhance water quality at beaches downstream of the project area. These benefits would be a result of water quality benefits described above, relating to the project's anticipated benefit of reducing the amount of pollutants discharged to the ocean. These benefits are qualitative and were therefore not monetized.



Bay-Delta

Assuming existing supply and demand assumptions, the project would indirectly reduce the demand for SWP water supplies by reducing demand for SDCWA potable water supplies. The Bay-Delta ecosystem is sensitive to water levels and pumping activities associated with water exports for the SWP and Central Valley Project (CVP). Reduced water exports from the Bay-Delta may increase habitat quality and associated services provided by the ecosystem (e.g., floodplain management, water quality improvement). The ecosystem benefits that would be provided by the project have not been monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-10 summarizes the anticipated beneficiaries of water quality benefits that will be provided by this project. Due to San Diego County's role as a vacation destination, residents and visitors from throughout the State would benefit from water quality and ecosystem improvements.

Table 8-10: Project Beneficiaries Summary North San Diego County Regional Recycled Water Project

Local	Regional	Statewide
Residents and visitors to North San Diego County beaches	Visitors to North San Diego County beaches and Bay-Delta wetland habitat	Visitors to North San Diego County beaches and Bay-Delta wetland habitat

Project Benefits Timeline Description

This project would provide water quality and other expected benefits beginning in 2016 and continuing in excess of the 50-year project lifetime.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Projected savings through the expanded use of recycled water represent best estimates based on the latest available data. Actual water savings will vary.

Table 8-11: Omissions, Biases, and Uncertainties and their Effect on the Project North San Diego County Regional Recycled Water Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Reduction in Wastewater Discharges	+/-	Improper irrigation techniques may result in recycled water runoff into storm drain and ultimately to the ocean. However, such overflow would have small impact on overall benefit of reduced wastewater discharges.
Habitat Protection	-	SDCWA sources water from MWD, IID and local sources, among others. MWD sources water from the SWP, the Colorado River, and local sources. Some or all of the 5,000 AFY reduction in demand for SDCWA water may be sourced with non-SWP supplies and in turn, the benefit to Bay-Delta habitat would be reduced.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Project 3: North San Diego County Cooperative Demineralization Project

The benefits that are anticipated to result from implementation of the *North San Diego County Cooperative Demineralization Project* are summarized below in Table 8-12, and the cost-benefit overview is summarized in Table 8-13. This project would result in water quality benefits associated with reduction in wastewater discharges to the Pacific Ocean, and other benefits associated with increased operating efficiency and habitat protection. Detailed cost and benefit information associated with the Project, including present value calculations, is provided in Appendix 8-1.

Table 8-12: Benefits SummaryNorth San Diego County Cooperative Demineralization Project

Type of Benefit	Assessment Level	Beneficiaries
Water Quality and Other Benefits		
Avoided Costs of Treatment Facility	Quantitative	Local / Regional
Reduction in Pollutants to San Elijo Lagoon	Qualitative	Local / Regional / Statewide
Reduction in Wastewater Discharges	Physical Quantification	Regional
Increased Operational Efficiency (SEWRF)	Qualitative	Regional
Habitat Protection (Regional and Bay-Delta)	Qualitative	Regional / Statewide
Increase in Recreational Opportunities	Qualitative	Local / Regional / Statewide

Table 8-13: Benefit-Cost Analysis Overview North San Diego County Cooperative Demineralization Project

	Present Value (\$2009)	
Costs – Total Capital and O&M	\$27,802,301	
Monetizable Benefits		
N/A	N/A	
Qualitative Benefits	Qualitative Indicator*	
Avoided Costs of Treatment Facility	+/-	
Reduction in Pollutants to San Elijo Lagoon	+	
Reduction in Wastewater Discharges	+/-	
Regional Habitat Protection	+/-	
Bay–Delta Habitat Protection	+	
Increased Operational Efficiency (SEWRF)	+/-	
Increase in Recreational Opportunities	+/-	

*Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the North San Diego County Cooperative Demineralization Project were not implemented, there would be potential shut down of the SEWRF due to regulatory non-compliance with the facility's Master Recycled Water Permit, which prohibits the distribution of effluent that does not comply with certain numeric values, including TDS. If the facility were shut down, approximately 1,200 AFY of reclaimed water currently produced at the SEWRF would no longer be available to the water purveyors: SFID, SDWD, and the City of Del Mar. These purveyors currently use or sell reclaimed water to customers including golf courses, school districts, homeowners associations, and others.



Water Quality and Other Benefits

The North San Diego County Cooperative Demineralization Project would result in water quality benefits associated with reduction in wastewater discharges to the Pacific Ocean, and other benefits associated with increased operating efficiency and habitat protection. None of these costs were monetized. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Reduction in Pollutants to San Elijo Lagoon

The North San Diego County Cooperative Demineralization Project is anticipated to result in reductions in the amount of indicator bacteria, TDS, TSS, and nutrients being discharged in urban runoff and first flush storm water to San Elijo Lagoon. These improvements would divert urban runoff and first flush storm water at the Seascape storm drain (Solana Beach), which has a chronic history exceeding REC-1 water quality bacterial standards. Further, a second storm water diversion structure to San Elijo Lagoon would be constructed. These structures would divert two identified sources of polluted runoff to the SEWRF for treatment in the near-term and additional locations in the future.

Stormwater is known to contain bacteria, nitrates, TDS, and other constituents of concern; during large storm events, stormwater flows containing wastewater within the project area can flow downstream into the San Elijo Lagoon, which flows to the Pacific Ocean. Stormwater diversion that would be provided by the project would potentially reduce the amount of wastewater contained within local stormwater, thereby potentially reducing the number of days that stormwater with bacteria levels that violate receiving water bacteria thresholds for the San Elijo Lagoon or Pacific Ocean. These water quality benefits were not monetized.

Avoided Costs of Treatment Facility

Implementation of the *North San Diego County Cooperative Demineralization Project* is anticipated to improve water quality by reducing indicator bacteria, TDS, TSS, and nutrients being discharged in urban runoff and first flush storm water to San Elijo Lagoon. The SEJPA estimates that currently high-bacteria stormwater reaches the Pacific Ocean every day (365 days a year). Bacteria in stormwater can potentially cause water quality issues, rendering ocean water unsafe to swim in due to high bacteria levels. With the project, SEJPA anticipates that high-bacteria stormwater would reach the Pacific Ocean only 65 days a year, thereby substantially reducing the amount of days that polluted stormwater reaches the ocean. The water quality improvements that would occur as a result of this project are expected to be equivalent to water quality benefits that would occur from constructing a conceptual treatment facility. These water quality benefits were not monetized.

Reduction in Wastewater Discharges

The project is also anticipated to reduce TDS levels at the SEWRF to ensure compliance with permitted TDS levels set forth by SEJPA's Master Water Recycled Water Permit.⁵ As a result, it is estimated that through the beneficial creation of recycled water, the project would avoid 3,340 AFY of secondary effluent discharges to the Pacific Ocean. These figures are a physical quantification of benefits that would result from implementation of the project, but were not monetized.

Increased Operational Efficiency (SEWRF)

The North San Diego County Cooperative Demineralization Project may reduce the operational costs of the existing SEWRF. The 560 AFY increase in recycled water production capacity anticipated as a result of this project would reduce TDS concentration for all units of water produced, thereby reducing operating cost. These reduced operating costs may be internalized, or distributed to SEJPA customers through reduced recycled water rates.

This benefit has not been monetized because the 300 mg/L reduction in TDS concentration at the SEWRF has not been translated into per unit operating costs. This information is required in conjunction with capacity utilization to monetize the benefit.

⁵ San Elijo Joint Powers Authority Website, "Water Reclamation", Available at:

http://www.sejpa.org/index.php?parent_id=26&page_id=29 [Accessed December 2010].



Habitat Protection

Regional

Habitat protection benefits that would occur from implementing the *North San Diego County Cooperative Demineralization Project* would specifically protect and enhance water quality at beaches downstream of the project area, near the City of Solana Beach and the wetlands at San Elijo Lagoon. These benefits would be a result of water quality benefits described above, relating to the project's anticipated benefit of reducing TDS and other constituents of concern by decreasing wastewater within local stormwater runoff. These benefits are qualitative and were therefore not monetized.

Bay-Delta

Assuming existing supply and demand assumptions, the project would indirectly reduce the demand for SWP water supplies by reducing demand for SDCWA water supplies. The Bay-Delta ecosystem is sensitive to water levels and pumping activities associated with water exports for the SWP and Central Valley Project. Reduced water exports from the Bay-Delta may increase habitat quality and associated services provided by the ecosystem (e.g., floodplain management, water quality improvement). These habitat protection benefits that would be provided by the project have not been monetized.

Increase in Recreational Opportunities

Reducing indicator bacteria, TDS, TSS, and nutrients within San Elijo Lagoon will also reduce these constituents from entering the Pacific Ocean. The pollutant load reduction of this project directly impacts local beaches. Reducing the pollutant loading to local beaches will allow for continuous use of the beaches for swimming, surfing, and other recreation; whereas those beaches are often posted as closed immediately following large storm events due to bacterial contamination. Increases in recreational opportunities specific to this project could not be calculated, and were therefore not monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-14 summarizes the anticipated beneficiaries of water quality and other benefits that would be provided by the *North San Diego County Cooperative Demineralization Project*. The water quality improvements would benefit local, regional, and statewide beneficiaries.

Regional habitat protection benefits would be provided to local beneficiaries, including local residents who utilize Solana Beach and proximate beaches, as well as local residents who visit the San Elijo Lagoon. Increased operation efficiency of the SEWRF would potentially benefit local SEJPA customers if reduced operating costs are distributed to those customers through reduced recycled water rates.

Regional habitat protection benefits would be provided to regional beneficiaries, including regional users of Solana Beach and proximate beaches, as well as regional residents who visit the San Elijo Lagoon Ecological Reserve. Increased operation efficiency of the SEWRF would potentially benefit regional customers of the SEJPA if reduced operating costs are distributed to those customers through reduced recycled water rates.

Regional habitat protection benefits would be provided to statewide beneficiaries, including residents of California who use Solana beach and San Elijo Lagoon Ecological Reserve, as well as statewide residents who utilize the Bay-Delta wetland habitat.

Table 8-14: Project Beneficiaries SummaryNorth San Diego County Cooperative Demineralization Project

Local	Regional	Statewide
Visitors to project area beaches and	Visitors to project area beaches and	Visitors to project area beaches and
San Elijo Lagoon Ecological	San Elijo Lagoon Ecological	San Elijo Lagoon Ecological
Reserve,	Reserve,	Reserve, Users of the Bay-Delta
Customers of the SEJPA	Customers of the SEJPA	wetland habitat

Project Benefits Timeline Description

All water quality and other benefits expected as a result of implementation of this project would occur from 2012 to 2060.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be mitigated during the CEQA compliance process. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water quality and other benefits of the *North San Diego County Cooperative Demineralization Project* are summarized below in Table 8-15. As described in detail below, uncertainties regarding other benefits include uncertainties regarding regional and Bay-Delta habitat protection and uncertainties regarding the increased operating efficiency of the SEWRF.

Table 8-15: Omissions, Biases, and Uncertainties and their Effect on the Project North San Diego County Cooperative Demineralization Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Reduction in Pollutants to San Elijo Lagoon	+	Reduction in pollutants to San Elijo Lagoon will have positive effect on water quality; however, these impacts have not been monetized.
Avoided Costs of Treatment Facility	+/-	Reduction in bacterial loading to San Elijo Lagoon may be addressed through a number of structural or nonstructural BMPs, so the probability of treatment facility construction is unknown.
Reduction in Wastewater Discharges	+/-	Improper irrigation techniques may result in recycled water runoff into storm drain and ultimately to the ocean. However, such overflow would have small impact on overall benefit of reduced wastewater discharges.
Habitat ProtectionWetland habitat functions	-	Wetlands at the San Elijo Lagoon Ecological Reserve may effectively clean secondary effluent discharges of 3,340 AFY. In this case, there is no change in recreational opportunities at the San Elijo Ecological Reserve.
Source of SDCWA Imported Water	-	SDCWA sources water from MWD, IID and local sources, among others. MWD primarily sources water from the SWP, CRA, and local sources. Some or all of the 3,340 AFY reduction in demand for SDCWA water may be sourced with non-SWP supplies and in turn, the benefit to Bay-Delta habitat would be reduced.
Increased Operating Efficiency of the SEWRF	-	Without necessary distributional capacity or demand for reclaimed water in place, the SEWRF may not actually increase recycled water production to the full capacity created by the proposed project. Operating costs of the SEWRF may not be reduced.
Increase in Recreational Opportunities	+/-	These benefits were not monetized, so their exact benefits are uncertain.

* Magnitude of effect on net benefits:

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The benefits that are anticipated to result from implementation of the *Rural DAC Partnership Project* are summarized below in Table 8-16, and the cost-benefit overview is summarized in Table 8-17. This project would result in qualitative and quantitative water quality and other benefits. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-16: Benefits SummaryRural DAC Partnership Project

Type of Benefit	Assessment Level	Beneficiaries
Water Quality and Other Benefits		
Improvements to Drinking Water Beneficial Use	Qualitative	Local
Improvements to Wastewater Beneficial Use	Physical Quantification	Local and regional
Avoided Public Health Impacts Related to Drinking Water	Physical Quantification	Local
Avoided Public Health Impacts Related to Wastewater	Physical Quantification	Local
Avoided Loss of Economy and Community	Qualitative	Local

Table 8-17: Benefit-Cost Analysis Overview Rural DAC Partnership Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$707,463
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Improvements to Drinking Water Beneficial Use	+
Improvements to Wastewater Beneficial Use	+
Avoided Public Health Impacts	++
Avoided Loss of Economy and Community	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, the RCAC would not have funding for rural DAC projects that address critical water supply and wastewater needs of rural DACs. Therefore, without this project, the identified benefits to water supply, water quality, and other water-related factors would not be realized.

Water Quality and Other Benefits

The proposed project would provide several water quality and other expected benefits. These benefits are described in detail below and are summarized in Table 8-16.

Improvements Related to Beneficial Uses

The *Rural DAC Partnership Project* would potentially involve multiple small projects that address critical infrastructure improvement projects for rural DACs. For purposes of this analysis, two potential critical water resources projects were selected as proxies by which to estimate the potential benefits that would be a result of implementation of this project (*Sample Project 1: MGB Well Rehab and Treatment Plant Renovation* and *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation* are discussed below).



Sample Project 1: MGB Well Rehab and Treatment Plant Renovation would modify a sole source well for increased production and improved treatment of potable drinking water. In total, this project would produce approximately 24 gallons per minute of potable drinking water from 2011 to 2030. Increasing water production and improving treatment of well water would protect the beneficial use of drinking water. These water quality benefits were not monetized.

Sample Project 2: SCWWD Robbins Wastewater Rehabilitation would replace an existing wastewater treatment system with package recirculation bed filters, which would allow for treatment of an additional 30,000 gallons per day of wastewater to standards designated by the facility's discharge permit requirements. The current wastewater treatment system has failing filters that exceed discharge nitrate levels, and flows that possibly capacity limitations that cause overflows in the sewer system. Rehabilitating this facility would reduce nitrate discharges and could potentially prevent sewer system overflows. These benefits would protect the beneficial use of wastewater, and would occur from 2011 to 2060. These water quality benefits were not monetized.

Avoided Public Health Impacts

The *Rural DAC Partnership Project* would potentially involve multiple small projects that address critical infrastructure improvement projects for rural DACs. For purposes of this analysis, two potential critical water resources projects were selected as proxies by which to estimate the potential benefits that would be a result of implementation of this project (*Sample Project 1: MGB Well Rehab and Treatment Plant Renovation* and *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation* are discussed below).

Sample Project 1: MGB Well Rehab and Treatment Plant Renovation would occur in a rural DAC where drinking water chlorine residuals have not been maintained, and bacteria contamination of the drinking water is a potential issue. The drinking water also contains high iron and manganese levels, which cause operational issues including low pressure conditions within the well. If low pressure of the well occurs during peak use, this could allow water contaminated with iron and bacteria to enter the distribution systems. Iron and bacteria within the well may cause further issues with maintaining disinfection residual within the well, which is a barrier that protects public health under ideal conditions.

This project would improve treatment within the well in order to reduce levels of constituents of concern and therefore prevent public health issues. This project would potentially improve treatment of approximately 18,250 gallons of water per year. This is based on the estimate that the project would serve 50 residents served by the well facility who consume 365 gallons of water per year. These benefits would potentially occur from 2011 to 2030, but have not been monetized.

Sample Project 2: SCWWD Robbins Wastewater Rehabilitation would occur in an area where public health is currently impacted by health and safety issues associated with inadequate wastewater treatment and discharge from the aforementioned wastewater facility. The rehabilitation project would replace the existing wastewater treatment system with package recirculation bed filters, and treat wastewater to conditions allowable by the facility's permit requirements before the water is discharged to the ground. This project would be expected to benefit 350 residents within the project area served by the wastewater facility from 2011 to 2060; however, these benefits were not monetized.

Avoided Loss of Economy and Community

The *Rural DAC Partnership Project* would potentially involve multiple small projects that will address critical infrastructure improvement projects for rural DACs. For purposes of this analysis, two potential critical water resources projects were selected as proxies by which to estimate the potential benefits that would be a result of implementation of this project (*Sample Project 1: MGB Well Rehab and Treatment Plant Renovation* and *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation* are discussed below).

In the project area of Sample Project 1: MGB Well Rehab and Treatment Plant Renovation, the local community has inadequate drinking water supplies both due to low capacity and poor water quality. Poor drinking water conditions could potentially result in a loss of community members as residents are more likely to move out of a community with inadequate drinking water supplies, and future residents are less likely to move into such a community. The project would benefit the community by providing increased capacity and treating drinking water to acceptable water quality standards. These benefits would occur



from 2011 to 2030, but because growth data for the community was not available, these benefits were not monetized.

In the project area of *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation*, the local economy is stagnant due to a building moratorium resulting from a lack of wastewater treatment plant capacity. The project would potentially benefit the local economy by increasing the wastewater treatment plant capacity, and lifting the building moratorium. These benefits would occur from 2011 to 2060, but because the economic growth rate for this community was not available, these benefits were not monetized.

Distribution of Project Benefits and Identification of Beneficiaries

This project would improve the local water quality and other benefits within rural San Diego County, thereby benefitting local residents.

Table 8-18: Project Beneficiaries Summary Rural DAC Partnership Project

Local	Regional	Statewide
Local residents	Not Applicable	Not Applicable

Project Benefits Timeline Description

The water quality and other benefits associated with *Sample Project 1: MGB Well Rehab and Treatment Plant Renovation* would occur from 2011 to 2030, and the water quality and other benefits associated with *Sample Project 2: SCWWD Robbins Wastewater Rehabilitation* would occur from 2011 to 2060.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water quality and other benefits of this project are summarized below in Table 8-19. Uncertainties exist for all water quality and other benefits, because these benefits were not quantified or monetized. Actual water quality and other benefits will vary.

Table 8-19: Omissions, Biases, and Uncertainties and their Effect on the Project Rural DAC Partnership Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Improvements Related to Beneficial Uses	+/-	Not monetized. Long-term improvements to beneficial use are dependent on facility owner maintenance.
Avoided Public Health Impacts	++	Not monetized. Long-term improvements to beneficial use are dependent on facility owner maintenance.
Avoided Loss of Economy and Community	+/-	The impact drinking water and wastewater constraints have on the local economy and community are difficult to quantify.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The benefits that are anticipated to result from implementation of the *Lake Hodges Water Quality and Quagga Mitigation Measures* project are summarized below in Table 8-20, and the cost-benefit overview is summarized in Table 8-21. This project would not result in water quality benefits, and would generate quantifiable and monetized other benefits. Detailed cost and benefit information associated with the Project, including present value calculations, is provided in Appendix 8-1.

Table 8-20: Benefits SummaryLake Hodges Water Quality and Quagga Mitigation Measures

Type of Benefit	Assessment Level	Beneficiaries
Water Quality and Other Benefits		
Avoided O&M Costs Due to Quagga Infestation	Monetized	Local and Regional
Fish and Wildlife Enhancements	Qualitative	Local and Regional
Avoided Losses in Power Production	Monetized	Local, Regional, and Statewide

Table 8-21: Benefit-Cost Analysis OverviewLake Hodges Water Quality and Quagga Mitigation Measures

Present Value (\$2009)
\$1,517,868
\$3,284,626
\$8,829,075
Qualitative Indicator*
+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, the Quagga infestation would not be controlled and the benefits of avoided repairs due to Quagga infestation would not be realized. Additionally, the enhancements for fish and wildlife would not occur and additional power would not be generated.

Water Quality and Other Benefits

The proposed project would provide several water quality and other expected benefits. These benefits are described in detail below and are summarized in Table 8-20.

Avoided Repairs due to Quagga Infestations

The *Lake Hodges Water Quality and Quagga Mitigation Measures* project would result in avoided repairs and shutdown costs typically associated with Quagga infestations. As shown in Table 8-22, these costs are estimated to be \$250,000 annually. These benefits would extend from 2013 through the life of the project in 2060. The total present value of avoided repair costs over life of project would be \$3,284,626 (in 2009 dollars).

Table 8-22: Avoided Repair Costs Due to Quagga Infestation Lake Hodges Water Quality and Quagga Mitigation Measures

	Annual Repair Cost	Years	Total Cost
Avoided Repair Costs Due to Quagga Infestation	\$250,000	48	\$12,000,000
Total Avoided Costs after Discounting			\$3,284,626

Notes: For more information regarding how these avoided costs were calculated please refer to Appendix 8-1, Table 16 Water Quality and Other Expected Benefits



Fish and Wildlife Enhancements

The *Lake Hodges Water Quality and Quagga Mitigation Measures* project would elevate dissolved oxygen levels, which has the potential to decrease fish mortality rates associated with hypolimnion, the dense, bottom layer of water in a thermally-stratified lake. The days with elevated dissolved oxygen levels (above 0 mg/l) in hypolimnion would increase from 270 to 335 under the proposed project, an increase of 65 days per year. These watershed improvements would also be expected to increase bird and frog populations through improved habitat conditions. These fish and wildlife benefits anticipated from the project have not been monetized.

Power Production

SDCWA is paid by SDG&E for the availability and capability to generate power at the Lake Hodges Pumped Storage Facility. This power is then sold to SDCWA at a contracted rate of \$70/MWh. Without the *Lake Hodges Water Quality and Quagga Mitigation Measures* project, it is estimated that ten days would be lost per year to system repairs, which equates to 240 hours annually. As a result, the avoided losses in power production are estimated at \$672,000 annually for a total present value power production benefit of \$8,829,075 (in 2009 dollars).

Table 8-23: Avoided Losses in Power Production Lake Hodges Water Quality and Quagga Mitigation Measures

	Lost Units (hours)	Unit Cost	Total Annual Cost	Years	Total Cost
Avoided Losses in Power Production	240	\$70/MWh	\$672,000	48	\$32,256,000
Total Avoided Costs after Discounting					\$8,829,075

Source: SDCWA Contract Rate with SDG&E.

For more information regarding how these avoided costs were calculated please refer to Appendix 8-1, Table 16 Water Quality and Other Expected Benefits

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-24 summarizes the anticipated beneficiaries of water quality and other benefits that will be provided by the project. The water quality and other improvements would benefit both SDCWA and local residents. Local residents that depend on local water supplies would benefit from the avoided costs of repairs and the fish and wildlife enhancements. Regional and statewide electrical ratepayers and residents would benefit from the power production benefits associated with this project.

Table 8-24: Project Beneficiaries SummaryLake Hodges Water Quality and Quagga Mitigation Measures

Local	Regional	Statewide
DCWA and local residents	Electrical ratepayers; regional residents	Electrical ratepayers; statewide residents

Project Benefits Timeline Description

This project would provide water quality and other expected benefits beginning in 2013 and continuing in excess of the 50-year project lifetime.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Projected savings through the reduction of Quagga infestation represent best estimates based on the latest available data. Actual water savings will vary.



Table 8-25: Omissions, Biases, and Uncertainties and their Effect on the Project Lake Hodges Water Quality and Quagga Mitigation Measures

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Repair Costs Due to	+	Repair costs could be greater than the estimate based on
Quagga Infestation		Quagga growth rate.
Fish and Wildlife	+	Water quality improvements are expected to have positive
Enhancements		impacts on fish and wildlife.
Power Production	+/-	Facility down time could be greater or less than the estimated 240 hours annually.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

The benefits that are anticipated to result from implementation of the *Implementing Nutrient Management in the Santa Margarita River Watershed* project are summarized below in Table 8-26, and the cost-benefit overview is summarized in Table 8-27. This project would result in qualitative water quality benefits and qualitative other benefits. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-26: Benefits Summary Implementing Nutrient Management in the Santa Margarita River Watershed

Type of Benefit	Assessment Level	Beneficiaries		
Water Quality and Other Benefits				
Avoided Costs of Regulatory Compliance	Physical Quantification	Local and Regional		
Protection of Beneficial Uses	Qualitative	Local and Regional		
Improve Impaired Water Bodies and Sensitive Habitats	Qualitative	Local and Regional		
Increase In-Stream Flows	Qualitative	Local and Regional		
Fish and Wildlife Enhancements	Qualitative	Local, Regional, and Statewide		

Table 8-27: Benefit-Cost Analysis Overview Implementing Nutrient Management in the Santa Margarita River Watershed

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,534,082
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Avoided Costs of Regulatory Compliance	++
Protection of Beneficial Uses	+
Improve Impaired Water Bodies and Sensitive Habitats	+
Increase In-Stream Flows	+
Fish and Wildlife Enhancements	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)



The "Without Project" Baseline

If this project were not implemented, the Rancho California Water District (RCWD) would continue to deliver an average of 4,000 acre feet per year (AFY) of imported water from the Metropolitan Water District of Southern California (MWD) to the Santa Margarita River watershed in order to augment flows in accordance with an agreement between RCWD and the Santa Margarita Watermaster.

If this project were not implemented, the Santa Margarita River estuary would continue to be impaired by eutrophication and portions of the Santa Margarita River and its tributaries would remain on the 303(d) list of impaired water bodies due to elevated levels of nutrients within the watershed. In addition, without this project, there would continue to be a lack of data in the Nutrient Numeric Endpoint (NNE) framework, which prevents the San Diego RWQCB from establishing total maximum daily loads (TMDLs) for the Santa Margarita River and the watershed.

Water Quality and Other Benefits

This project would provide water quality and other expected benefits. These benefits are described in detail below and are summarized in Table 8-26.

Avoided Costs of Regulatory Compliance

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project will involve the establishment of water quality objectives (WQOs), which will be based on the level of nutrients in the Santa Margarita River and will determine what additional nutrients the watershed can sustainably assimilate. The establishment of new WQOs based on sound science will allow a broader array of water management strategies to be employed within the watershed. For example, the WQOs may be updated to reflect current watershed conditions and therefore allow delivery of recycled water to the Santa Margarita River to augment streamflow.

To estimate the cost of achieving WQOs in the San Diego region, the Water Quality Working Group (WQWG) was organized by the County of San Diego under the Quality of Life Initiative.6 The WQWG developed a cost estimation for a pilot watershed, the San Diego River watershed. Assuming that only urban and agricultural land uses contribute to pollution in storm water and urban runoff, each local watershed was classified by similar land uses, water quality issues, and BMP needs. A normalized cost value was determined for each watershed class (i.e., millions of dollars per developed square mile).

In the San Luis Rey Class, the normalized cost for the pilot watershed can be extrapolated to the Santa Margarita River watershed based on the developed area (i.e., multiplying \$16.3 million by 31.3 miles² equals \$508 million). The total 40-year cost of water quality programs for the Santa Margarita River watershed would be \$477.5 million (in 2009 dollars) to achieve compliance with the current WQOs. However, this value was not used in the economic analysis because it would override all other proposal benefits due to its sheer size.

Protection of Beneficial Uses

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project will involve the establishment of water quality objectives (WQOs), which will be based on the level of nutrients in the Santa Margarita River and will determine what additional nutrients the watershed can sustainably assimilate. The project will include data collection that will support modeling in the estuary and watershed in order to develop and implement nutrient reduction and water conservation best management practices (BMPs) that will be required to achieve the TMDL for nutrients that will be issued by the San Diego RWQCB. Implementation of the proposed project is anticipated to impart economic water quality benefits, because it will take place in a manner that improves water quality in the Santa Margarita River watershed and that is protective of the beneficial uses provided by these water bodies. The water quality benefits that protect beneficial uses were not quantified and/or monetized.

⁶ County of San Diego. 2010. Quality of Life Funding Strategy, San Diego Region. Needs Assessment and Cost Estimate for the Water Quality Enhancement Element. Draft.



Improve Impaired Water Bodies and Sensitive Habitats

The *Implementing Nutrient Management in the Santa Margarita River Watershed* project will involve data collection, monitoring, and analysis that will address data gaps inherent in the NNE framework and refine nutrient WQOs for the Santa Margarita River watershed. The results of these studies would allow the San Diego RWQCB to issue a TMDL to begin implementation of BMPs, which would reduce nutrient levels, and potentially resolve nutrient-related water quality issues. Reduction of nutrient levels would potentially improve impaired water bodies and sensitive habitats, including water bodies currently listed on the 303(d) list, in the Santa Margarita River estuary. These water quality benefits were not quantified and/or monetized.

Increase In-stream Flow

The establishment of WQOs could potentially find that a broader range of water sources, such as recycled water, could be naturally sustained by the Santa Margarita River watershed. If this project finds that recycled water can be delivered to the Santa Margarita River, then other water purveyors in addition to RCWD may choose to augment river flows in this manner. Currently, some water purveyors within the project area divert their recycled water flows to the Santa Ana River watershed, because they are not permitted to deliver recycled water to Santa Margarita River watershed. If this was to change, it would substantially increase in-stream flows within the Santa Margarita River watershed. These econsystem benefits were not quantified and/or monetized.

Fish and Wildlife Enhancements

Increases in in-stream flows to Santa Margarita River watershed, as described previously, could potentially be a result of the *Implementing Nutrient Management in the Santa Margarita River Watershed* project. Increased river flows within the project area would enhance the habitat for fish and wildlife within the region, including the southern steelhead trout, which is a listed species pursuant to the Endangered Species Act. These ecosystem benefits were not quantified and/or monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-28 summarizes the anticipated beneficiaries of water quality and ecosystem benefits that would be provided by this project. Anticipated benefits from this project would benefit stakeholders at the local, regional, and statewide levels. Local and regional residents that live and/or work adjacent to the Santa Margarita River watershed will benefit from improved surface water quality through avoided health and safety impacts. Further, all local residents would benefit from less agency spending on regulatory compliance when not founded in scientific analysis. Local water users, regional residents, and statewide residents will also benefit due to general ecosystem improvements, which benefit society as a whole.

Implementing Nutrient Management in the Santa Margarita River Watershed Local Regional Statewide Local residents Regional residents Statewide residents

Table 8-28: Project Beneficiaries Summary

Project Benefits Timeline Description

The project would provide water quality and other expected benefits, but because these benefits are qualitative, they would not be accrued during a specific timeframe.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with project construction will be mitigated through the CEQA compliance process. No long-term adverse effects are expected as a result of the proposed project.

Uncertainty of Benefits

Uncertainties relating to the water quality and other benefits of this project are summarized below in Table 8-29. Uncertainties exist regarding the potential water quality benefits of protecting beneficial uses and improving impaired water bodies and sensitive habitat, and uncertainties exist relating to the potential other benefits of increasing in-stream flows and creating fish and wildlife enhancements. All of the

uncertainties regarding the potential water quality and other benefits of this Project are either negligible or unknown. These uncertainties are all based on the fact that benefits were estimated under the premise that Phase II of the Project gets completed and results in the establishment of TDMLs, and that the TDMLs allow water purveyors to deliver recycled water to the Santa Margarita River.

Table 8-29: Omissions, Biases, and Uncertainties and their Effect on the Proj	ect
Implementing Nutrient Management in the Santa Margarita River Watershee	1

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Costs of Regulatory Compliance	++	Benefits based on the Quality of Life Initiative's Needs Assessment resulted in extremely high cost (\$477.5 million (\$2009)) to achieve compliance with the current WQOs.
Protection of Beneficial Uses	+/-	Benefits were estimated with the assumption that Phase II gets completed and results in the establishment of TDMLs, and that the TDMLs allow water purveyors to deliver recycled water to the Santa Margarita River.
Improve Impaired Water Bodies and Sensitive Habitats	+/-	Benefits were estimated with the assumption that Phase II gets completed and results in the establishment of TDMLs, and that the TDMLs allow water purveyors to deliver recycled water to the Santa Margarita River.
Increase In-Stream Flow	+/-	Benefits were estimated with the assumption that Phase II gets completed and results in the establishment of TDMLs, and that the TDMLs allow water purveyors to deliver recycled water to the Santa Margarita River.
Fish and Wildlife Enhancements	+/-	Benefits were estimated with the assumption that Phase II gets completed and results in the establishment of TDMLs, and that the TDMLs allow water purveyors to deliver recycled water to the Santa Margarita River.

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The benefits that are anticipated to result from implementation of the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project are summarized below in Table 8-30, and the cost-benefit overview is summarized in Table 8-31. This project would result in water quality benefits associated with avoiding construction of a water treatment facility, reducing pollutant discharges, and associated increases in recreational use. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-30: Benefits Summary

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Type of Benefit	Assessment Level	Beneficiaries
Water Quality and Other Benefits		
Avoided Costs of Treatment Facility	Monetized	Local and Regional
Reduction in TSS and TDS	Physical Quantification	Local and Regional
Increase in Recreational Opportunities	Qualitative	Local and Regional

Table 8-31: Benefit-Cost Analysis Overview

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

	Present Value (\$2009)
Costs – Total Capital and O&M	\$4,168,512
Monetizable Benefits	
Avoided Costs of Treatment Facility	\$1,072,816
Qualitative Benefits	Qualitative Indicator*
Reduction in TSS and TDS	+
Increase in Recreational Opportunities	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

The without Project baseline for the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project would consist of existing conditions associated with water quality violations in the project area. Information from the City of San Diego demonstrates that on average, total suspended solids (TSS) within the project area measure at 105 kg/year and total dissolved solids (TDS) measure at 2 kg/year. Without implementation of the project, the TSS and TDS levels would remain at current levels and these constituents of concern would continue to flow into Tecolote Creek and into west Mission Bay, which is a primary recreational asset within the City.

Water Quality and Other Benefits

Water quality and other benefits associated with the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project were calculated based on the assumption that the project will reduce TSS and TDS from entering Tecolote Creek and west Mission Bay. These water quality improvements will result in benefits associated with the avoidance of building a water treatment facility, direct benefits associated with improving TDS and TSS, and recreational benefits in Mission Bay associated with improving water quality.

Avoided Costs of Treatment Facility

Implementation of the Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection project is anticipated to improve water quality by reducing TSS and TDS in Tecolote Creek and in west Mission Bay. The water quality improvements that would occur as a result of this project are expected to be equivalent to water quality benefits that would occur from constructing a conceptual treatment facility.

The Chollas Creek Dissolved Metals Total Maximum Daily Load (TMDL) Implementation Plan (Implementation Plan)⁷ was prepared for the entire Chollas Creek Watershed, which estimated the type of water treatment facility that would be required to obtain total maximum daily load (TMDL) compliance for various constituents of concern throughout the watershed. Quantified water quality benefits for this Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection project were based on the Implementation Plan and scaled down to fit the water quality benefits anticipated to occur from implementation of this project alone. It is anticipated that a 3 acre-foot per day treatment facility would need to be constructed at the mouth of Tecolote Creek to obtain TMDL compliance for indicator bacteria, TSS, nitrates, and metals within the project area by 2020.

Costs associated with the conceptual treatment facility include construction and financing costs, startup and material costs, facility improvement/upgrade costs, and ongoing operations and maintenance (O&M) costs. The estimated cost to construct the watershed level facility would be \$21,137,500, which would include financing, bonding, design, and construction. The total avoided treatment costs associated with the project were estimated to be approximately 2.5% of the total \$21,137,500 treatment facility cost based

⁷ Chollas Creek Dissolved Metals Total Maximum Daily Load (TMDL) Implementation Plan, City of San Diego, October 2009.

on the urbanized drainage area of the project site, which is approximately 2.5% of the Tecolote Creek watershed. This represents a net present value of \$1,072,816 (in 2009 dollars).

Table 8-32: Avoided Treatment Facility Costs

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

	Watershed- Scale Capital Cost	Scaled by 2.5% for Project Benefits	Total Capital and O&M Costs
Avoided Treatment Facility Construction and Operation	\$21,137,500	\$1,120,610	\$2,139,346
Total Avoided Treatment	t Facility Costs af	ter Discounting	\$1,072,816

For more information regarding how these avoided costs were calculated please refer to Appendix 8-1, Table 16 Water Quality and Other Expected Benefits

Reduction in TSS and TDS

The Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection project is anticipated to provide watershed improvements that would result in reductions in the amount of TSS and TDS discharged into Tecolote Creek, and therefore into west Mission Bay. These benefits would occur, because the project would implement the following BMPs:

- Divert stormwater from Bannock Avenue to bioretention and treatment planters,
- Increase infiltration of storm flows through pervious pavement, and
- Divert stormwater flows through a trash segregation unit and a series of bacterial treatment systems.

In sum, these actions are estimated by the City of San Diego to reduce solids loading by approximately 85%. TSS will be reduced from 105 kilograms (kg)/year to approximately 15 kg/year. TDS will be reduced from 2 kg/year to 0.25 kg/year. These water quality benefits were not monetized.

Increase in Recreational Opportunities

Reducing TSS and TDS within Tecolote Creek will also reduce these constituents from entering water bodies downstream of Tecolote Creek, including west Mission Bay. The pollutant load reduction of this project directly impacts Mission Bay, which is the most widely used aquatic resource in the region. Reducing the pollutant loading to these surface water bodies will allow for wider and more continuous use of the Tecolote Creek Natural Park and west Mission Bay. Based on internal calculations from the City of San Diego, it is anticipated that improving water quality in west Mission Bay may increase recreation from 10,000 to 15,000 visitor days per year. Improved water quality in west Mission Bay would allow for additional aquatic activities in this water body, including fishing and swimming. Increases in recreational opportunities specific to this project could not be calculated, and were therefore not monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-33 summarizes the anticipated beneficiaries of water quality benefits that would be provided by the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project. The water quality improvements would benefit both local water users and regional residents. Local water users that work and/or live in Tecolote Creek watershed will benefit from improved water quality through avoided health impacts and increased recreational quality. Residents in the region will benefit from improved water quality through avoided health impacts and increased recreational quality in Mission Bay.

Table 8-33: Project Beneficiaries Summary

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Local	Regional	Statewide
Local residents in Tecolote Creek watershed	Regional residents that utilize Tecolote Creek and/or west Mission Bay for recreational purposes	Not applicable

Project Benefits Timeline Description

Water quality benefits from this project associated with avoiding the cost of constructing a treatment facility would occur from 2011 to 2046. Water quality benefits from this project associated with reducing TSS and TDS from entering Tecolote Creek would occur during facility operation from 2014 to 2046. Water quality benefits associated with increasing recreational opportunities do not have a timeline, because these benefits cannot be quantified or monetized.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be mitigated through the CEQA compliance process, if necessary. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water quality benefits of the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project are summarized below in Table 8-34. Uncertainties relating to water quality benefits that could not be monetized, water quality benefits associated with reducing TSS and TDS and increased recreational use would have very little impact on the net water quality benefits associated with this project. These uncertainties would be minimal, however, because the project would reduce TSS and TDS discharges and improve water quality in Tecolote Creek and West Mission Bay. In addition, the project's direct influence on recreational use is unknown, and the value associated with recreation of west Mission Bay is unknown because these values were not quantified and/or monetized.

Table 8-34: Omissions, Biases, and Uncertainties and their Effect on the Project Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Costs of Treatment Facility	_	The probability of a treatment facility being constructed without the project is unknown.
Reduction in TSS and TDS	+/-	Discharge reduction values not monetized.
Increase in Recreational Opportunities	+/-	The project's influence on recreational use is unknown. Recreation values not monetized.

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative) -- (significant negative)



Project 8: Pilot Concrete Channel Infiltration Project

The benefits that are anticipated to result from implementation of the *Pilot Concrete Channel Infiltration Project* are summarized below in Table 8-35, and the cost-benefit overview is summarized in Table 8-36. This project would result in water quality benefits associated with avoiding construction of a water treatment facility and reducing pollutant discharges. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-35: Benefits SummaryPilot Concrete Channel Infiltration Project

Type of Benefit Assessment Level		Beneficiaries
Water Quality and Other Benefits		
Avoided Costs of UV Treatment Facility	Monetized	Local and Regional
Reduction in Nitrate Discharge	Physical Quantification	Local and Regional
Reduction in Bacteria Discharge	Physical Quantification	Local and Regional

Table 8-36: Benefit-Cost Analysis Overview Pilot Concrete Channel Infiltration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$281,294
Monetizable Benefits	
Avoided Costs of UV Treatment Facility	\$1,809,240
Qualitative Benefits	Qualitative Indicator*
Groundwater Recharge	+/-
Reduction in Nitrate Discharge	+
Reduction in Bacteria Discharge	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

The without project baseline for this project would consist of 2009 conditions associated with dry weather discharges into Woodglen Vista Creek. Information from the City of Santee demonstrates that the project would divert and infiltrate approximately 2,160 gallons of water per day. This amount of water, along with associated pollutants (0.67 kg of nitrate, 440 million fecal coliform cells, and 13.6 billion enterococci cells per day), would continue to flow into Woodglen Vista Creek without implementation of the project.

Water Quality and Other Benefits

Water quality benefits associated with this project are derived from the estimate that this project would eliminate dry weather discharges at a rate of 2,160 gallons per day if 100 percent of flows are diverted and infiltrated in the constructed channel. As described below, this reduction of dry weather flows would reduce discharges of nitrogen and bacteria (fecal coliform and enterococci) into nearby surface waters, and will therefore eliminate the need to construct an ultra violet (UV) treatment facility to address surface water quality issues in the vicinity of the project area.

Avoided Costs of UV Treatment Facility

The reduction of nitrates and bacteria which would result from implementation of the *Pilot Concrete Channel Infiltration Project* is expected to provide water quality benefits comparable to construction and operation of a UV treatment facility. UV treatment facilities provide state-of-the-art water quality treatment for addressing bacteria-related water quality issues in surface waters. The project would provide comparable water quality benefits to a UV treatment facility, and would therefore eliminate the need to build such a facility to address water quality concerns within the project area.

The capital costs for building a UV treatment facility are an estimated \$3,000,000. This estimate was obtained using scaled-down values for construction of a similar facility (the Loma Alta Creek UV Treatment Facility) in the City of Oceanside, which also lies within San Diego County. Although the water flow through the Loma Alta Creek UV Treatment Facility is greater than the estimated flow for this project, maintenance costs to run UV treatment facilities are similar for facilities of varying sizes. As such, annual operations and maintenance (O&M) costs that would be avoided by construction of a UV facility were estimated at \$16,000 (the actual Loma Alta Creek UV Treatment Facility O&M cost). This is considered to be a fair comparison, because the Loma Alta Creek UV Treatment Facility has been in operation for several years, therefore it is assumed that most available efficiencies have been identified and incorporated into the operator's procedures.

These costs have been monetized, and the total water quality benefits based on avoided treatment costs is \$1,809,240.

	Cost	Years	Total Cost
Avoided UV Treatment Facility Construction	\$3,000,000	N/A	\$3,000,000
Avoided Annual O&M Costs	\$16,000	41	\$656,000
Total Avoided Costs (Sum) \$3,656,000			
Total Avoided UV Treatment Facility Costs after Discounting			\$1,809,240

Table 8-37: Avoided UV Treatment Facility Costs Pilot Concrete Channel Infiltration Project

*For further information regarding how these costs were calculated please refer to Appendix 8-1 Table 13 Annual Costs of Avoided Projects

Reduction of Nitrate Discharges

The *Pilot Concrete Channel Infiltration Project* would eliminate dry weather discharges at a rate of 2,160 gallons per day if 100 percent of flows are diverted and infiltrated in the channel constructed as part of the project. Using this flow data and information regarding the nitrogen loading in Woodglen Vista Creek from 2009, it can be estimated that approximately 0.67 kg per day of nitrate (nitrogen) would be prevented from entering surface water bodies within the project area. This water quality benefit was not monetized, because information regarding the reduction of nitrates was based on limited data.

Reduction of Bacteria Discharges

The *Pilot Concrete Channel Infiltration Project* would eliminate dry weather discharges at a rate of 2,160 gallons per day if 100 percent of flows are diverted and infiltrated in the channel constructed as part of the project. Using this flow data and calculating a discharge load from 2009 dry weather monitoring data, it can be estimated that up to 440 million fecal coliform cells per day and 13.6 billion enterococci cells per day could be eliminated from being discharged into nearby surface water bodies. This water quality benefit was not monetized, because information regarding the reduction of bacteria was based on limited data.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-38 summarizes the anticipated beneficiaries of water quality benefits that will be provided by this project. The water quality improvements would benefit both local and regional residents. Local residents that live and/or work adjacent to Woodglen Vista Creek would benefit from improved surface water quality, including avoided health and safety impacts.

Table 8-38: Project Beneficiaries Summary Pilot Concrete Channel Infiltration Project

Local	Regional	Statewide
Local residents	Regional residents	Not Applicable



Project Benefits Timeline Description

Water quality benefits from this project associated with reducing nitrate and bacteria discharges would begin occurring after completion of project construction in 2012. Water quality benefits associated with avoiding the cost of constructing a UV treatment facility would begin occurring in 2019.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project would be mitigated during the CEQA compliance process. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water quality benefits of this project are summarized below in Table 8-39. Uncertainties relating to water quality benefits that could not be monetized (reduction in discharges of nitrates and bacteria) would have very little impact (either negligible or unknown) on the net water quality benefits associated with this project. These uncertainties are because the discharge reduction estimates were based on a limited data set of one year. These uncertainties would be minimal, because while it is uncertain what the amount of reduced discharge would be, it is certain that the project would reduce nitrate and bacteria discharges.

Uncertainties regarding monetized water quality benefits could potentially have a significant negative impact on the net benefits associated with this project, because the probability of constructing a UV treatment facility is unknown in comparison to implementation of alternate structural BMPs.

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Reduction in Nitrate Discharge	+/-	Reduction estimates are based on limited data.
Reduction in Bacteria Discharge	+/-	Reduction estimates are based on limited data.
Avoided Costs of UV Facility		The probability of a treatment facility being constructed without the project is unknown in comparison to implementation of alternate structural BMPs.

 Table 8-39: Omissions, Biases, and Uncertainties and their Effect on the Project

 Pilot Concrete Channel Infiltration Project

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 9: San Diego Regional Water Quality Assessment and Outreach Project

The benefits that are anticipated to result from implementation of the *San Diego Regional Water Quality Assessment and Outreach Project* are summarized below in Table 8-40, and the cost-benefit overview is summarized in Table 8-41. This project would result in physically quantified water quality benefits associated with beneficial uses, improving impaired water bodies/sensitive habitats, and ecosystem improvements. The project would also result in monetized other benefits associated with avoiding regulatory monitoring. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.



Table 8-40: Benefits Summary San Diego Regional Water Quality Assessment and Outreach Project

Type of Benefit	Assessment Level	Beneficiaries		
Water Quality and Other Benefits				
Protect, Restore, or Enhance Beneficial Uses	Physical Quantification	Local and Regional		
Improve Impaired Water Bodies and Sensitive Habitats	Physical Quantification	Local and Regional		
Ecosystem Improvements and Preservation Through Trash Collection	Monetized	Local and Regional		
Avoided Regulatory Monitoring	Monetized	Local and Regional		

Table 8-41: Benefit-Cost Analysis Overview San Diego Regional Water Quality Assessment and Outreach Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$924,578
Monetizable Benefits	
Avoided Regulatory Monitoring	\$667,315
Avoided Trash Collection	\$30,831
Qualitative Benefits	Qualitative Indicator*
Protect, Restore, or Enhance Beneficial Uses	+
Improve Impaired Water Bodies and Sensitive Habitats	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If this project were not implemented, the watershed monitoring, clean-up, and data collection efforts proposed in the Work Plan (see Attachment 3) would not occur. In instances where these efforts are mandated within the San Diego IRWM region, it is assumed that a government agency would have to incur the resources and costs to complete mandated efforts that would otherwise be provided as part of the project.

Expected Water Quality & Other Benefits of Project

Detailed cost and benefit information associated with the San Diego Regional Water Quality Assessment and Outreach Project, including present value calculations, is provided in Appendix 8-1.

Protecting, Restoring, or Enhancing Beneficial Uses

The San Diego Regional Water Quality Assessment and Outreach Project will include monthly monitoring by San Diego Coastkeeper, which will provide increased temporal resolution of water quality data. These samples will be collected and analyzed in accordance with standard operating procedures and a DWRapproved Project Assessment and Evaluation Plan (PAEP). In total, monitoring efforts expected as part of the project are estimated to increase water quality samples in receiving water bodies from one sample per year to ten samples per year, which corresponds to a 1,000 percent increase. This increased sampling effort will increase information regarding the status of water bodies within the San Diego region, and will assist regulatory and responsible agencies in protecting, restoring, and/or enhancing beneficial uses throughout the region. These water quality benefits were not monetized.

Improving Impaired Water Bodies and Sensitive Habitats

As described above, actions expected to take place as part of the San Diego Regional Water Quality Assessment and Outreach Project are estimated to increase water quality samples in receiving water bodies from one sample per year to ten samples per year, which corresponds to a 1,000 percent



increase. This increased sampling effort will increase information regarding the status of impaired water bodies within the San Diego region, which will improve regulatory and responsible agency knowledge regarding the sensitive habitats within the region. These water quality benefits were not monetized.

Avoided Costs of Trash Collection

As part of this project, Coastkeeper would continue to coordinate inland trash removal events, sponsor corporate clean up events, and coordinate and plan the annual Coastal Clean-Up Day events. Continued and expanded actions regarding the aforementioned efforts are expected to increase the total pounds of trash removed from 495,264 lbs per year to 680,401 lbs per year, which corresponds to a 34.4 percent increase. These efforts will generate an avoided trash removal cost to cities, the County, and other municipalities.

The value of avoided trash collection was calculated based in-house monitoring costs incurred by the City of San Diego Stormwater Department for similar efforts. Avoided operational costs for community cleanup events totaled \$164,765 in 2010. Approximately 1,150 tons of trash was collected during 104 clean-up events, for an average cost of \$143.27 per ton, or \$0.07 per pound. The project is anticipated to reduce 185,137 pounds of trash per year (680,401 - 495,256)over a three-year period (2012-2014). The total present value of these benefits is estimated to total \$30,831 (in 2009 dollars).

Table 8-42: Avoided Trash Collection San Diego Regional Water Quality Assessment and Outreach Project

	Pounds Reduced	Cost per Pound	Years	Total Cost
Avoided Trash Collection	185,137	\$0.07	3	\$38,879
Total Ave	Total Avoided Trash Collection Costs after Discounting			\$30,831

Source: In-house Monitoring Costs from San Diego Coastkeeper.

For more information regarding how these costs were calculated, please refer to Appendix 8-1, Table 16 Water Quality and Other Expected Benefits.

Avoided Regulatory Monitoring

The San Diego Regional Water Quality Assessment and Outreach Project would include water quality monitoring efforts, which would otherwise be taken on by state, county, city, or other government agencies. Avoided costs of monitoring efforts would save these government entities money associated with higher overhead and paid employees to conduct equivalent monitoring efforts. In addition, data provided by this project may increase agency access to data, which would potentially reduce staff time to uncover and analyze data from disparate sources or eliminate data collection expenses.

The value of avoided regulatory monitoring was calculated based in-house monitoring costs incurred by Coastkeeper for similar efforts. Avoided capital costs range from \$90,843 to \$181,680 annually, while avoided O&M costs range from \$119,600 to \$239,200 annually. These benefits are expected to last over a three-year period (2012-2014), and are estimated to total \$667,315.

Table 8-43: Avoided Regulatory Monitoring San Diego Regional Water Quality Assessment and Outreach Project

	Capital Cost (Average)	Annual O&M Cost (Average)	Years	Total Cost
Avoided Regulatory Monitoring (2012 & 2014)	\$90,843	\$119,600	2	\$420,886
Avoided Regulatory Monitoring (2013)	\$181,680	\$239,200	1	\$420,886
Total Avoided Regulatory Monitoring Costs				\$841,772
Total Avoided Regulatory Monitoring Costs after Discounting			\$667,315	

Source: In-house Monitoring Costs from San Diego Coastkeeper.

For more information regarding how these costs were calculated, please refer to Appendix 8-1, Table 16 Water Quality and Other Expected Benefits.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-44 summarizes the anticipated beneficiaries of water quality and other benefits that would be provided by this project. The water quality improvements would benefit local, regional, and statewide stakeholders and residents by improving and expanding the volume of water quality data that helps regulatory agencies to manage surface water supplies. These ultimate improvements in surface water will improve health and safety conditions for residents and wildlife living adjacent to the water bodies.

Table 8-44: Project Beneficiaries SummarySan Diego Regional Water Quality Assessment and Outreach Project

Local	Regional	Statewide
Local stakeholders and residents	Regional stakeholders and residents	Statewide stakeholders and residents

Project Benefits Timeline Description

The timeline for water quality benefits is dependent upon actions taken as a result of data review. As a result, a timeline for water quality benefits was not established for this project. The other benefits associated with avoided regulatory monitoring would accrue from 2012 to 2014.

Potential Adverse Effects from the Project

Potential short-term impacts associated with this project will be identified and mitigated, if necessary. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water quality and other benefits of this *San Diego Regional Water Quality Assessment and Outreach Project* are summarized below in Table 8-45. As described in detail below, there are uncertainties regarding all of the potential water quality benefits because full implementation is dependent on actions taken as a result of data review.

Table 8-45: Omissions, Biases, and Uncertainties and their Effect on the Project San Diego Regional Water Quality Assessment and Outreach Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Protect, Restore, or Enhance Beneficial Uses	+	Benefits are dependent upon the analysis of data generated by the Project and therefore are not monetized.
Improve Impaired Water Bodies and Sensitive Habitats	+	Benefits are dependent upon the analysis of data generated by the Project and therefore are not monetized.

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 10: Chollas Creek Integration Project

The water quality and other benefits that are anticipated to result from implementation of the *Chollas Creek Integration Project* are summarized below in Table 8-46, and the cost-benefit overview is summarized in Table 8-47. This project would result in water quality benefits associated with reduction in pollutants, and other benefits associated with increased recreation opportunities, improvements to habitat, habitat restoration, ecosystem improvements, and fish and wildlife species enhancements. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-46: Benefits SummaryChollas Creek Integration Project

Type of Benefit	Assessment Level	Beneficiaries	
Water Quality and Other Benefits			
Reduction in Pollutants	Physical Quantification	Local and Regional	
Increase in Recreation Opportunities	Qualitative	Local	
Habitat Restoration	Physical Quantification	Local	
Ecosystem Improvements	Qualitative	Local and Regional	
Fish and Wildlife Species Enhancements	Physical Quantification	Local, Regional, and Statewide	

Table 8-47: Benefit-Cost Analysis Overview Chollas Creek Integration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,018,096
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Reduction in Pollutants	+
Increase in Recreation Opportunities	+
Habitat Restoration	+
Ecosystem Improvements	+
Fish and Wildlife Species Enhancements	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *Chollas Creek Integration Project* were not implemented, there would be no restoration of native floodplain habitat or associated flood hazard reductions within Chollas Creek. Additionally, without this project, an Opportunities Assessment would not be developed for Chollas Creek and associated benefits related to improving water quality, reducing flooding, and identifying land use opportunities for preserving open space and habitat would not be realized. Specifically, without the project, Chollas Creek Section 2A within the project area would continue to support disturbed riparian scrub habitat with many invasive plant species and be subject to dumping of trash and debris.

Water Quality and Other Benefits

The *Chollas Creek Integration Project* would result in several water quality and ecosystem benefits. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Reduction in Pollutants

Current water quality conditions for Chollas Creek necessitate TMDLs for Diazinon, and the creek is also considered impaired due to the presence and concentration of bacteria and metals (zinc and copper). Project creek restoration activities would widen Chollas Creek by removing an existing asphalt pad on the east side of the creek that is currently being used to store metal products. The project proposes to reduce the size of the asphalt pad from 1.7 acres to 1.4 acres, which would potentially improve water quality by reducing the source of pollutants and encouraging development with a lower potential for pollutants.

Further, once established, the restoration of native riparian vegetation within the channel will contribute to the uptake and removal of pollutants. Because riparian vegetation intercepts surface runoff, it has been



shown to be effective in controlling nonpoint source pollution by removing nutrients, especially nitrogen, and sediment.⁸ This water quality benefit has not been monetized.

Increase in Recreation Opportunities

The Opportunities Assessment that would be conducted as part of the *Chollas Creek Integration Project* would develop a watershed recreational trail element for the project area. The Opportunities Assessment will include an Existing Conditions Report, through which approximately 20,000 linear feet of existing and proposed trail segments would be analyzed to create baseline documentation. Further, this project would identify a multi-modal creek trail system that would connect with two previously restored/enhanced areas through a pedestrian connector and recreational pathway. This trail system would facilitate access for students and residents to Market Creek Plaza and nearby schools, and would provide health and environmental benefits to the community.

The ratio of parkland and open space available for the residents of this community (the Euclid and Market hubs) has been inadequate for decades. Whereas 20 park acres of parkland typically should be available per 1,000 residents, in the half-mile radius surrounding the project, there are only 3.91 park acres per 1,000 residents. The *Chollas Creek Integration Project* would provide additional open space with multiple benefits for DACs in the project area. Additional recreation benefits that would be provided by the project are associated with non-contact water recreation activities such as picnicking, sunbathing, hiking, sightseeing, or aesthetic enjoyment. These benefits have not been quantified and/or monetized.

Habitat Restoration

Habitat and water quality improvements that would result from the *Chollas Creek Integration Project* would support both water and terrestrial ecosystems. Specifically, the project would promote beneficial uses of water for warm water ecosystems, such as preservation or enhancement of aquatic habitats, vegetation, and fish or wildlife (including invertebrates). The project would also promote beneficial uses of water for terrestrial ecosystems such as preservation and enhancement of terrestrial habitats, vegetation, wildlife, and wildlife water and food sources.

This *Chollas Creek Integration Project* is anticipated to involve a restoration and enhancement plan for 1 acre of native riparian scrub habitat, at a ratio of 2:1 with native riparian species. The native riparian scrub habitat would be restored through container plantings and hydroseeding, and would be maintained and monitored. In addition, the project would work to remove 100% of non-native species within the habitat restoration area, including species such as *arundo donax* that contribute to flooding and prevent the establishment of riparian species. These restoration activities would meet the intent of the 2002 Chollas Creek Enhancement Program, and would be measured for success based on the survivorship of container plants and the percentage of vegetative cover.

In addition, it is the aim of the *Chollas Creek Integration Project* that restored native habitat would support additional wildlife species, and that eliminating invasive plant species would curtail the spread of these species to already restored areas downstream. The project also aims to increase ecological functions and values through the Chollas Creek riparian corridor. These benefits have not been monetized.

Ecosystem Improvements

The restoration of native habitat within Chollas Creek as proposed by the *Chollas Creek Integration Project* meets the intent of the 2002 Chollas Creek Enhancement Program. As described within the Program, native habitat, such as that proposed by the project, supports a healthier and higher-functioning ecosystem. The native habitat that would be created by the *Chollas Creek Integration Project* would be preserved in perpetuity as open space. These benefits have not been quantified and/or monetized.

Fish and Wildlife Species Enhancements

The Opportunities Assessment that would be conducted as part of the *Chollas Creek Integration Project* would involve development of an Existing Conditions Report, through which all watershed biological

⁸ U.S. Department of Agriculture. Riparian Forest Buffer Handbook for the Chesapeake Bay Watershed. United States Department of Agriculture, Environmental Protection Agency, Forest Service and Northeastern Area State & Private Forestry, NA-TT-02-97. Washington, DC.



survey data would be compiled and analyzed. The project would also involve additional surveys to fill any data gaps, with particular attention to recommendations for the sustainability of at least three species designated within the Multiple Species Conservation Plan. Specifically, the project would aim at protecting the Coastal California Gnatcatcher, Coastal Barrel Cactus, and California Cactus Wren. These benefits have not been quantified and/or monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-48 summarizes the anticipated beneficiaries of water quality and other benefits that would be provided by this Project. The water quality improvements would benefit local, regional, and statewide beneficiaries. Local residents would benefit from water quality improvements in Chollas Creek and the overall watershed (the Pueblo Hydrologic Unit). Local and regional residents would benefit from increased recreational opportunities throughout the project area. Local, regional, and statewide residents would benefit from ecosystem improvements, which benefit society as a whole.

Table 8-48: Project Beneficiaries Summary Chollas Creek Integration Project

Local	Regional	Statewide
Local residents	Regional residents	Statewide residents

Project Benefits Timeline Description

All water quality and other benefits expected as a result of implementation of the *Chollas Creek Integration Project* were not monetized, and therefore do not have specific timelines over which they would occur.

Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be addressed and mitigated during the CEQA compliance process. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the water quality and other benefits of this project are summarized below in Table 8-49. As shown in the table below, uncertainties regarding water quality and other benefits would occur because none of these benefits were monetized.

	Chonas Creek	megration Project
Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Reduction in Pollutants	+	Not monetized. Reduction in pollutant depends on materials storage continued on concrete pad.
Increase in Recreation Opportunities	+	Not monetized. Recreational benefits depend on implementation of trail system per Opportunities Assessment.
Habitat Restoration	++	Not monetized. Purpose of project is to restore native

riparian habitats in Section 2A.

Opportunities Assessment.

restoration of additional creek lineage.

Not monetized. Success of ecosystem depends on

Not monetized. Fish and wildlife enhancement depend on

implementation of additional habitat improvements per

Table 8-49: Omissions, Biases, and Uncertainties and their Effect on the Project
Chollas Creek Integration Project

* Magnitude of effect on net benefits

Ecosystem Improvements

Fish and Wildlife Species

Enhancement

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); -- (moderate negative); -- (significant negative)

+

+

Project 11: Regional Water Data Management Program

The benefits that are anticipated to result from implementation of the *Regional Water Data Management Program* are summarized below in Table 8-50, and the cost-benefit overview is summarized in Table 8-51. This project would result in qualitative other benefits associated with avoiding regulatory monitoring and increasing efficiencies. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Table 8-50: Benefits SummaryRegional Water Data Management Program

Type of Benefit	Assessment Level	Beneficiaries
Water Quality and Other Benefits		
Avoided Regulatory Monitoring	Qualitative	Local, Regional, and Statewide
Increased Water Management Efficiencies	Qualitative	Local, Regional, and Statewide

Table 8-51: Benefit-Cost Analysis Overview Regional Water Data Management Program

	Present Value (\$2009)
Costs – Total Capital and O&M	\$540,043
Monetizable Benefits	
N/A	N/A
Qualitative Benefits	Qualitative Indicator*
Avoided Regulatory Monitoring	+
Increased Water Management Efficiencies	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *Regional Water Data Management Program* were not implemented, there would be a continued duplication of water resources-related data collection efforts, and/or a failure to identify and address significant gaps in data collection and analysis within the San Diego IRWM region. As such, without implementation of the project, there would be continued efficiencies related to duplicative efforts, and a lack of information regarding the availability of and need for regional water resources data.

Water Supply and Other Benefits

Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 8-1.

Avoided Regulatory Monitoring

The *Regional Water Data Management Program* would include an analysis of regional data collection efforts, and will produce an online database that collects and stores regional water-related data. The result of these efforts would be to compile data from various regional monitoring and sampling programs, in an attempt to reduce duplication efforts and potentially avoid future monitoring efforts when found that such efforts could be fulfilled by existing data. As such, this project would potentially avoid future regulatory monitoring efforts, which would otherwise be taken on by state, county, city, or other government agencies. Avoided costs of monitoring efforts would save these government entities money associated with higher overhead and paid employees to conduct equivalent monitoring efforts. In addition, data compiled and made available by this project may increase agency access to data, which would potentially reduce staff time to uncover and analyze data from disparate sources or eliminate data collection expenses. The value of avoided regulatory monitoring was not monetized.



Increased Water Management Efficiencies

The *Regional Water Data Management Program* would create a stakeholder group and a web-based regional data management system, which together would provide a platform for regional water managers and the general public to access and use data for management and planning purposes. This platform would assist in eliminating duplicative efforts, reveal any gaps in data collection and analysis, and assist in the assessment of water management issues throughout the region in the most efficient manner possible.

As such, the project would potentially increase the efficiency of information dissemination and analysis by any entity interested in San Diego water management data. This increase in efficiency would potentially reduce overhead, research, or regulatory costs by local, regional, and even statewide stakeholders. This benefit was not monetized.

Distribution of Project Benefits and Identification of Beneficiaries

Table 8-52 summarizes the anticipated beneficiaries of water quality and other benefits that would be provided by this project. The regulatory and water management efficiency benefits would accrue to local, regional, and statewide beneficiaries since the data management system would be available to all interested parties through an online web-based platform.

Table 8-52: Project Beneficiaries SummaryRegional Water Data Management Program

Local	Regional	Statewide
Local stakeholders interested in or	Regional stakeholders interested in	Statewide stakeholders interested in
required to report water data	or required to report water data	or required to report water data

Project Benefits Timeline Description

The timeline for other benefits was not established for this project, because these benefits were not monetized, and therefore did not necessitate timeline assumptions.

Potential Adverse Effects from the Project

No short-term or long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to other benefits of this project are summarized below in Table 8-53. As described in detail below, there are uncertainties regarding all of the potential other benefits, because they were not monetized.

Table 8-53: Omissions, Biases, and Uncertainties and their Effect on the Project Regional Water Data Management Program

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Regulatory Monitoring	+	Not monetized. Agencies subject to monitoring requirements may opt to fund their own monitoring due to concerns about sampling quality.
Increased Water Management Efficiencies	+	Not monetized. Agencies may be reluctant to share some types of water management data, therefore decreasing the value of the data management system and its possibilities for efficiencies.

* Magnitude of effect on net benefits

Appendix 8-1: Economic Analysis Tables

✓	Project 1: Sustainable Landscapes Program
	Table 16 – Water Quality and Other Expected Benefits Attached
✓	Project 2: North San Diego County Regional Recycled Water Project
	Table 16 – Water Quality and Other Expected Benefits Not Applicable
✓	Project 3: North San Diego County Cooperative Demineralization Project
	Table 16 – Water Quality and Other Expected Benefits Not Applicable
✓	Project 4: Rural Disadvantaged Community (DAC) Partnership Project
	Table 16 – Water Quality and Other Expected Benefits Not Applicable
✓	Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures
	Table 16 – Water Quality and Other Expected Benefits Attached
✓	Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed
	Table 16 – Water Quality and Other Expected Benefits Not Applicable
~	Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection
	Table 16 – Water Quality and Other Expected Benefits Attached
✓	Project 8: Pilot Concrete Channel Infiltration Project
	Table 16 – Water Quality and Other Expected Benefits Attached
✓	Project 9: San Diego Regional Water Quality Assessment and Outreach Project
	Table 16 – Water Quality and Other Expected Benefits Attached
✓	Project 10: Chollas Creek Integration Project
	Table 16 – Water Quality and Other Expected Benefits Not Applicable
✓	Project 11: Regional Water Data Management Program
	Table 16 – Water Quality and Other Expected Benefits Not Applicable

0	b) Type of Be	enefit: Avoid	ed wastewater t	reatment costs		(b) Type of Bene	efit: Power Co	ost Savings			(b) Type of Be	nefit: Reduce	ed Emissions fr	om Greenwa	oste Reduction	(b) Type of B	enefit: Redu	ction in runoff			(b) Type of Benefit: CO2 Emissions Reduction (due to reduction in water demand) (C) Messure of Benefit [Unit]: Metric tons of CO2 (not											
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ear	(d) Without Project	(e) With Project	Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	Resulting	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	Resulting		(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	Resulting	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	Resulting from Project (g) Un [e - d] Valu		(h) Total Annual Benefits (\$)	(i) Discount Value	(j) Di Bi
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	-1	0	1	\$439,453	\$439,453	-612,720	0	612,720	\$0.10	\$64,029	-33,000	0	33,000	\$0	\$0	-0.15	0	0.15	\$0	\$0	-205	0	205		\$0	-11,000	0	11,000	\$0	\$503,482	0.469	
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			0		\$0 \$0			0		\$0 \$0			0		\$0			0		\$0 \$0			0		\$0			0	\$0	\$0	0.278	-
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.247	-
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.233	1
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.220	
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.207	_
			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0	\$0 \$0	\$0 \$0	0.196	_
			0		\$0			0		\$0 \$0			0		\$0			0		\$0 \$0			0		\$0			0	\$0	\$0	0.174	+
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.164	
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.155	_
			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0	\$0 \$0	\$0 \$0	0.146	_
_			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0			0		\$0			0	\$0	\$0 \$0	0.138	+
_			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.130	-
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.116	1
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.109	
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.103	
-			0		\$0 \$0	<u> </u>		0		\$0 \$0			0		\$0 \$0	+		0	+	\$0 \$0	+ +		0		\$0 \$0		l	0	\$0 \$0	\$0 \$0	0.097	+
			0		\$0			0		\$0			0		\$0	1		0		\$0	1		0		\$0			0	\$0	\$0	0.032	+
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.082	L
			0		\$0	L		0		\$0			0		\$0	1		0	\vdash	\$0			0		\$0			0	\$0	\$0	0.077	
			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	+		0		\$0 \$0	+		0		\$0 \$0			0	\$0 \$0	\$0 \$0	0.073	+
_			0		\$0 \$0	1		0	1	\$0 \$0			0		\$0 \$0	1		0		\$0 \$0	1 1		0		\$0 \$0			0	\$0 \$0	\$0 \$0	0.069	+
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.061	+
			0		\$0			0		\$0			0		\$0			0		\$0			0		\$0			0	\$0	\$0	0.058	
			0		\$0	L		0		\$0			0		\$0	1		0	\vdash	\$0			0		\$0			0	\$0	\$0	0.054	
	(44)		0	2 464 564	\$0	(5,924,766)		0 5,924,766		\$0	(363,000)		0 363,000		\$0	(2)		0		\$0	(2.255)		0		\$0	(121,000)		0	\$0	\$0 4.083.699	0.051	
	(11)			3,404,501	3,404,561	(5,924,766)		3,324,766		019,138	(305,000)		365,000		-	(2)		2	1	-	(2,255)		2,255	- 1		(121,000)		t Value of Discounted	Benefits over Pro		14	1
		_							_					_										_	_		.otai ereser	t value of Discounted	ochemis over Pro		iect Allocation:	1
		_							_					_										_	_			Total Present Valu	ue of Discourted			1
	off is not typic where it is, the acceptable rai n waterwaste	ally treated e benefit is n nges of TMD e treatment.	enefits: Althoug prior to reaching neasurable. Treat Ls. Reduction of i Treatment for re and dissolved ca	the ocean in th ed water must run-off results ir duced solids, ni	ne cases meet n a reduction	Narrative descr reduce kWh use SDG&E's emissio	d by 612,720 b	by 2014. Calcul	ations are ba	sed on	GardenGarder greenwaste by just GREENWA emissions due	Case Study r 53% or 33,00 STE PRODUC to reduced w s project, our	results, this pro 00 pounds per TION; the proje aste. Although	ject has the p year. The bei ect results in economic be	nefits extend beyond	obtained from Stormwater I areas that ha conditions m	n the Center Network a hig we been graa	for Watershed P her runoff coeff ed. Restoration	rotection & C licient is antic to more natu	'hesapeake ipated in ral	associated wi	ith this proje	ct is anticipated t	to reduce pro	oduction of kWh/AF)	Monica's Ga potential to lanscapes. R	rdenGarden C reduce labor l educed labor i	enefits: Based on the ase Study results, this p ours associated with m hours associated with re s in a reduction of CO2	City of Santa voject has the aintenance of educed mowing,			

								iter Quality an Hodges Water												
((b) Type of Ber quagga musse		ed costs of facility	y shutdown and	repair due to	(b) Type of Be	enefit: Wate	r quality benefit:	s on fish and	d wildlife	(b) Type of Be	enefit: Avoide	ed loss in power g	generaqtion						
	(6)							nit]: Days with d		gen levels in	(0) • •	(D				Discounting Calculations for Economic I				
((C) Measure of	Benefit [Uni	t]: Annual O&M	cost (\$)	[hypolimnion	above 0 mg/l	[not monetized		1	(C) Measure	of Benefit [Ur	nit]: Annual powe	er value (\$)		Discounting Co	lculations for E	conomic Be		
			(f) Change		(h) Annual \$			(f) Change		(h) Annual \$			(f) Change		(h) Annual \$	(h) Total		(j) Disco		
	(d) Without	(e) With	Resulting from	(g) Unit \$	Value	(d) Without	(e) With	Resulting from	(g) Unit \$	Value	(d) Without	(e) With	Resulting from	(g) Unit \$	Value	Annual	(i) Discount	Bene		
'ear	Project	Project	Project [e - d]	Value	[f x g]	Project	Project	Project [e - d]	Value	[f x g]	Project	Project	Project [e - d]	Value	[f x g]	Benefits (\$)	Value	[h x		
09 10																\$0 \$0	1.000	\$0 \$0		
11																\$0	0.890	\$0		
12				1000 000	4454 444									4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	4000 000	\$0	0.840	\$0		
13 14	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000						-1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.792	\$730, \$688,		
15	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.705	\$650,		
16	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.665	\$613,		
17 18	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270 270	335 335	65 65		\$0 \$0	-1 -1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.627	\$578, \$545,		
19	-1	0	1	\$250,000	\$250,000	270	335	65		\$0 \$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.558	\$514		
20	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.527	\$485,		
21	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.497	\$458,		
22	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.469	\$432,		
23	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.442	\$407,		
24	-1	0	1	\$250,000	\$250,000	270	335	65		\$0 ¢0	-1	0	1	\$672,000	\$672,000	\$922,000	0.417	\$384,		
25 26	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270 270	335 335	65 65		\$0 \$0	-1 -1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.390	\$359, \$342,		
20	-1	0	1	\$250,000	\$250,000	270	335	65		\$0 \$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.371	\$342,		
28	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.331	\$305,		
29	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.312	\$287		
30	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.294	\$271,		
31	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.278	\$256,		
32	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.262	\$241,		
33	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.247	\$227,		
34 35	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270 270	335 335	65 65		\$0 \$0	-1 -1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.233	\$214, \$202,		
36	-1	0	1	\$250,000	\$250,000	270	335	65		\$0 \$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.220	\$202,		
37	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.196	\$180		
38	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.185	\$170		
39	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.174	\$160,		
40	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.164	\$151,		
41	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.155	\$142,		
42	-1	0	1	\$250,000	\$250,000	270 270	335	65		\$0 \$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.146	\$134,		
43 44	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270	335 335	65 65		\$0 \$0	-1 -1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.138	\$127, \$119,		
45	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.130	\$113		
46	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.116	\$106		
47	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.109	\$100,		
48	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.103	\$94,9		
49	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.097	\$89,		
50	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.092	\$84,		
51 52	-1 -1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270 270	335 335	65 65		\$0 \$0	-1 -1	0	1	\$672,000 \$672,000	\$672,000 \$672,000	\$922,000 \$922,000	0.087	\$80,2 \$75,0		
52	-1	0	1	\$250,000	\$250,000	270	335	65		\$0 \$0	-1 -1	0	1	\$672,000	\$672,000	\$922,000	0.082	\$75, \$70,		
54	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.073	\$67,		
55	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.069	\$63,		
56	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.065	\$59,		
57	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.061	\$56,		
58	-1	0	1	\$250,000	\$250,000	270	335	65		\$0	-1	0	1	\$672,000	\$672,000	\$922,000	0.058	\$53,		
59 50	-1	0	1	\$250,000 \$250,000	\$250,000 \$250,000	270 270	335 335	65 65		\$0 \$0	-1	0	1	\$672,000	\$672,000 \$672,000	\$922,000	0.054	\$50, \$47		
AL	-1 (48)	U	1 48	\$250,000 12,000,000	\$250,000 12,000,000	12,420	335 15,410	65 2,990	-	\$0 -	-1 (48)	U	1 48	\$672,000 32,256,000	\$672,000 32,256,000	\$922,000 44,256,000	0.051	\$47, 12,1		
	(43)		0	12,000,000	12,000,000	12,420	10,410	2,550			(8)	Tet				roject Life (Mone				
												1512					ject Allocation:	,12,1 ,		
													Tot	al Present Valu		d Benefits (Mone	-			
			nefits: Shutdown uagga infestatior		ge.	may decrease	as a result oj n Lake Hodge	enefits: Annual n f elevated dissolv es. Watershed in ulation.	ed oxygen v	within the	downtime wir yearThese van when operation higher or low	thout the pro lues indicate of ng 8 hours pe er depending	enefits: Propone ject. 10 days * 2- operation power r day throughout on regional need tage time will inc	t estimated 10 4 hours = 240 h produced in ge the year. Actu s. Contract allo	days of ours per neration mode ual may be ows 504 hours					

						P	roiect: Banno		e 16 - Water Qu					ırs) Watershed Pro	tection						
	(b) Type of Benefit	: Avoided cost of	treatment plant	t (Water Quality)	(b) Type of Be		ation (due to WC		ents)			tion in Pollutan		watersneu Pro		enefit: Redu	ction in Pollutants (TDS)				
	(C) Measure of Ber			ts (\$)	(C) Measure	of Benefit [Un	it]: [qualitative	1				nit]: KG per yea		tized]	(C) Measure	of Benefit [U	nit]: KG per year [not mo	netized]	Discounting Co	lculations for Ec	onomic Benefits
(a) Year	(d) Avoided	(e) Avoided Replacement Costs	(f) Avoided	(e) Total Avoided Costs [d + e + f]	(d) Without	(e) With	(f) Change Resulting from	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With	(f) Change Resulting from		(h) Annual \$ Value	(d) Without	(e) With	(f) Change Resulting from (g) Unit Project (e - d) Value		(h) Total Annual	(i) Discount Value	(j) Discounted Benefits
2009	Capital Costs \$0	\$0	O&M Costs \$0	\$0	Project	Project	Project [e - d] 0	Value	\$0	Project	Project	Project [e - d]	Value	[f x g] \$0	Project	Project	0.00	\$0	Benefits (\$) \$0	1.000	[h x i] \$0
2010 2011	\$0 \$85.619	\$0 \$0	\$0 \$0	\$0 \$85.619			0		\$0 \$0			0		\$0 \$0			0.00	\$0 \$0	\$0 \$85.619	0.943	\$0 \$76.201
2011	\$90,400	\$0	\$0	\$90,400			0		\$0			0		\$0			0.00	\$0	\$90,400	0.840	\$75,936
2013 2014	\$88,536 \$102,500	\$0 \$0	\$0 \$0	\$88,536 \$102,500			0		\$0 \$0	-105 -105	-15 -15	90 90		\$0 \$0	-2.00	-0.25 -0.25	1.75	\$0 \$0	\$88,536 \$102,500	0.792	\$70,121 \$76,568
2014	\$62,500	\$0	\$0	\$62,500			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$62,500	0.705	\$44,063
2016 2017	\$88,875 \$12,500	\$0 \$17,967	\$0 \$62,500	\$88,875 \$92,967			0		\$0 \$0	-105 -105	-15 -15	90 90		\$0	-2.00	-0.25 -0.25	1.75 1.75	\$0 \$0	\$88,875 \$92,967	0.665	\$59,102 \$58,290
2017	\$530,930	\$17,356	\$25,000	\$573,286			0		\$0	-105	-15	90		\$0 \$0	-2.00	-0.25	1.75	\$0	\$573,286	0.592	\$339,385
2019	\$0	\$16,766	\$16,250	\$33,016			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$33,016	0.558	\$18,423
2020	\$0 \$0	\$16,196 \$15.645	\$16,250 \$16,250	\$32,446 \$31.895			0		\$0 \$0	-105	-15 -15	90 90		\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$32,446 \$31.895	0.527	\$17,099 \$15.852
2021	\$6,250	\$15,113	\$31,250	\$52,613			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$52,613	0.469	\$24,676
2023	\$0	\$14,599	\$16,250	\$30,849			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$30,849	0.442	\$13,635
2024	\$0	\$14,103	\$16,250	\$30,353			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$30,353	0.417	\$12,657
2025	\$0 \$0	\$13,623	\$16,250 \$16,250	\$29,873			0		\$0 \$0	-105	-15	90 90		\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$29,873 \$29,410	0.390	\$11,651 \$10,911
2028	\$8,750	\$12,713	\$31,250	\$52,713			0		\$0	-105	-15	90	1	\$0	-2.00	-0.25	1.75	\$0	\$25,410	0.371	\$18,449
2028	\$0	\$12,281	\$16,250	\$28,531			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$28,531	0.331	\$9,444
2029	\$0	\$11,863	\$16,250	\$28,113			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$28,113	0.312	\$8,771
2030 2031	\$0 \$0	\$11,460 \$11.070	\$16,250 \$16,250	\$27,710 \$27,320			0		\$0 \$0	-105	-15 -15	90 90	l	\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$27,710 \$27,320	0.294	\$8,147 \$7.595
2031	\$12,500	\$10,694	\$31,250	\$54,444			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$54,444	0.262	\$14,264
2033	\$0	\$10,330	\$21,250	\$31,580			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$31,580	0.247	\$7,800
2034	\$0	\$9,979	\$21,250	\$31,229			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$31,229	0.233	\$7,276
2035	\$0 \$0	\$9,640 \$9.312	\$21,250 \$21,250	\$30,890			0		\$0 \$0	-105	-15	90 90		\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$30,890	0.220	\$6,796
2030	\$18,750	\$8,995	\$31,250	\$58,995			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$58,995	0.196	\$11,563
2038	\$0	\$8,689	\$21,250	\$29,939			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$29,939	0.185	\$5,539
2039 2040	\$0 \$0	\$8,394 \$8,109	\$21,250 \$21,250	\$29,644 \$29,359			0		\$0 \$0	-105	-15 -15	90 90		\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$29,644 \$29,359	0.174	\$5,158 \$4.815
2040	50 \$0	\$7,833	\$21,250	\$29,339			0		50 \$0	-105	-15	90 90		\$0 \$0	-2.00	-0.25	1.75	50	\$29,083	0.155	\$4,508
2042	\$12,500	\$7,567	\$31,250	\$51,317			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$51,317	0.146	\$7,492
2043	\$0	\$7,309	\$21,250	\$28,559			0		\$0	-105	-15	90		\$0	-2.00	-0.25	1.75	\$0	\$28,559	0.138	\$3,941
2044 2045	\$0 \$0	\$7,061 \$6,821	\$21,250 \$21,250	\$28,311 \$28,071			0		\$0 \$0	-105	-15	90 0		\$0 \$0	-2.00	-0.25	1.75	\$0 \$0	\$28,311 \$28,071	0.130	\$3,680 \$3,453
2045	\$0	\$6,589	\$21,250	\$27,839			0		\$0			0		\$0			0.00	\$0	\$27,839	0.125	\$3,229
2047				\$0			0		\$0			0		\$0			0.00	\$0	\$0	0.109	\$0
2048				\$0			0		\$0			0		\$0			0.00	\$0	\$0	0.103	\$0
2049 2050				\$0 \$0			0		\$0 \$0			0		\$0 \$0			0.00	\$0 \$0	\$0 \$0	0.097	\$0 \$0
2050				\$0			0		\$0			0		\$0			0.00	\$0	\$0	0.087	\$0
2052				\$0			0		\$0			0		\$0			0.00	\$0	\$0	0.082	\$0
2053 2054				\$0 \$0			0		\$0 \$0			0		\$0 \$0			0.00	\$0 \$0	\$0 \$0	0.077	\$0 \$0
2054 2055				\$0 \$0			0		\$0 \$0	1		0	1	\$0 \$0	1		0.00	\$0 \$0	\$0 \$0	0.073	\$0 \$0
2055				\$0	<u> </u>		0		\$0	I		0		\$0			0.00	\$0	\$0	0.065	\$0
2057				\$0			0		\$0			0		\$0			0.00	\$0	\$0	0.061	\$0
2058 2059				\$0 \$0			0		\$0 \$0			0		\$0 \$0			0.00	\$0 \$0	\$0 \$0	0.058	\$0 \$0
2059				\$0			0		\$0 \$0			0	1	\$0	1		0.00	\$0	\$0	0.054	\$0 \$0
TOTAL	1,120,610	341,236	677,500		-	-	-	-	-	(3,360)	(480)	2,880	-	-	(64)	(8)		-	2,139,346	17	1,072,816
																Tot	al Present Value of Discou	inted Benefits over			\$1,072,816
								_												ject Allocation:	100.0%
	Narrative descript	ion of henefits.	rae 3Acre feet //	Day Treatment Facility	Narrative do	cription of b	enefits: Calculat	ted increase	in vistorshin	Narrative do	scription of b	enefits: Water	hed side ime	provements to the	Narrative do	scription of h	Total Preser enefits: Watershed side in	t Value of Discounte	ed Benefits (Mone	tized Benefits):	\$1,072,816
	Financing. Constru	iction and Fincanci	ng Costs. Startup	& Material	ffrom waters	ned side impr	ovements to the					Creek and West					Creek and West Mission B				
	Cost/Operations &			ost. Facility ost. Estimated cost to	Creek and We	st Mission Ba	iy.														
				wide treatment facility to																	
	treat the 85th perc																				
	jinancing bonding, in 2020) system at	to start design and the mouth of the Te	a construction in ecolote Creek to	2016 and be completed obtain TMDL comliance																	
	for Indicator Bacte	ria, TSS, Nitrate an	d Metals by 2020	0. Attributable portion of																	
	these cost is 2.5 % LIB/BMP improven			ainds into the project																	
				cility construction and																	
				ments/upgrades at 5-																	
	with major O&M c	ugn 2046. Replacer osts at 5-year inter	vals from 2017 t	or standard O&M costs hrough 2046.																	
Comments:					_	_				_	_				_	_					

(b) Type of Benefit: Avoided Cost of UV Facility (Water Quality) (b) Type of Benefit: Reduction in NO3 discharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (b) Type of Benefit: Reduction in All Scharge (Water Quality) (c) Measure of Benefit (Unit): Schorge (Scharge (Water Quality)) (c) Measure of Benefit (Unit): Number of cells (Into monetized) (c) Measure of Benefit (Unit): Number of cells (Into monetized) Discounting Calculations for Economic																						
														quality)					ty)	Discounting Co	alculations for Ed	conomic Benefi
(a) Year	(d) Avoided Capital Costs	(e) Avoided Replacement Costs	(f) Avoided O&M Costs	(g) Total Avoided Costs [d + e + f]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	(h) Annual \$ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit \$ Value	[f x g]	(h) Total Annual Benefits (\$)	(i) Discount Value	(j) Discounte Benefits [h x i]
2009	\$0 \$0	\$0 \$0	\$0 \$0	\$0			0		\$0 \$0			0		\$0 \$0			0		\$0 \$0	\$0 \$0	1.000	\$0 \$0
2010	\$0	\$0 \$0	\$0	\$0			0		\$0			0		\$0			0		\$0	\$0	0.945	\$0
2012	\$0	\$0	\$0	\$0	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$0	0.840	\$0
2013 2014	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	-0.67	0	0.67		\$0 \$0	-440,000,000 -440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$0 \$0	0.792	\$0 \$0
2014	\$0	\$0	\$0	\$0	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$0	0.705	\$0
2016	\$0	\$0	\$0	\$0	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$0	0.665	\$0
2017 2018	\$0 \$0	\$0 \$0	\$0 \$0	\$0 \$0	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000 -13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$0 \$0	0.627	\$0 \$0
2010	\$3,000,000	\$0	\$0	\$3,000,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$3,000,000	0.558	\$1,674,00
2020	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.527	\$8,432
2021	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.497	\$7,952
2022	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.469	\$7,504
2023	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.442	\$7,072
2024	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.417	\$6,672
2025	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.390	\$6,240
2026 2027	\$0 \$0	\$0 \$0	\$16,000 \$16,000	\$16,000 \$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$16,000 \$16,000	0.371	\$5,936 \$5,600
2027	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.350	\$5,600
2028	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.331	\$5,296
2030	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.294	\$4,704
2031	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.278	\$4,448
2032	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.262	\$4,192
2033	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.247	\$3,952
2034	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.233	\$3,728
2035	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.220	\$3,520
2036	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.207	\$3,312
2037 2038	\$0 \$0	\$0 \$0	\$16,000 \$16,000	\$16,000 \$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$16,000 \$16,000	0.196	\$3,136 \$2,960
2038	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.185	\$2,580
2035	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.164	\$2,624
2041	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.155	\$2,480
2042	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.146	\$2,336
2043	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.138	\$2,208
2044	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.130	\$2,080
2045	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.123	\$1,968
2046	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.116	\$1,856
2047 2048	\$0 \$0	\$0 \$0	\$16,000 \$16,000	\$16,000 \$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$16,000 \$16,000	0.109	\$1,744 \$1,648
2048	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.103	\$1,548
2050	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.092	\$1,472
2051	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.087	\$1,392
2052	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.082	\$1,312
2053	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.077	\$1,232
2054	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67	_	\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000	_	\$0	\$16,000	0.073	\$1,168
2055	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.069	\$1,104
2056	\$0	\$0	\$16,000	\$16,000	-0.67	0	0.67		\$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.065	\$1,040
2057	\$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000 440,000,000		\$0 \$0	-13,600,000,000	0	13,600,000,000		\$0 \$0	\$16,000	0.061 0.058	\$976
2058	\$0 \$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000 13,600,000,000		\$0 \$0	\$16,000 \$16,000	0.058	\$928 \$869
2059	\$0 \$0	\$0 \$0	\$16,000	\$16,000	-0.67	0	0.67		\$0 \$0	-440,000,000	0	440,000,000		\$0	-13,600,000,000	0	13,600,000,000		\$0	\$16,000	0.054	\$819
TOTAL	3,000,000	- U,	656,000		-0.67	-	33	-	- 0	(21,560,000,000)	-	21,560,000,000	-	υç.	(666,400,000,000)	-	666.400.000.000	-	- UÇ	3.656.000	0.051	\$819
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																				Pro	ject Allocation:	100.
																			nt Value of Discounte	d Benefits (Mon	etized Benefits):	\$1,809,
		ription of benef e used by the Cit.			Narrative des avoid pollutar			n of dry we	eatner flows to	Narrative descriptio discharges	n of benefit:	Lumination of dry w	eather flows	s to avoid pollutant	Narrative description discharges	i of benefit:	Elimination of dry weat	ner flows to	o avoid pollutant			
mments:																						

(b) Type of Benefit: Avoided regulatory monitoring restoring or enhanci (C) Measure of Bene	Let Let Value [f x g 9 \$0	bodies and sensitive f (C) Measure of Benefi samples per receiving ual e (d) Without (e) Wit	E[Unit]: Annual number water body [not monetiz (f) Change Resulting h from Project (g) U	er of water quality	preservation (inclu (C) Measure of Ber year [not monetize (d) Without Project Project 495,264 686	t: Ecosystem improv ding quality of habit mefit [Unit]: Pounds d) (f) Change Resulting from Project [e-d] 0,401 185,137 0,401 185,137 0,401 185,137	at) of trash remo	(h) Annual \$ Value [f x g] \$ 12,960 \$ 12,960 \$ 12,960 \$ 12,960 \$ 12,960	(h) Total Annual Benefits (\$) \$0 \$0 \$223,403 \$433,846	(i) Discount Value 1.000 0.943 0.840 0.792 0.792 0.627 0.558 0.527 0.465 0.558 0.527 0.467 0.442 0.442 0.442 0.442 0.442 0.330 0.331 0.350 0.331 0.331 0.331	(j) Di: Be [\$1: \$3: \$1:
(c) Measure of Benefit [Unit]: Annual cost (5) samples per receivin (d) Without Project (f) Change (g) Unit S (h) Annual S Value (d) Without (f x g] (e) With Project (e) With Project (f) Change (g) Unit S (h) Annual S Value (d) Without (f x g] (e) Without Project (e) Without (g) Unit S (f) Change S Value (f) Change (g) Unit S (f) Change S Value (h) Annual (g) Unit S (f) Change S Value (h) Annual (g) Unit S (h) Annual S	ig water body (not monetized) (f) Change Resulting Nith from Project (g) Unit \$ Value (f x g 9 9 \$00 0 9 \$ \$00	samples per receiving ual (d) Without Project 1 1 1 1 10	water body [not monetiz (f) Change Resulting h from Project (g) U t [e - d] Val	tized] (h) Annual (lunit \$\$Value [f x g] \$0 \$0 \$0	year [not monetize (d) Without (e) Project Pro 495,264 680 495,264 680	ed] (f) Change Resulting from Project oject [e - d] 0,401 185,137 0,401 185,137	(g) Unit \$ Value \$0.07 \$0.07	(h) Annual \$ Value [f x g] \$12,960 \$12,960	(h) Total Annual Benefits (5) 50 50 50 5223,403 50 50 50 50 50 50 50 50 50 50 50 50 50	(I) Discount Value 1.000 0.943 0.890 0.792 0.792 0.705 0.627 0.592 0.552 0.552 0.552 0.469 0.442 0.447 0.447 0.447 0.447 0.447 0.442 0.439 0.330 0.331 0.331 0.331	(j) Dis Bee [[\$11 \$34 \$10
(d) Without Project (f) Change Resulting (g) Unit \$ (h) Annual \$ Value (d) Without (f x g) (e) With Project -1 0 1 \$210,443 1 10 -1 0 1 \$210,443 5210,443 1 10 -1 0 1 \$2420,886 5420,886 1 10 -1 0 1 \$210,443 5210,443 1 10 -1 0 1 \$210,443 5210,443 1 10 -1 0 1 \$210,443 5210,443 1 10 -1 0 1 \$210,443 1 10 10 -1 0 1 \$210,443 1 10 10 -1 0 1 1 1 10 10 10 -1 0 1 1 1 10 10 10 10 10 -1 1 1 1 1 10 <t< th=""><th>(f) Change Resulting from Project (g) Unit 5 (h) Ann 5 Value (g - d) Value (f x g) (f x g) 0 9 50</th><th>d) Without (e) Wit Project Project 1 10 1 10</th><th>(f) Change Resulting from Project (g) U [e - d] Val 9 9 9</th><th>(h) Annual \$ Value [f x g] \$0 \$0</th><th>(d) Without (e) Project Pro 495,264 680 495,264 680</th><th>(f) Change Resulting from Project ject [e - d] 0,401 185,137 0,401 185,137</th><th>\$0.07 \$0.07</th><th>\$ Value [f x g] \$12,960 \$12,960</th><th>(h) Total Annual Benefits (5) 50 50 50 5223,403 50 50 50 50 50 50 50 50 50 50 50 50 50</th><th>(I) Discount Value 1.000 0.943 0.890 0.792 0.792 0.705 0.627 0.592 0.552 0.552 0.552 0.469 0.442 0.447 0.447 0.447 0.447 0.447 0.442 0.439 0.330 0.331 0.331 0.331</th><th>(j) Disj Be [l] \$18 \$34 \$16</th></t<>	(f) Change Resulting from Project (g) Unit 5 (h) Ann 5 Value (g - d) Value (f x g) (f x g) 0 9 50	d) Without (e) Wit Project Project 1 10 1 10	(f) Change Resulting from Project (g) U [e - d] Val 9 9 9	(h) Annual \$ Value [f x g] \$0 \$0	(d) Without (e) Project Pro 495,264 680 495,264 680	(f) Change Resulting from Project ject [e - d] 0,401 185,137 0,401 185,137	\$0.07 \$0.07	\$ Value [f x g] \$12,960 \$12,960	(h) Total Annual Benefits (5) 50 50 50 5223,403 50 50 50 50 50 50 50 50 50 50 50 50 50	(I) Discount Value 1.000 0.943 0.890 0.792 0.792 0.705 0.627 0.592 0.552 0.552 0.552 0.469 0.442 0.447 0.447 0.447 0.447 0.447 0.442 0.439 0.330 0.331 0.331 0.331	(j) Disj Be [l] \$18 \$34 \$16
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		30				Present Value of Dis					05
					Jotai					ect Allocation:	
									Benefits (Monet		
Narrative description of benefits: Each year of the project, 6 to 12 times increase in receiving water sampling frequency, analyse: Coastkeeper provide and associated presentation of data, and outreach to watershed groups, and trash removal Quality Assurance Pr Quality Assurance Pr	s increased temporal resolution of water ies are collected and analyzed in accordan ting procedures and a state approved	Coastkeeper provides e quality data. Sample:	of benefits: Monithly mon ncreased temporal resolu are collected and analyze og procedures and a state ect Plan (QAPP)	olution of water yzed in accordance ite approved	continue to coordir corporate clean up Coastal Clean Up D	ion of benefits: In this nate inland trash rem o events, and coordina Day events. tersheds.org/wiki/Clea	oval events, s te and plan ti	ponsor			

Table 16

Attachment 9

Economic Analysis – Flood Damage Reduction Costs and Benefits



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal

Economic Analysis – Flood Damage Reduction Costs and Benefits

Attachment 9 consists of the following items:

- Flood Damage Reduction Costs and Benefits. The body of this attachment provides an overview of the costs and benefits of this proposed funding package with respect to potential flood damage reduction.
- Appendix 9-1. Appendix 9-1 of this attachment contains information regarding the costs and flood damage reduction benefits of each individual project contained within this proposal.

This attachment provides estimates for the flood damage reduction benefits for applicable projects. Only one project in this proposal, the *Chollas Creek Integration Project*, is projected to have flood damage reduction benefits.

Section 1 provides a summary of the regional flood control setting within the San Diego region.

Section 2 provides information regarding the costs of the *Chollas Creek Integration Project*, which is the only project in this proposal with flood damage reduction benefits.

Section 3 provides information regarding estimates for the costs and the flood damage reduction benefits of the *Chollas Creek Integration Project*. Where possible, each benefit was quantified and presented in physical or economic terms. In cases where quantitative analyses were not feasible, this attachment provides complimentary qualitative analyses. In addition, this attachment provides a description of economic factors that may affect or qualify the amount of economic benefits to be realized. This attachment also includes a discussion regarding uncertainties about the future that might affect the level of benefit received. Appendix 9-1 contains detailed information regarding the benefits anticipated to occur as a result of this proposal.

1. Regional Flood Control Background

The San Diego County Flood Control District (Flood Control District) is the primary flood control agency in the County. The Flood Control District (which is governed by the elected Supervisors of the County) establishes flood policies, maintains flood control facilities, operates a regional flood warning system, and is charged with protection of watercourses, watershed management, and protection of water quality. On a project-by-project basis, the Flood Control District coordinates flood control actions among the County's municipalities, federal and state agencies, watershed management groups, and flood control organizations in Orange and Riverside counties. Each municipality within the region is responsible for designing, constructing, and maintaining necessary flood control structures within its jurisdiction.

As described in Attachment 8, the San Diego County MS4 Permit (Order No. R9-2007-0001) regulates stormwater/urban runoff within the region. The County acts as Principal Copermittee for the 21 Copermittees. Each Copermittee is responsible for operating its own stormwater/urban runoff management program within its respective jurisdiction. As Principal Copermittee, the County coordinates the development and implementation of regional stormwater monitoring programs, regional education program, the standard urban stormwater mitigations plan criteria and requirements, and the hydromodification management plan. In this role, the County has organized the Stormwater Copermittee Management Committee to facilitate interaction and coordination among the Copermittees.

#	Project	Project Sponsor	Total Present Value Project Costs	Total Present Value Flood Damage Reduction Benefits	
1	Sustainable Landscapes Program	San Diego County Water Authority	\$1,157,709	\$0	
2	North San Diego County Regional Recycled Water Project	Olivenhain Municipal Water District	\$17,199,249	\$0	
3	North San Diego County Cooperative Demineralization Project	tive San Elijo Joint Powers \$27,802,301		\$0	
4	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corporation	\$707,463	\$0	
5	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	\$1,517,868	\$0	
6	Implementing Nutrient Management in the Santa Margarita River Watershed	County of San Diego	\$1,534,082	\$0	
7	Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	City of San Diego - Storm Water	\$4,168,512	\$0	
8	Pilot Concrete Channel Infiltration Project	City of Santee	\$281,294	\$0	
9	San Diego Regional Water Quality Assessment and Outreach Project	San Diego Coastkeeper	\$924,578	\$0	
10	Chollas Creek Integration Project	Jacobs Center for Neighborhood Innovation	\$1,018,096	\$301,165	
11	Regional Water Data Management Program	County of San Diego	\$540,043	\$0	
	TOTAL		\$56,851,195	\$301,165	

Table 9-1: Flood Damage Reduction Costs and Benefits Summa	ry
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2. Total Project Costs of Proposed Projects

The following sections provide information about the total project costs associated with each proposed project within this *San Diego IRWM Implementation Grant Proposal*. The summary of total project costs is based on Table 17 in DWR's Implementation Grant Proposal Solicitation Package (DWR 2010), inclusive of the project budget information contained in Attachment 4. Appendix 9-1 contains the complete Table 17 export for the *Chollas Creek Integration Project*.

Project 10: Chollas Creek Integration Project

The total estimated budget for the *Chollas Creek Integration Project* is \$994,500. Administration and maintenance costs are anticipated throughout the project lifetime, in order to maintain the riparian vegetation and remove trash from the restoration area. Operations and replacement costs are limited to irrigation components for the first three years until the planted vegetation matures. All additional costs total \$560,200 for the proposed project. This results in a total present value \$1,018,096 (in 2009 dollars).

Capital and implementation costs for the project will be expended from 2010 through 2013, with the largest capital cost in construction and implementation. The operation and maintenance costs are estimated to consist of administration, operation, maintenance, and replacement costs. Administration and maintenance costs will span from 2012 through 2060, whereas operation costs will span from 2012 to 2015 and replacement costs will be incurred from 2012 to 2014. Detailed cost information associated with the project, including present value calculations, are available in Appendix 9-1.

Table 9-2: Total Project CostsChollas Creek Integration Project

Phase	Cost
Chollas Creek Integration Project Capital Costs	\$994,500
Chollas Creek Integration Project O&M Costs	\$560,200
Total Project Costs	\$1,554,700
Total Present Value of Discounted Costs	\$1,018,096

Note: Please see Appendix 9-1, Table 17 for additional detail on calculation of present value.

3. Flood Damage Reduction Benefits of Proposed Projects

The *Chollas Creek Integration Project* is the only project with expected flood damage reduction costs or benefits. There are no expected flood damage reduction costs or benefits associated with any other project in this proposal.

Project 10: Chollas Creek Integration Project

The benefits that are anticipated to result from implementation of the *Chollas Creek Integration Project* are summarized below in Table 9-3, and the cost-benefit overview is summarized in Table 9-4. This project would result in monetized benefits due to avoided flood damages. Detailed cost and benefit information associated with the project, including present value calculations, is provided in Appendix 9-1.

Table 9-3: Benefits Summary Chollas Creek Integration Project

Type of Benefit	Assessment Level	Beneficiaries
Flood Damage Reduction Benefits		
Avoided Flood Damages	Monetized	Local

Table 9-4: Benefit-Cost Analysis Overview Chollas Creek Integration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,018,096
Monetizable Benefits	
Avoided Flood Damages	\$301,165
Qualitative Benefits	Qualitative Indicator*
N/A	N/A

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

The "Without Project" Baseline

If the *Chollas Creek Integration Project* were not implemented, there would be no restoration of native floodplain habitat or associated flood hazard reductions within Chollas Creek. Additionally, without this project, an Opportunities Assessment would not be developed for Chollas Creek and associated benefits related to improving water quality, reducing flooding, and identifying land use opportunities for preserving open space and habitat would not be realized. Specifically, without the project, Chollas Creek Section 2A within the project area would continue to support disturbed riparian scrub habitat with many invasive plant species and be subject to dumping of trash and debris.



Flood Damage Reduction Benefits

Avoided Flood Damages

The *Chollas Creek Integration Project* would construct improvements to Chollas Creek to increase the capacity of the channel downstream of Euclid Avenue. Once channel grading and restoration has occurred, these improvements would reduce the frequency of flood flows reaching Euclid Avenue and therefore increase public health and safety conditions on this road. In addition, once channel grading and restoration has occurred, these improvements would reduce flooding depths and frequencies for properties immediately adjacent to the proposed restoration project, as well as for properties immediately upstream of the project area and adjacent to Euclid Avenue.

Although four of five existing residential structures would remain impacted, flood depths would be reduced by up to two feet for structures near Euclid Avenue during a 100-year storm event as a result of this project. In addition, the anticipated discharge over Euclid Avenue during a 50-year storm would be reduced by approximately 40% as a result of this project.

The Euclid Avenue culvert and Chollas Creek slope are anticipated to be damaged in increasing probabilities among the projected hydrologic events. Utilizing engineering reports and the Flood Rapid Assessment Model (FRAM), it was estimated that monetary benefits that would result from the aforementioned avoided flood damages would be \$301,165.

	Event Damage Without Project	Event Damage With Project	Total Avoided Costs			
Avoided Flood Damages: 10-Year Hydrologic Event	\$53,634	\$32,180	\$21,454			
Avoided Flood Damages: 15-Year Hydrologic Event	\$428,019	\$76,811	\$351,208			
Avoided Flood Damages: 20-Year Hydrologic Event	\$1,156,038	\$1,053,623	\$102,415			
Avoided Flood Damages: 25-Year Hydrologic Event	\$1,284,057	\$1,130,434	\$153,623			
Avoided Flood Damages: 50-Year Hydrologic Event	\$2,036,340	\$1,821,804	\$214,536			
Total Av	oided Flood Damage	e Reduction Costs	\$843,235			
Total Avoided Flood Dama	Total Avoided Flood Damage Reduction Costs after Discounting					

Table 9-5: Avoided Flood DamagesChollas Creek Integration Project

Sources: Rick Engineering December 21, 2010. Euclid Avenue Culvert Repair.

Rick Engineering. December 15, 2010. Chollas Creek Slope Repair.

Rick Engineering. December 21,2010. Existing/Proposed Condition Structure Inundation.

Distribution of Project Benefits and Identification of Beneficiaries

Table 9-6 summarizes the anticipated beneficiaries of flood damage reduction benefits that would be provided by the *Chollas Creek Integration Project*. The flood damage reduction benefits would benefit local residents within the floodplain adjacent to the project area.

Table 9-6: Project Beneficiaries Summary Chollas Creek Integration Project

Local	Regional	Statewide
Local residents within the floodplain	Not Applicable	Not Applicable

Project Benefits Timeline Description

Flood reduction benefits would occur over a timeline relative to the probability of various hydrologic events. Therefore, this project would accrue benefits due to 10-year, 15-year, 20-year, 25-year, and 50-year flood events.



Potential Adverse Effects from the Project

Any potential short-term impacts associated with this project will be addressed and mitigated during the CEQA compliance process. No long-term adverse effects are expected as a result of this project.

Uncertainty of Benefits

Uncertainties relating to the flood reduction benefits of this project are summarized below in Table 9-7. As shown in the table below, uncertainties regarding flood reduction benefits would occur because additional detailed flood modeling of culvert and slope failures is needed.

Table 9-7: Omissions, Biases, and Uncertainties and their Effect on the Project Chollas Creek Integration Project

Benefit or Cost Category	Likely Impact on Net Benefits	Comment
Avoided Flood Damages	+	Benefit is likely to have a moderate positive benefit on both private (residences) and municipal (culvert and slope) property. Detailed flood modeling to augment the information provided by the FRAM model needs to be performed.

* Magnitude of effect on net benefits



Appendix 9-1: Economic Analysis Tables

\checkmark	Project 1: Sustainable Landscapes Program	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 2: North San Diego County Regional Recycled Water Project	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
✓	Project 3: North San Diego County Cooperative Demineralization Project	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 4: Rural Disadvantaged Community (DAC) Partnership Project	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 6: Implementing Nutrient Management in the Santa Margarita Riv	er Watershed
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
✓	Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Watershed Protection	r Tecolote Creek
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 8: Pilot Concrete Channel Infiltration Project	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
\checkmark	Project 9: San Diego Regional Water Quality Assessment and Outreach F	Project
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable
✓	Project 10: Chollas Creek Integration Project	
	Table 17 – Annual Cost of Project Table 18 – Flood Event Damage Table 19 – Present Value of Expected Annual Damage Benefits	Attached



✓ Project 11: Regional Water Data Management Program

Table 17 – Annual Cost of Project	Not Applicable
Table 18 – Flood Event Damage	
Table 19 – Present Value of Expected Annual Damage Benefits	Not Applicable

				-	ld be in 2009 dollar	-			
	Initial Costs	_	_		reek Integration P	roject	_	Discountin	a Calculations
	(a)	(b)	(c)	Operations and M (d)	(e)	(f)	(g)	(h)	ng Calculations (i)
Year	Grand Total Cost from Table 7 (row (i), column (d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a)++(f)	Discount Factor	Discounted Costs x (h)
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.00	\$0
2010	\$71,604	\$0	\$0	\$0	\$0	\$0	\$71,604	0.94	\$67,551
2011	\$196,760	\$0	\$0	\$0	\$0	\$0	\$196,760	0.89	\$175,116
2012	\$425,646	\$9,000	\$2,000	\$9,500	\$5,000	\$0	\$451,146	0.84	\$378,791
2013	\$300,490	\$7,200	\$2,000	\$9,000	\$2,500	\$0 \$0	\$321,190	0.79	\$254,413 \$13,974
2014 2015	\$0 \$0	\$7,200 \$7,200	\$1,000 \$500	\$8,000 \$7,000	\$2,500 \$0	\$0 \$0	\$18,700 \$14,700	0.75	\$13,974 \$10,363
2013	\$0	\$7,200	\$300 \$0	\$7,000	\$0	\$0 \$0	\$14,700	0.70	\$9,444
2017	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0	\$10,600	0.63	\$6,651
2018	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.59	\$6,274
2019	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.56	\$5,919
2020	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.53	\$5,584
2021	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.50	\$5,268
2022	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.47	\$4,970
2023 2024	\$0 \$0	\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.44	\$4,688 \$4,423
2024	\$0 \$0	\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.42	\$4,423 \$4,173
2023	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.33	\$3,936
2027	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0	\$10,600	0.35	\$3,714
2028	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.33	\$3,503
2029	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.31	\$3,305
2030	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.29	\$3,118
2031	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.28	\$2,942
2032	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.26	\$2,775
2033	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.25	\$2,618
2034	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.23	\$2,470
2035 2036	\$0 \$0	\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.22	\$2,330 \$2,198
2030	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.21	\$2,074
2038	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.18	\$1,956
2039	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.17	\$1,846
2040	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.16	\$1,741
2041	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,643
2042	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.15	\$1,550
2043	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.14	\$1,462
2044	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.13	\$1,379
2045 2046		\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600	0.12	\$1,301 \$1,227
2046	\$0 \$0	\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.12	\$1,227
2047		\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.11	\$1,092
2049		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.10	\$1,031
2050		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.09	\$972
2051	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.09	\$917
2052	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$865
2053	\$0	\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.08	\$816
2054		\$3,600	\$0	\$7,000	\$0	\$0	\$10,600	0.07	\$770
2055 2056		\$3,600 \$3,600	\$0 \$0	\$7,000 \$7,000	\$0 \$0	\$0 \$0	\$10,600 \$10,600	0.07	\$727 \$685
2056	\$0 \$0	\$3,600	\$0 \$0	\$7,000	\$0 \$0	\$0 \$0	\$10,600	0.06	\$685
2057		\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.06	\$610
2058		\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.05	\$575
2060	\$0	\$3,600	\$0 \$0	\$7,000	\$0	\$0 \$0	\$10,600	0.05	\$543
oject Life					Total Present	t Value of D	iscounted Costs (Sum of Column (i))	
				Transfer to Table	e 20, Column (c), E	xhibit F: Pro	posal Costs and	Benefit Summaries	\$1,018,

							Flood Event Chollas Cree	•••		5)			
(a)		(c) Damag	e if Flood Stru	ictures Fail		ty of Structur Without Proj			ty of Structur e) With Projec		Event D	Damage	
Hydrologic Event	(b) Event Probability	Culvert Damage ¹	Slope Damage ²	Home Damage ³	Culvert Damage	Slope Damage	Home Damage⁴	Culvert Damage	Slope Damage	Home Damage ⁴	(f) Without Project [c x d]	(g) With Project [c x e]	(h) Event Benefit in \$million [f - g]
10-Year	0.100	\$242,640	\$2,075,100	\$0	0.050	0.020	0.000	0.030	0.012	0.000	\$53,634	\$32,180	\$21,454
15-Year	0.067	\$242,640	\$2,075,100	\$300,000	0.100	0.050	1.000	0.060	0.030	0.000	\$428,019	\$76,811	\$351,208
20-Year	0.050	\$242,640	\$2,075,100	\$900,000	0.200	0.100	1.000	0.120	0.060	1.000	\$1,156,038	\$1,053,623	\$102,415
25-Year	0.040	\$242,640	\$2,075,100	\$900,000	0.300	0.150	1.000	0.180	0.090	1.000	\$1,284,057	\$1,130,434	\$153,623
50-Year	0.020	\$242,640	\$2,075,100	\$1,500,000	0.500	0.200	1.000	0.300	0.120	1.000	\$2,036,340	\$1,821,804	\$214,536
TOTAL	TOTAL \$843,235												
adjacent to Eu improving pub	ments: The project will reduce flooding depths and frequencies for properties immediately adjacent to the proposed restoration project as well as for properties immediately upstream of the Restoration Project iacent to Euclid Avenue. Mainly residential structures will be benefited. In addition, the depth of flooding over Euclid Avenue, and the frequency of overtopping will be reduced as a result of the restoration project, proving public safety in the area. Existing Structures are impacted, however flood depths are reduced by up to 2 feet for structures near Euclid Ave during a 100-year storm, as a direct result of this project. The ticipated discharge over Euclid Ave during a 50-year storm is reduced by approximately 40% as a result of the project.												

1 Rick Engineering. December 21, 2010. Euclid Avenue Culvert Repair.

2 Rick Engineering. December 15, 2010. Chollas Creek Slope Repair.

3 Rick Engineering. December 21, 2010. Existing/Proposed Condition Structure Inundation.

(a)	Expected Annual Damage Without Project		\$107,359
(b)	Expected Annual Damage With Project		\$88,116
(c)	Expected Annual Damage Benefit	[a - b]	\$19,244
(d)	Present Value Coefficent		15.65
(e)	Present Value of Future Benefits	[c x d]	\$301,165

Attachment 10

Cost and Benefits Summary



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment San Diego Integrated Regional Water Management Implementation Grant Proposal Cost and Benefits Summary

Attachment 10 consists of the following items:

 \checkmark Cost and Benefits Summary. This attachment contains a summary of the costs and benefits associated with each project listed within this Implementation Grant Proposal.

This attachment contains an overall estimate of the costs and benefits of each project listed within this San Diego IRWM Implementation Grant Proposal by providing a summary of the cost benefit information from Attachments 7, 8, and 9. Because several projects are being proposed with multiple benefits, this attachment summarizes the costs and benefits for all projects in this grant application.

Costs and Benefits Summary

Project 1: Sustainable Landscapes Program

The benefits that are anticipated to result from implementation of the Sustainable Landscapes Program are summarized below in Table 10-1, and the cost-benefit overview is summarized in Table 10-2.

Type of Benefit	Assessment Level	Beneficiaries	
Water Supply Benefits			
Avoided Water Imports	Monetized	Local, regional, and statewide	
Water Supply Reliability	Qualitative	Local, regional, and statewide	
Water Quality and Other Benefits			
Avoided Wastewater Treatment	Monetized	Local and regional	
Reduced Ocean Pollution Discharge	Qualitative	Local and regional	
Power Cost Savings	Monetized	Local, regional, and statewide	
Reduction in Runoff	Physical Quantification	Local and regional	
Green Waste Reduction	Physical Quantification	Local, regional, and statewide	
CO ₂ Emissions Reduction	Physical Quantification	Local, regional, and statewide	
Flood Damage Reduction Benefits			
Not applicable	Not Applicable	Not Applicable	

Table 10-1: Benefits Summary Sustainable Landscapes Program

Table 10-2: Benefit-Cost Analysis Overview Sustainable Landscapes Program

	Present Value (\$2009)		
Costs – Total Capital and O&M	\$1,157,709		
Monetizable Benefits			
Avoided Water Imports	\$140,576		
Avoided Wastewater Treatment	\$2,019,207		
Power Cost Savings	\$379,568		
Total Benefits	\$2,539,351		
Qualitative Benefits	Qualitative Indicator*		
Water Supply Reliability	+		
Reduced Ocean Pollution Discharge	+		
Green Waste Reduction	+		
Reduction in Runoff	+		
CO ₂ Emissions Reduction	+		

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 2: North San Diego County Regional Recycled Water Project

The benefits that are anticipated to result from implementation of the *North San Diego County Regional Recycled Water Project* are summarized below in Table 10-3, and the cost-benefit overview is summarized in Table 10-4.

Table 10-3: Benefits SummaryNorth San Diego County Regional Recycled Water Project

Type of Benefit	Assessment Level	Beneficiaries			
Water Supply Benefits					
Avoided Water Imports	Monetized	Local / Regional			
Increased Water Sales Revenue	Qualitative	Local / Regional			
Water Supply Reliability (Avoided Water Shortage Costs)	Qualitative	Local / Regional / Statewide			
Water Quality and Other Benefits					
Reduction in Wastewater Discharges	Physical Quantification	Regional			
Habitat Protection	Qualitative	Regional / Statewide			
Flood Damage Reduction Benefits					
Not Applicable	Not Applicable	Not Applicable			

Table 10-4: Benefit-Cost Analysis Overview North San Diego County Regional Recycled Water Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$17,199,249
Monetizable Benefits	
Avoided Water Imports	\$61,324,268
Total Benefits	\$61,324,268
Qualitative Benefits	Qualitative Indicator*
Water Supply Reliability	+
Reduction in Wastewater Discharges	+/-
Regional Habitat Protection	+/-
Bay–Delta Habitat Protection	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 3: North San Diego County Cooperative Demineralization Project

The North San Diego County Cooperative Demineralization Project would result in water supply benefits associated with avoided water supply purchases, increased water sales revenue, and avoided water shortage costs. These water supply benefits are summarized below in Table 10-5. The magnitude of benefits, which were monetized when possible, is summarized in Table 10-6.

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Avoided Water Imports (Demineralization)	Monetized	Local / Regional
Avoided Water Imports (Desalination)	Physical Quantification	Local / Regional
Increased Water Sales Revenue	Qualitative	Local / Regional
Improved Water Supply Reliability (Avoided Water Shortage Costs)	Qualitative	Local / Regional / Statewide
Water Quality and Other Benefits		•
Avoided Costs of Treatment Facility	Quantitative	Local / Regional
Reduction in Pollutants to San Elijo Lagoon	Qualitative	Local / Regional / Statewide
Reduction in Wastewater Discharges	Physical Quantification	Regional
Increased Operational Efficiency (SEWRF)	Qualitative	Regional
Habitat Protection (Regional and Bay-Delta)	Qualitative	Local / Regional / Statewide
Increase in Recreational Opportunities	Qualitative	Local / Regional / Statewide
Flood Damage Reduction Benefits		
Not Applicable	Not Applicable	Not Applicable

Table 10-5: Benefits SummaryNorth San Diego County Cooperative Demineralization Project

Table 10-6: Benefit-Cost Analysis Overview North San Diego County Cooperative Demineralization Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$27,802,301
Monetizable Benefits	
Water Supply Benefits	\$55,645,552
Total Benefits	\$55,645,552
Qualitative Benefits	Qualitative Indicator*
Improved Water Supply Reliability	+
Avoided Costs of Treatment Facility	+/-
Reduction in Pollutants to San Elijo Lagoon	+
Reduction in Wastewater Discharges	+/-
Increased Operational Efficiency (SEWRF)	+/-
Regional Habitat Protection	+/-
Bay–Delta Habitat Protection	+
Increase in Recreational Opportunities	+/-

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 4: Rural Disadvantaged Community (DAC) Partnership Project

The benefits that are anticipated to result from implementation of the *Rural Disadvantaged Community* (*DAC*) *Partnership Project* are summarized below in Table 10-7, and the cost-benefit overview is summarized in Table 10-8.

Table 10-7: Benefits SummaryRural DAC Partnership Project

Type of Benefit	Assessment Level	Beneficiaries				
Water Supply Benefits						
Avoided Water Supply Purchases	Monetized	Local				
Water Supply Reliability	Qualitative	Local, regional, and statewide				
Water Quality and Other Benefits						
Improvements to Drinking Water Beneficial Use	Qualitative	Local				
Improvements to Wastewater Beneficial Use	Physical Quantification	Local and regional				
Avoided Public Health Impacts Related to Drinking Water	Physical Quantification	Local				
Avoided Public Health Impacts Related to Wstewater	Physical Quantification	Local				
Avoided Loss of Economy and Community	Qualitative	Local				
Flood Damage Reduction Benefits	Flood Damage Reduction Benefits					
Not Applicable	Not Applicable	Not Applicable				

Table 10-8: Benefit-Cost Analysis Overview Rural DAC Partnership Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$707,463
Monetizable Benefits	
Avoided Water Supply Purchases	\$172,718
Total Benefits	\$172,718
Qualitative Benefits	Qualitative Indicator*
Mater Surply Delichility	
Water Supply Reliability	+
Improvements to Drinking Water Beneficial Use	+
Improvements to Wastewater Beneficial Use	+
Avoided Public Health Impacts	++
Avoided Loss of Economy and Community	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 5: Lake Hodges Water Quality and Quagga Mitigation Measures

The benefits that are anticipated to result from implementation of the *Lake Hodges Water Quality and Quagga Mitigation Measures* project are summarized below in Table 10-9, and the cost-benefit overview is summarized in Table 10-10.

Type of Benefit	Assessment Level	Beneficiaries			
Water Supply Benefits					
Increased Water Supply Usability	Monetized	Local, Regional, and Statewide			
Improved Water Supply Reliability	Qualitative	Local and Regional			
Water Quality and Other Benefits					
Avoided Repair Costs Due to Quagga Infestation	Monetized	Local and Regional			
Fish and Wildlife Enhancements	Qualitative	Local and Regional			
Avoided Losses in Power Production	Monetized	Local, Regional, and Statewide			
Flood Damage Reduction Benefits (see Attachment 9)					
Not Applicable	Not Applicable	Not Applicable			

Table 10-9: Benefits SummaryLake Hodges Water Quality and Quagga Mitigation Measures

Table 10-10: Benefit-Cost Analysis Overview Lake Hodges Water Quality and Quagga Mitigation Measures

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,517,868
Monetizable Benefits	
Increased Water Supply Usability	\$41,783,290
Avoided Repair Costs Due to Quagga Infestation	\$3,284,626
Avoided Losses in Power Production	\$8,829,075
Total Benefits	\$53,896,990
Qualitative Benefits	Qualitative Indicator*
Improved Water Supply Reliability	+
Fish and Wildlife Enhancements	+

*Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 6: Implementing Nutrient Management in the Santa Margarita River Watershed

The benefits that are anticipated to result from implementation of the *Implementing Nutrient Management in the Santa Margarita River Watershed* project are summarized below in Table 10-11, and the costbenefit overview is summarized in Table 10-12.

Implementing Nutrient Management in the Santa Margarita River Watershed		
Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Avoided Water Imports	Monetized	Local
Water Quality and Other Benefits		
Avoided Costs of Regulatory Compliance	Physical Quantification	Local and Regional
Protection of Beneficial Uses	Qualitative	Local and Regional
Improve Impaired Water Bodies and Sensitive Habitats	Qualitative	Local and Regional
Increase In-Stream Flows	Qualitative	Local and Regional
Fish and Wildlife Enhancements	Qualitative	Local, Regional, and Statewide
Flood Damage Reduction Benefits		
Not Applicable	Not Applicable	Not Applicable

Table 10-11: Benefits Summary

Table 10-12: Benefit-Cost Analysis Overview Implementing Nutrient Management in the Santa Margarita River Watershed

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,534,082
Monetizable Benefits	
Avoided Water Imports	\$40,866,899
Total Benefits	\$40,866,899
Qualitative Benefits	Qualitative Indicator*
Avoided Costs of Regulatory Compliance	++
Protection of Beneficial Uses	+
Improve Impaired Water Bodies and Sensitive Habitats	+
Increase In-Stream Flows	+
Fish and Wildlife Enhancements	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Project 7: Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

The benefits that are anticipated to result from implementation of the *Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection* project are summarized below in Table 10-13, and the cost-benefit overview is summarized in Table 10-14.

Table 10-13: Benefits Summary

Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

Type of Benefit	Assessment Level	Beneficiaries	
Water Supply Benefits			
Not Applicable	Not Applicable	Not Applicable	
Water Quality and Other Benefits	Water Quality and Other Benefits		
Avoided Costs of Treatment Facility	Monetized	Local and Regional	
Reduction in TSS and TDS	Physical Quantification	Local and Regional	
Increase in Recreational Opportunities	Qualitative	Local and Regional	
Flood Damage Reduction Benefits			
Not Applicable	Not Applicable	Not Applicable	

Table 10-14: Benefit-Cost Analysis Overview Bannock Ave Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

	Present Value (\$2009)
Costs – Total Capital and O&M	\$4,168,512
Monetizable Benefits	
Avoided Costs of Treatment Facility	\$1,072,816
Total Benefits	\$1,072,816
Qualitative Benefits	Qualitative Indicator*
Reduction in TSS and TDS	+
Increase in Recreational Opportunities	+

* Magnitude of effect on net benefits

Project 8: Pilot Concrete Channel Infiltration Project

The benefits that are anticipated to result from implementation of the *Pilot Concrete Channel Infiltration Project* are summarized below in Table 10-15, and the cost-benefit overview is summarized in Table 10-16.

Table 10-15: Benefits SummaryPilot Concrete Channel Infiltration Project

Type of Benefit	Assessment Level	Beneficiaries	
Water Supply Benefits			
Groundwater Recharge	Qualitative	Regional	
Water Quality and Other Benefits	Water Quality and Other Benefits		
Avoided Costs of UV Treatment Facility	Monetized	Local and Regional	
Reduction in Nitrate Discharge	Physical Quantification	Local and Regional	
Reduction in Bacteria Discharge	Physical Quantification	Local and Regional	
Flood Damage Reduction Benefits			
Not Applicable	Not Applicable	Not Applicable	

Table 10-16: Benefit-Cost Analysis Overview Pilot Concrete Channel Infiltration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$281,294
Monetizable Benefits	
Avoided Costs of UV Treatment Facility	\$1,809,240
Total Benefits	\$ 1,809,240
Qualitative Benefits	Qualitative Indicator*
Groundwater Recharge	+/-
Reduction in Nitrate Discharge	+
Reduction in Bacteria Discharge	+

*Magnitude of effect on net benefits



Project 9: San Diego Regional Water Quality Assessment and Outreach Project

The San Diego Regional Water Quality Assessment and Outreach Project would not result in water supply benefits. The overall benefits of the project are summarized below in Table 10-17. The magnitude of benefits, which were monetized when possible, is summarized in Table 10-18.

Table 10-17: Benefits SummarySan Diego Regional Water Quality Assessment and Outreach Project

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits	·	
Not Applicable	Not Applicable	Not Applicable
Water Quality and Other Benefits		
Protect, Restore, or Enhance Beneficial Uses	Physical Quantification	Local and Regional
Improve Impaired Water Bodies and Sensitive Habitats	Physical Quantification	Local and Regional
Ecosystem Improvements and Preservation Through Trash Collection	Monetized	Local and Regional
Avoided Regulatory Monitoring	Monetized	Local and Regional
Flood Damage Reduction Benefits	· · · · · · · · · · · · · · · · · · ·	
Not Applicable	Not Applicable	Not Applicable

Table 10-18: Benefit-Cost Analysis Overview San Diego Regional Water Quality Assessment and Outreach Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$924,578
Monetizable Benefits	
Avoided Regulatory Monitoring	\$667,315
Avoided Trash Collection	\$30,831
Total Benefits	\$698,146
Qualitative Benefits	Qualitative Indicator*
Protect, Restore, or Enhance Beneficial Uses	+
Improve Impaired Water Bodies and Sensitive Habitats	+

*Magnitude of effect on net benefits

Project 10: Chollas Creek Integration Project

The *Chollas Creek Integration Project* would not result in water supply benefits, but would result in water quality, flood damage reduction and other benefits. These benefits are summarized below in Table 10-19. The magnitude of benefits, which were monetized when possible, is summarized in Table 10-20.

Table 10-19:Benefits SummaryChollas Creek Integration Project

Type of Benefit	Assessment Level	Beneficiaries	
Water Supply Benefits			
Not Applicable	Not Applicable	Not Applicable	
Water Quality and Other Benefits			
Reduction in Pollutants	Physical Quantification	Local and Regional	
Increase in Recreation Opportunities	Qualitative	Local	
Habitat Restoration	Physical Quantification	Local	
Ecosystem Improvements	Qualitative	Local and Regional	
Fish and Wildlife Species Enhancements	Physical Quantification	Local, Regional, and Statewide	
Flood Damage Reduction Benefits	Flood Damage Reduction Benefits		
Avoided Flood Damages	Monetized	Local	

Table 10-20: Benefit-Cost Analysis Overview Chollas Creek Integration Project

	Present Value (\$2009)
Costs – Total Capital and O&M	\$1,018,096
Monetizable Benefits	
Avoided Flood Damages	\$301,165
Total Benefits	\$301,165
Qualitative Benefits	Qualitative Indicator*
Reduction in Pollutants	+
Increase in Recreation Opportunities	+
Habitat Restoration	+
Ecosystem Improvements	+
Fish and Wildlife Species Enhancements	+

*Magnitude of effect on net benefits



Project 11: Regional Water Data Management Program

The *Regional Water Data Management Program* would not result in water supply benefits. The overall benefits of the project are summarized below in Table 10-21. The magnitude of benefits, which were not monetized, is summarized in Table 10-22.

Table 10-21: Benefits SummaryRegional Water Data Management Program

Type of Benefit	Assessment Level	Beneficiaries
Water Supply Benefits		
Not Applicable	Not Applicable	Not Applicable
Water Quality (see Attachment 8)		
Avoided Regulatory Monitoring	Qualitative	Local, Regional, and Statewide
Increased Water Management Efficiencies	Qualitative	Local, Regional, and Statewide
Flood Damage Reduction Benefits (see Attachment 9)		
Not Applicable	Not Applicable	Not Applicable

Table 10-22: Benefit-Cost Analysis Overview Regional Water Data Management Program

	Present Value (\$2009)
Costs – Total Capital and O&M	\$540,043
Monetizable Benefits	
Not applicable	N/A
Total Benefits	N/A
Qualitative Benefits	Qualitative Indicator*
Avoided Regulatory Monitoring	+
Increased Water Management Efficiencies	+

* Magnitude of effect on net benefits

+/- (negligible or unknown); + (moderate positive); ++ (significant positive); - (moderate negative); -- (significant negative)

Proposal Summary

Table 10-23 provides an overview of the costs and benefits of the entire San Diego IRWM Implementation Grant Proposal. The overall benefit-cost ratio for the proposal is 3.4.

Table 10-23: Costs and Benefits Summary San Diego IRWM Implementation Grant Proposal

#	Project	Project Sponsor	Total Present Value Project Costs	Total Present Value Project Benefits				
				Water Supply	Water Quality & Other	Flood Damage Reduction	Total	Benefit/ Cost Ratio
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1	Sustainable Landscapes Program	San Diego County Water Authority	\$1,157,709	\$140,576	\$2,398,775	\$0	\$2,539,351	2.2
2	North San Diego County Regional Recycled Water Project	Olivenhain Municipal Water District	\$17,199,249	\$61,324,268	\$0	\$0	\$61,324,268	3.6
3	North San Diego County Cooperative Demineralization Project	San Elijo Joint Powers Authority	\$27,802,301	\$55,645,552	\$0	\$0	\$55,645,552	2.0
4	Rural Disadvantaged Community (DAC) Partnership Project	Rural Community Assistance Corporation	\$707,463	\$172,718	\$0	\$0	\$172,718	0.2
5	Lake Hodges Water Quality and Quagga Mitigation Measures	San Diego County Water Authority	\$1,517,868	\$41,783,290	\$12,113,701	\$0	\$53,896,990	35.5
6	Implementing Nutrient Management in the Santa Margarita River Watershed	County of San Diego	\$1,534,082	\$40,866,899	\$0	\$0	\$40,866,899	26.6
7	Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection	City of San Diego - Storm Water Department	\$4,168,512	\$0	\$1,072,816	\$0	\$1,817,637	0.4
8	Pilot Concrete Channel Infiltration Project	City of Santee	\$281,294	\$0	\$1,809,240	\$0	\$1,809,240	6.4
9	San Diego Regional Water Quality Assessment and Outreach Project	San Diego Coastkeeper	\$924,578	\$0	\$698,146	\$0	\$698,146	0.8
10	Chollas Creek Integration Project	Jacobs Center for Neighborhood Innovation	\$1,018,096	\$0	\$0	\$301,165	\$301,165	0.3
11	Regional Water Data Management	County of San Diego	\$540,043	\$0	\$0	\$0	\$0	-
		\$56,851,195	\$199,933,303	\$18,092,678	\$301,165	\$218,327,146	3.8	





Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment

San Diego Integrated Regional Water Management Implementation Grant Proposal Program Preferences

Attachment 11 consists of the following item:

 Program Preferences. This attachment contains information regarding how this San Diego IRWM Implementation Grant Proposal contributes to the Program Preferences set by PRC §75026.(b) and CWC §10544.

Program Preferences

The Program Preferences described in Section II.F of the IRWM Grant Program Guidelines are those set forth in PRC §75026.(b) and CWC §10544. These preferences are summarized in Table 11-1. Note that none of the proposed projects listed are applying for Stormwater Flood Management (SWFM) funding, and as such, none of the projects were evaluated with respect to the SWFM-specific Program Preference.

Program Preferences	Statewide Priorities				
1. Include regional projects or programs	1. Drought Preparedness				
 Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; RWQCB region or subdivision; or other region or sub-region specifically identified by DWR 	2. Use and Reuse Water More Efficiently				
3. Effectively resolve significant water-related conflicts within or between regions	3. Climate Change Response Actions				
4. Contribute to attainment of one or more of the objectives of the CALFED Bay-Delta Program	4. Expand Environmental Stewardship				
5. Address critical water supply or water quality needs of disadvantaged communities within the region	5. Practice Integrated Flood Management				
6. Effectively integrate water management with land use planning	 Protect Surface Water and Groundwater Quality 				
7. For eligible SWFM funding (<i>not applicable</i>)	 Improve Tribal Water and Natural Resources 				
8. Address Statewide priorities (see right)	8. Ensure Equitable Distribution of Benefits				

Each of the projects included within this proposal is ready to proceed, and was identified as a Tier 1 priority project by the Regional Water Management Group (RWMG), Regional Advisory Committee (RAC), and Project Selection Workgroup in accordance with the project prioritization process that was approved and adopted in the 2007 IRWM Plan. As a result of the thorough analysis that was performed on these projects by the Project Selection Workgroup and analysis that was completed with respect to monitoring, assessment, and performance measures (refer to Attachment 6), we are **fully certain** that each of the projects included in this Proposal will provide the benefits described below.

The package of projects included in this Proposal will address each of the aforementioned Program Preferences on a local, regional, or statewide scale. These terms, used to define the breadth and magnitude to which each project addresses the Program Preferences, are defined as follows:

- Local: Project benefits are focused locally within the project area.
- Regional: Project benefits extend throughout the San Diego IRWM Region.
- *Statewide*: Project benefits are widespread and will benefit not only the Region, but also other areas throughout California.

Table 11-2 identifies the Program Preferences that will be addressed by each of the proposed projects and demonstrates the magnitude and breadth to which each Program Preference will be addressed.

Г	-				r		
Proposed Projects	1: Regional Projects	2: Integrate Water Mgmt	3: Resolve Conflict	4: Bay-Delta Objectives	5: Benefits DACs	6:Land Use Planning	7: Statewide Priorities
Water Supply / Recycled Water Program							
Sustainable Landscapes Program	✓	✓	✓	~		✓	✓
North San Diego County Regional Recycled Water Project	✓	✓	✓	~			✓
North San Diego County Cooperative Demineralization Project	~	~	~	~			~
Rural Disadvantaged Community (DAC) Partnership Project		~	✓		✓		✓
Water Quality/ Stormwater Program							
Lake Hodges Water Quality and Quagga Mitigation Measures	✓	✓	~	~			~
Implementing Nutrient Management in the Santa Margarita River Watershed		~	~				~
Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection		~	√			~	~
Pilot Concrete Channel Infiltration Project		✓	✓				✓
San Diego Regional Water Quality Assessment and Outreach Project	~	~	√		~		~
Natural Resources and Watersheds Program							
Chollas Creek Integration Project		~	~		~	~	✓
Data Management Program							
Regional Water Data Management Program	✓	\checkmark	\checkmark				~
Degree of Certainty Preferences Will Be Addressed		HIGH	HIGH	HIGH	HIGH	HIGH	HIGH
Magnitude and Breadth to Which Preference will be Addressed	Region	Region	Region	State	Local	Region	Region

Table 11-2: Proposed Projects and Program Preferences

Program Preference 1: Include Regional Projects or Programs

As shown in Table 11-2, four projects within this proposal include regional projects or programs. As evident in Figure 3-1 (see Attachment 3), these projects all span throughout the region, and have a regional emphasis. As such, these programs are considered regional pursuant to CWC §10544, and it is fully certain that these projects will adhere to this Program Preference on a regional level.

<u>Sustainable Landscapes Program</u>: This project consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants throughout the region's 11 watersheds.

<u>North San Diego County Regional Recycled Water Project:</u> This project will result in a plan to consolidate several North San Diego County recycling projects into an integrated, comprehensive recycling program that will serve 11 partners in the North County subregion.

<u>North San Diego County Cooperative Demineralization Project</u>: This project aims at creating sustainable and diverse local water supplies for the North County subregion.

<u>Lake Hodges Water Quality and Quagga Mitigation Measures:</u> This project aims to improve the ability to deliver water within San Diego County during a significant water supply outage and to improve the quality of Lake Hodges water, which is delivered throughout the region via the regional distribution system.

<u>San Diego Regional Water Quality Assessment and Outreach Project:</u> This project includes monitoring and assessment on a regional level (7-8 watersheds) by San Diego Coastkeeper volunteers.

<u>Regional Water Data Management Program</u>: This project identifies and prioritizes regional data needs, and then establishes the framework for a regional, web-based system of water management data and information.



Program Preference 2: Effectively Integrate Water Management Programs and Projects within the San Diego IRWM Region

All of the projects included within this proposal will address the Program Preference of effectively integrating water management programs and projects. DWR specifically approved the San Diego IRWM region as part of the Region Acceptance Process that was in 2009. Each of the eleven projects listed within this Proposal would be contained within this DWR-identified region.

<u>Sustainable Landscapes Program</u>: This program aims to educate and develop community and stakeholder groups in order to change long-term landscape behavior to reduce water use and to further diversify water supply in the San Diego IRWM region. This project consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants by a broad range of stakeholders throughout the San Diego IRWM region and is linked to numerous other conservation programs.

<u>North San Diego County Regional Recycled Water Project:</u> The North San Diego County Cooperative Demineralization Project and this project are being developed in tandem to address the regional need for a diversified water portfolio by providing more recycled water. The purpose is to produce a regional recycled water project supported by 11 project partners within the San Diego IRWM region. This project will provide a sustainable, reliable water resource for North San Diego County and the region.

<u>North San Diego County Cooperative Demineralization Project:</u> The North San Diego County Regional Recycled Water Project and this project are being developed in tandem to address the regional need for a diversified water portfolio by providing more recycled water. This project is integrated with multiple projects and programs throughout the region.

<u>Rural Disadvantaged Community (DAC) Partnership Project:</u> The goal of this project is to provide funding to address inadequate water supply and water quality issues affecting rural DACs. Through DAC outreach that will occur as part of this project, information on the overall San Diego IRWM program and any selected projects that may benefit DACs will be distributed.

<u>Lake Hodges Water Quality and Quagga Mitigation Measures:</u> This project will evaluate the methods to improve Lake Hodges water quality and protect water treatment infrastructure reliability, and is integrated with the region's San Dieguito Watershed Management Plan Implementation Project–Lake Hodges Natural Treatment System Conceptual Design Prop 50 project. Due to the location of this project and its integration with the aforementioned project, it is fully certain that this project meets Program Preference.

<u>Implementing Nutrient Management in the Santa Margarita River Watershed:</u> This project aims at establishing nutrient water quality objectives for the Santa Margarita River estuary. Due to its watershed-level scale, this project is linked to a large list of other projects (refer to Attachment 3). This project will effectively integrate water management programs and projects throughout the Santa Margarita watershed, because results and conclusions from this project will lead to the implementation of nutrient reduction and water conservation practices throughout the entire watershed.

Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection: The Tecolote Creek watershed spans roughly 5,992 acres, discharges to the southern portion of Mission Bay. This project will implement a series of actions to reduce pollutant load and volume runoff from entering the Tecolote Creek watershed. This project is connected to a series of projects identified within the City of San Diego's Five-Year Strategic Plan for Watershed Activity Implementation, and other projects that aim to improve water quality and supply within the Tecolote Creek watershed.

<u>Pilot Concrete Channel Infiltration Project:</u> This project will convert a portion of the concrete channel in Woodglen Vista Creek located in the City of Santee to a more porous base, which will allow for better infiltration of dry weather flows without compromising the creek's flood control capacity. This project directly links with the Woodglen Vista Creek and Forester Creek restoration projects, which lie within the San Diego IRWM region.

<u>San Diego Regional Water Quality Assessment and Outreach Project:</u> Volunteer water quality monitoring for this project will be performed throughout the San Diego IRWM region. This project builds capacity for water quality efforts through volunteer training that will benefit other regional projects.

<u>Chollas Creek Integration Project</u>: The data gathered as part of this project will update the Chollas Creek Enhancement Program. The Opportunities Assessment will operate in parallel with the Chollas Creek Section 2A Restoration Project, which will inform the analysis and planning for implementation of the Chollas Creek Enhancement Program throughout the larger watershed.

<u>Regional Water Data Management Program</u>: This project will make water quality data for the entire San Diego region, and therefore for many other projects and programs through development of online data management tools.

Program Preference 3: Effectively Resolve Significant Water-Related Conflicts

The IRWM Plan Objectives were established as a result of an open and transparent stakeholder process, where all RWMG, RAC, and other stakeholders were invited to voice their significant issues and conflicts within the region. Together, the eleven projects address eight of the nine Plan Objectives, and therefore effectively resolve water-related conflicts identified by the comprehensive stakeholder group.

In addition, each project resolves local funding issues through their inclusion in this proposal. Each of these projects will help to alleviate regional conflicts associated with a short supply of regional funding. The analysis below provides specific information on how each project will effectively resolve significant water-related conflicts within the San Diego region. Due to the degree of analysis performed on these projects, it is fully certain that this proposal will meet the Program Preference of effectively resolving significant water-related conflicts throughout the San Diego Region (on a regional level).

<u>Sustainable Landscapes Program</u>: This program is a multifaceted project that consists of a suite of activities designed to increase water efficiency and reduce watershed pollutants throughout the region. The program will assist the region in decreasing reliance on imported water supplies, improving water efficiency, and reducing pollutant discharges into watersheds. The program's overarching benefits will resolve jurisdictional conflicts by reducing demand for imported water supplies and will complement other water supply and quality projects in the region.

<u>North San Diego County Regional Recycled Water Project:</u> This project will provide for a comprehensive recycled water program by consolidating North San Diego recycled water projects to meet a regional need. The range of this project will eliminate jurisdiction conflicts, and the individual water projects will complement each other, allowing the region to move forward with water supply and conservation efforts. In addition, this project will conduct a systems assessment of the recycled water systems of each project partner, and develop recommendations for projects that interconnect and maximize use of recycled water within the combined service area. The unified, regional approach that this project adheres to provides conflict reduction by identifying and assessing regulatory compliance issues. Lastly, the *North San Diego County Cooperative Demineralization Project* and this project are being developed in tandem to address the regional need for a diversified water portfolio by providing more recycled water.

<u>North San Diego County Cooperative Demineralization Project:</u> This project will construct water infrastructure designed to deliver a local and reliable supply of water to the region eliminating any jurisdictional boundary conflicts. This project includes efforts by SEJPA and OMWD - in collaboration with the City of Encinitas Clean Water Program, the City of Solana Beach Storm Water Division, and the San Elijo Lagoon Conservancy - to conduct water management outreach to area residents. This project will also implement facilities to intercept and treat high-TDS first-flush storm water and dry weather urban runoff that would otherwise reach San Elijo Lagoon and Pacific Ocean; this facet of the project will reduce source of pollutants and environmental stressors effectively resolving water quality conflicts.

<u>Rural DAC Partnership Project</u>: There is a critical need for safe drinking water in unincorporated DACs in the San Diego IRWM Region. This project will benefit numerous DACs throughout the San Diego IRWM Region by supporting DACs in implementing projects that will solve critical water or wastewater system issues; these efforts will help eliminate any jurisdictional conflicts. DAC projects will be selected by stakeholder committees allowing opportunities for projects to be carefully considered in order to complement other plans/projects. This approach will reduce any potential for competing plans.

<u>Lake Hodges Water Quality and Quagga Mitigation Measures:</u> Lake Hodges reservoir is a water source that provides water supplies to a large portion of the San Diego region. Its distribution system alone overcomes jurisdictional differences by uniting multiple jurisdictions on matters that deal with regional water reliability, supply and conservation. This project will provide conflict resolution by maintaining infrastructure required to deliver Lake Hodges water within the region, therefore decreasing reliance on imported water supplies. This will alleviate other water demand conflicts felt by neighboring regions that rely on the same imported water source(s). This project will therefore help reduce/prevent conflicts by moving other region-focused projects forward without threatening their individual project objectives.

<u>Implementing Nutrient Management in the Santa Margarita River Watershed:</u> This project aims to establish nutrient Water Quality Objectives (WQOs) for the Santa Margarita River estuary (Phase I) and ultimately the entire watershed (Phase II) that will lead to the implementation of nutrient reduction and water conservation practices in the watershed. The execution of this project will address water quality concerns between San Diego and Riverside Counties and will avoid jurisdictional interests by bringing the two counties together to achieve project goals. Due to its watershed-level scale, this project will resolve conflicts by complementing existing plans. This project will also resolve water quality related conflicts by developing nutrient WQOs that will help reduce sources of pollutants, specifically nutrients, and other environmental stressors associated with runoff.

<u>Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection</u>: This project will reduce the volume of storm runoff entering the storm sewer system, and therefore will reduce a corresponding volume of targeted pollutants directed into the Tecolote Creek and Mission Bay. The project will directly improve the protection of the recreational uses in Mission Bay, which have been regarded as a regional recreational asset. The City of San Diego anticipates implementing 72 infiltration and runoff reduction projects similar to the proposed project. This synergy reduces the regulatory limitations or conflicts it may face in the future if other projects are setting legislative precedents. Further, this project complements the other 72 infiltration projects and will add to regional progress toward meeting water quality goals and objectives.

<u>Pilot Concrete Channel Infiltration Project:</u> This project is expected to reduce bacteria levels through infiltration, thereby addressing conflicts associated with water quality violations in the San Diego River and helping the region reach TMDL goals. These actions will also reduce sediment loads and turbidity in runoff, which will effectively mitigate sources of pollutants and resolve environmentally-related conflicts in the San Diego River. In addition, the project will overcome regulatory constraints by providing a unified approach for identifying bacteria compliance issues. This project will also promote infiltration and potentially augment the local aquifer. This potential water supply enhancement has the opportunity to reduce water demand conflicts between jurisdictions and complement other water supply projects.

<u>San Diego Regional Water Quality Assessment and Outreach Project:</u> This project brings together community members to understand and actively participate in the monitoring of their watershed health. Outreach efforts associated with this project will solve jurisdictional conflicts by bringing together several communities, while the active participation and monitoring will provide direct solutions to conflicts regarding watershed health and cleanliness. This project will also address conflicts regarding environmental challenges by coordinating trash removal events. Lastly, data that will be collected during sampling events will support strategic planning to reduce the need for pollutant removal by addressing the causes of pollution.

<u>Chollas Creek Integration Project</u>: This project will improve water quality, reduce flooding, and identify land use opportunities for preserving open green space and habitat for the Encanto and Chollas Creek areas. This inclusion will help resolve jurisdictional interests by bringing agencies together to implement restoration activities. In addition, this project will address conflicts relating to water quality by effectively reducing sources of pollutants and environmental stressors.

<u>Regional Water Data Management Program</u>: This project will establish a web-based system that will make data instantly available to interested stakeholders and will facilitate data sharing by transmitting data through user-friendly features. This regionally-scaled project avoids jurisdictional conflicts and includes data collection efforts of many unified stakeholders. This cooperative effort addresses regulatory compliance issues collectively, making regulatory constraints easier to address.

Program Preference 4: Contribute to Attainment of One or More of the Objectives of the CALFED Bay-Delta Program

The CALFED Bay-Delta Program has the following four objectives:

- *Water Quality*: to invest in projects that improve the State's water quality from source to tap.
- *Water Supply*: comprised of five critical elements: conveyance, storage, environmental water account, water use efficiency and water transfer.
- *Ecosystem Restoration*: aims at restoring habitats, ecosystem functions, and native species.
- Levee Integrity: to protect water supplies by reducing the threat of levee failures.



As described below, five projects meet three of the four CALFED Bay-Delta Program objectives: water quality, water supply, and ecosystem restoration. Due to the degree of analysis performed on these projects, it is fully certain that this proposal will meet the Program Preference of contributing to attainment of one or more of the objectives of the CALFED Bay-Delta Program (on a statewide level).

Sustainable Landscapes Program

• *Water Supply*: The program will modify long-term landscape behavior ("norms") to reduce water use, diversify water supply, and potentially reduce local dependence on imported Bay-Delta water.

• *Ecosystem Restoration*: By reducing dependence on Bay-Delta water supplies, this project will help to protect and improve the Bay-Delta ecosystem.

North San Diego County Regional Recycled Water Project

• *Water Supply*: By joining projects and working cooperatively this project will vastly improve the reliability of recycled water supply in the region. This will help achieve water use efficiency objectives set out by CALFED and thereby reduce demands for imported Bay-Delta water supply.

• *Ecosystem Restoration*: By reducing dependence on Bay-Delta water supplies, this project will help to protect and improve the Bay-Delta ecosystem.

North San Diego County Cooperative Demineralization Project

• *Water Supply*: This project will achieve water supply objectives by developing 1120 AFY of potable water through brackish water desalination and 560 AFY of recycled water through advanced treatment. This will help achieve water use efficiency objectives set out by CALFED and thereby reduce demands for imported Bay-Delta water supply.

• *Ecosystem Restoration*: By reducing dependence on Bay-Delta water supplies, this project will help to protect and improve the Bay-Delta ecosystem.

Lake Hodges Water Quality and Quagga Mitigation Measures

• *Water Supply*: This project will connect Lake Hodges to SDCWA's delivery system, increasing local supply water supply, and potentially helping to implement CALFED objectives by reducing dependence on imported Bay-Delta water supply.

• *Ecosystem Restoration*: By reducing dependence on Bay-Delta water supplies, this project will help to protect and improve the Bay-Delta ecosystem.

Program Preference 5: Address Critical Water Supply or Water Quality Needs of DACs

DWR specifies that preference will be given to Proposals that include projects that will include safe drinking water and water quality projects that serve DACs. Three proposed projects address critical water supply or water quality needs of DACs within the region. Due to the degree of analysis performed on these projects, it is fully certain that this Proposal will meet the Program Preference of addressing critical water supply or water quality needs of DACs within San Diego region (on a regional level).

<u>Rural DAC Partnership Project:</u> This project will 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 specifically for DACs through the implementation of projects that will solve these critical issues.

<u>San Diego Regional Water Quality Assessment and Outreach Project:</u> The data gathered as part of this project will fill spatial and temporal data gaps and will help the region identify current water conditions and pollutant sources. Once pollutants are identified, addressing water quality needs of the region and DACs in the region will be much easier and more efficient.

<u>Chollas Creek Integration Project</u>: The creek restoration and pollution prevention strategies that are part of this project will serve dual purposes: (1) improve water quality conditions and (2) protect water supplies in the Encanto area, a disadvantaged urban community.

Program Preference 6: Effectively Integrate Water Management with Land Use Planning

Many of the land use plans and regulations of land-use agencies within the Region are consistent with the water management goals, objectives, and strategies included in the San Diego IRWM Plan. Due to the degree of analysis performed on these projects, it is fully certain that this Proposal will meet the Program Preference of integrating water management with land use planning in the region (on a regional level).

<u>Sustainable Landscapes Program</u>: This program will require actions such as altering paved streets, constructing bioretention planter systems, and installing pervious sidewalks. Land use planning will be involved as it will assist in the implementation of these water management strategies. Partnering with land use planning agencies will allow mutual objectives of the project and land use planning to be achieved.

Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection: The water quality management strategies of this project will capture storm water runoff which will provide a source for irrigation water supply for the Bannock Avenue streetscape. Additionally, the project will include community enhancements such as displays and literature signage to raise community awareness of the project. These aspects of the project will necessitate collaboration with local land use planners to meet their mutual goals of protecting the Region's habitat, improving surface water, and monitoring stormwater runoff.

<u>Chollas Creek Integration Project</u>: The project seeks to develop an Opportunities Assessment that identifies land use opportunities for preserving open green space and habitat. The Opportunities Assessment will identify and prioritize location and types of upland and wetland restoration projects in the Pueblo Hydrologic Unit. This project will also restore native habitat within Chollas Creek by replacing non-native plants with native riparian vegetation (including Laurel Sumac, California Holly, Coastal Sagebrush, and willows), removing debris, and protecting seasonal nesting areas within the creek.

Program Preference 7: Address Statewide Priorities

This proposal will either directly or indirectly address every Statewide Priority established by DWR. Table 11-3 demonstrates which Statewide priorities are addressed by each of the proposed projects. As part of the project prioritization and ranking process, each project submitted to the San Diego IRWM Plan was evaluated for its consistency with Statewide priorities. As such, based on the level of analysis for each project, it is fully certain that each of these projects and the proposal will achieve the Statewide priorities at a regional level (throughout the San Diego region).

Proposed Projects	Drought Preparedness	Reuse Water More Efficiently	Climate Change Response Actions	Expand Environmental Stewardship	Practice Integrated Flood Management	Protect Surface/ Groundwater Quality	Improve Tribal Water/Natural Resources	Ensure Equitable Distribution of Benefits
Water Supply/ Recycled Water Program								
Sustainable Landscapes Program	•	•	•		•	•		•
North San Diego County Regional Recycled Water Project	٠	٠	•			0		
North San Diego County Cooperative Demineralization Project	•	•	•			•		
Rural Disadvantaged Community (DAC) Partnership Project	٠	•				•	•	•
Water Quality/ Stormwater Program								
Lake Hodges Water Quality and Quagga Mitigation Measures			•			•		
Implementing Nutrient Management in the Santa Margarita River	٠	•	0			•		
Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection					•	•		
Pilot Concrete Channel Infiltration Project			0	•	0	•		
San Diego Regional Water Quality Assessment and Outreach						•		•
Natural Resources and Watersheds Program								
Chollas Creek Integration Project		•	•	•	•	•		•
Data Management Program								
Regional Water Data Management Program			0					
 indirectly related: directly related 								

Table 11-3: Proposed Projects and Programs with Statewide Priorities

○ indirectly related; ● directly related



Sustainable Landscapes Program

• *Drought Preparedness*: The program will help achieve drought preparedness by conserving water and improving landscape irrigation efficiencies.

• *Reuse Water More Efficiently*: This program will aid the region in improving water efficiency through changing landscaping practices and behaviors.

• *Climate Change Response Action*: Sustainable landscapes use less water and utilize design features to retain rainwater onsite, making them adaptable to climate change. Any contribution to climate change, such as landscape renovation activities, will be mitigated through the implementation of the sustainable landscape program (less water, energy, and waste).

• *Practice Integrated Flood Management*: Promoting sustainable landscaping will incorporate the maximization of rainwater capture for irrigation use. This will reduce erosion which could potentially serve a flood management tactic.

• *Protect Surface/Groundwater Quality*: Residential and commercial landscaping will conserves water and minimizes pollutants(pesticides and fertilizers) through this program, reducing the source and amount of chemical pollutants that would otherwise become part of storm water runoff.

• *Ensure Equitable Distribution of Benefits*: This program will educate all community members, including those from DACs on sustainable landscaping. The project will have multiple benefits including conserving water supplies, improving drought preparedness, and enhancing water quality.

North San Diego County Regional Recycled Water Project

• *Drought Preparedness*: Maximizing recycled water use through this project will improve landscape and agricultural irrigation efficiencies, promoting water reuse/recycling and water conservation. This project will contribute to long-term drought preparedness by contributing to a more sustainable water supply and increased reliability during water shortages.

• *Reuse Water More Efficiently*: This recycled water project's main goal is to ensure that all recycled water produced in the subregion is efficiently and effectively distributed to their customers.

• *Climate Change Response Action*: This project provides greater connectivity and reliability for a nonpotable supply. This will help the region reduce dependence on imported water supplies and the climate change impacts associated with long-distance water transfers. Expansion of recycled water systems ensures water supply availability and reliability should imported water supplies be reduced due to changing climates. The recycling projects developed as part of this project will include energy efficiency measures in accordance with AB 32 and CEQA.

• *Protect Surface/Groundwater Quality*: This project will indirectly improve surface/groundwater quality conditions by decreasing wastewater discharges and thus curbing the associated effects of pollution.

North San Diego County Cooperative Demineralization Project

• *Drought Preparedness*: This project aims to achieve long term reduction of water use by increasing the production of recycled water by 560 AFY. This project therefore effectively addresses long-term drought preparedness by enhancing water supply reliability in times of water shortage.

• *Reuse Water More Efficiently*: The project will reuse brackish water by desalinizing it into potable water. This project will create greater water efficiency by reducing fresh water consumption.

• *Climate Change Response Action*: This project will increase local water supplies by 1680 AFY, thereby reducing greenhouse gasses associated with transportation of potable water from outside the San Diego region. In addition, the demineralization facility will be sheltered at approximately 35 feet above mean sea level in a valley sheltered from extreme winds. This project creates 560 AFY of recycled water and 1120 AFY of potable water, reducing the energy demands required to import 1680 AFY of water. Additionally, it is designed with photovoltaic panels to mitigate energy impacts and for variable output operation so that certain processes may be shut down during low demand.

• *Protect Surface/Groundwater Quality*: This project will address high TDS issues in recycled water, and urban runoff quality discharged to San Elijo Lagoon and the Pacific Ocean.

Rural DAC Partnership Project

• *Drought Preparedness*: Management practices carried out by selected projects will promote water conservation, reuse and recycling which all effectively address long-term drought preparedness.

• *Reuse Water More Efficiently*: Projects that address conservation of groundwater and surface water supplies, water reuse and/or regionalization will be priorities during rural DAC project selection. Efficient use of finite water supplies and energy resources will be incorporated into DAC projects when appropriate and affordable.

• *Protect Surface/Groundwater Quality*: The goal of the project will be to provide funding to DACs to address inadequate water supply and water quality.

• *Improve Tribal Water/Natural Resources*: RCAC will manage the grant funds to address inadequate water supply and water quality in rural DACs, including tribal communities. RCAC has also created a 'Green Infrastructure Guide' for DACs (including tribal communities) with the intent of limiting pollution and environmental stressors due to aging infrastructure. Using this guide and other reputable guidance during project development will help assure that new infrastructure supports environmentally sound and efficient projects that will better sustain water and natural resources.

• *Ensure Equitable Distribution of Benefits*: This project will give rural DACs within the San Diego region an opportunity to submit projects, thereby ensuring equitability in the IRWM process. Project selection will select projects depending on how well they address public health risks in water and or wastewater systems; the projects will undoubtedly solve safe drinking water needs, water quality and water supply needs of Tribes within the region ensuring multiple benefit distribution.

Lake Hodges Water Quality and Quagga Mitigation Measures

• *Climate Change Response Action*: Increased use of local supply is important with the uncertain future of imported water supplies due to climate change, environmental restrictions on pumping in the Delta, decreased water supplies, etc. Further, hydroelectric power produced by this project reduces greenhouse gas emissions by reducing the need for coal based energy production.

• *Protect Surface/Groundwater Quality*: This project produces a plan and implements measures to reduce turbidity, increase oxygen in lower levels of the reservoir, reduce manganese, reduce entry of nutrients into the reservoir to lower algal activity, and combat effects of quagga mussels on linked reservoirs and connected facilities.

Implementing Nutrient Management in the Santa Margarita River Watershed

• *Drought Preparedness*: This project will help fill data gaps that will ultimately guide implementation programs that have the potential to improve landscape and agricultural irrigation efficiencies.

Reuse Water More Efficiently: Through implementation of irrigation optimization and BMPs to reduce nutrient runoff from wet and dry weather sources, this project will eventually improve water conservation and recycling allowing for efficient use of a diverse mix of water resources.

• *Climate Change Response Action*: The project will result in the reduction of stressors to native stream and estuarine flora and fauna, which decreases their susceptibility to stressors associated with long-term climate change. This project will help provide a carbon offset by improving water conservation.

• *Protect Surface/Groundwater Quality*: This project will develop nutrient WQOs that will help reduce sources of pollutants, specifically nutrients, and other environmental stressors associated with point and non-point source runoff that discharge into surface waters.

Bannock Avenue Neighborhood Streetscape Enhancements for Tecolote Creek Watershed Protection

• *Practice Integrated Flood Management*: The project is located in a largely impervious area and plans to increase impervious surfaces to directly meet water quality needs and indirectly integrate flood management practices. The incorporation of impervious surfaces to this area will reduce flooding by enhancing stormwater runoff infiltration and capture opportunities.

• *Protect Surface/Groundwater Quality*: The porous pavement, bioretention planter cells, and AbTech units will reduce the total pollutants entering the storm drain system improving surface water quality conditions. It is also anticipated that the infiltration process will remove pollutants from urban runoff before reaching groundwater supplies.

Pilot Concrete Channel Infiltration Project

• *Climate Change Response Action*: This project will help prevent surface water pollution helping to preserve habitat within the watershed. The project, with the addition of plant life and infiltration, will have a

positive effect on climate change. The project will help reduce greenhouse gases in the atmosphere and recharge aquifers to prepare for any future climate scenarios.

• *Expand Environmental Stewardship*: The project will garner community participation in preparing the site for the project and will educate the community on the benefits of this project.

• *Practice Integrated Flood Management*: The porous base that will be introduced by this project will integrate flood management. This project eliminates some of the disadvantages associated with a concrete channel without losing the flood control benefits of the channel. Infiltration will reduce the volume of flows from the concrete channel providing improved flood protection and more sustainable flood and water management systems.

• *Protect Surface/Groundwater Quality*: The project will contribute to water quality protection and improvement through stormwater capture and infiltration, reduction of impervious surfaces and reduction in pollutant (specifically bacteria) loading.

San Diego Regional Water Quality Assessment and Outreach Project

• *Protect Surface/Groundwater Quality*: This project will build on data previously generated to characterize water quality in the County. Samples will be analyzed for ambient, nutrient, bacterial, toxicity, dissolved metal and bioassessment indicators. Data collected during events will support strategic planning to reduce the need for pollutant removal by addressing the causes of pollution.

• *Ensure Equitable Distribution of Benefits*: The monitoring efforts of this project will encourage participation from volunteers from communities all over the county, including DACs. This project will ultimately provide regional benefits that will be distributed equitably. Monitoring locations for this projected are located within and/or around several DACs allowing project benefits to reach them.

Chollas Creek Integration Project

• *Reuse Water More Efficiently*: This project will identify water improvement strategies that will help solve issues regarding the capture and treatment of stormwater runoff. These strategies may contribute to long term water supply conservation and reliability coming from Chollas Creek.

• *Climate Change Response Action*: The Opportunities Assessment will lead to a comprehensive hydrology study which will include climate change planning related to flood control. It will point to trail enhancements that reduce carbon emissions. Additionally, it will serve as the catalyst for a shared climate change education and outreach strategy for all watershed educators.

• *Expand Environmental Stewardship*: The project will utilize a stakeholder-driven process to develop a conceptual watershed management work plan, prioritize restoration and maintenance needs, develop funding strategies, and institutionalize community-based water and habitat conservation and stewardship.

• *Practice Integrated Flood Management*: The project will complete a comprehensive analysis of existing conditions, constraints, and opportunities for flood control. Within the Chollas Creek section, this project will reduce flooding caused by channelization, soil erosion/sedimentation, and dumping of trash and construction debris into the creek through structural modifications and habitat restoration.

• *Protect Surface/Groundwater Quality*: The Opportunities Assessment will compile/generate the watershed hydrological data needed to recommend and prioritize water quality improvement strategies, including pollution control projects and low impact development structural approaches. These improvement/management strategies will protect surface/groundwater quality.

• *Ensure Equitable Distribution of Benefits*: This project will contribute to analysis and planning for water quality, flood control, habitat restoration and open space. The distribution of the program's benefits will be equally beneficial to the citizens of the Chollas Creek and Encanto areas.

Regional Water Data Management Program

• *Climate Change Response Action*: The regional water data management system will have the potential to track GHG inventory and any changes to CHG over time through project implementation.

Attachment 12

Disadvantaged Community Assistance



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment San Diego Integrated Regional Water Management Implementation Grant Proposal Disadvantaged Community Assistance

Attachment 12 consists of the following items:

- Funding Match Waiver. This San Diego IRWM Implementation Grant Proposal is requesting a funding match waiver for two proposed projects: the Rural Disadvantaged Community (DAC) Partnership Project and the Chollas Creek Integration Project.
- Documentation of Presence and Needs of DACs. Local DACs are defined and mapped using U.S. Census 2000 data. Critical water supply and water quality needs identified by local DAC representatives are summarized.
- Description of Proposed Projects and Targeted Benefits to DACs. The targeted benefits to local DACs from the proposed projects are described.
- Documentation of DAC Representation and Participation. The specific actions undertaken by the RWMG to engage DAC representatives from both urban and rural areas of the San Diego region are described. DAC representatives participate in both the San Diego IRWM program and in development and submittal of the proposed projects contained herein.
- Letters of Support. Letters of support from local DAC representatives for the proposed projects are included in Appendix 12-1.

This attachment documents information regarding the Rural DAC Partnership Project and the Chollas Creek Integration Project, both which address critical water supply and water quality needs in DACs. This attachment addresses the funding match waiver, documents the presence and needs of DACs, describes the proposed projects and targeted benefits to DACs, and documents DAC representation and participation in the San Diego IRWM program.

Funding Match Waiver

Two projects in this San Diego IRWM Implementation Grant Proposal are requesting a funding match waiver for activities directly benefiting DACs:

- The Rural DAC Partnership Project, submitted by the Rural Community Assistance Corporation (RCAC), is applying for a funding match waiver. RCAC will provide \$30,000 in funding match (6%) through federal funding programs, including the U.S. Dept. of Health and Human Services, U.S. Department of Agriculture Rural Development, Indian Health Services, and the U.S. Environmental Protection Agency (Region 9).
- The Chollas Creek Integration Project, submitted by the Jacobs Center for Neighborhood Innovation, is applying for a funding match waiver. The Jacobs Center is providing \$94,500 in funding match (10%) through private funding from the Jacobs Family Foundation and a federal grant from the U.S. National Park Service.

One project in this grant proposal benefits local DACs, but has provided its full 25% funding match:

The San Diego Regional Water Quality Assessment and Outreach Project, submitted by San Diego Coastkeeper, provides water quality benefits to urban DACs. San Diego Coastkeeper is providing \$167,000 in funding match (25%) through foundations, corporate sponsors local government entities, and individual donors.



Presence and Needs of the DAC

A DAC is identified as a community with an average median household income (MHI) of less than 80 percent of the Statewide MHI. The California MHI for year 2000 was \$47,500.¹ The County MHI for year 2000 was \$47,100, which is comparable to the Statewide MHI. Within the San Diego IRWM region, several communities and rural areas had an average MHI less than 80 percent of the Statewide value at approximately \$38,000. The IRWM Plan used various geographical designations, including cities, County of San Diego community planning areas, and City of San Diego community planning areas. However, the use of larger planning areas can at times cause smaller portions of the planning area that are economically disadvantaged to be overlooked. The RWMG recently analyzed MHI values on a census tract basis to identify smaller DACs for outreach. Figure 12-1 illustrates the disadvantaged census tracts within the Region; Figure 12-2 focuses on the disadvantaged census tracts within the center city areas.

Consistent with the recommendations of our *Public Outreach and Disadvantaged & Environmental Justice Community Involvement Plan,* actions are underway to identify specific locations of DACs throughout the Region. In addition to identifying communities meeting the State's MHI definition of disadvantaged, this comprehensive analysis will also consider areas that are recognized as economically disadvantaged by the Region's planning agencies, but do not meet the State's MHI definition. The RWMG is working closely with local DAC advocates to determine the most appropriate way to define DACs for the Region.

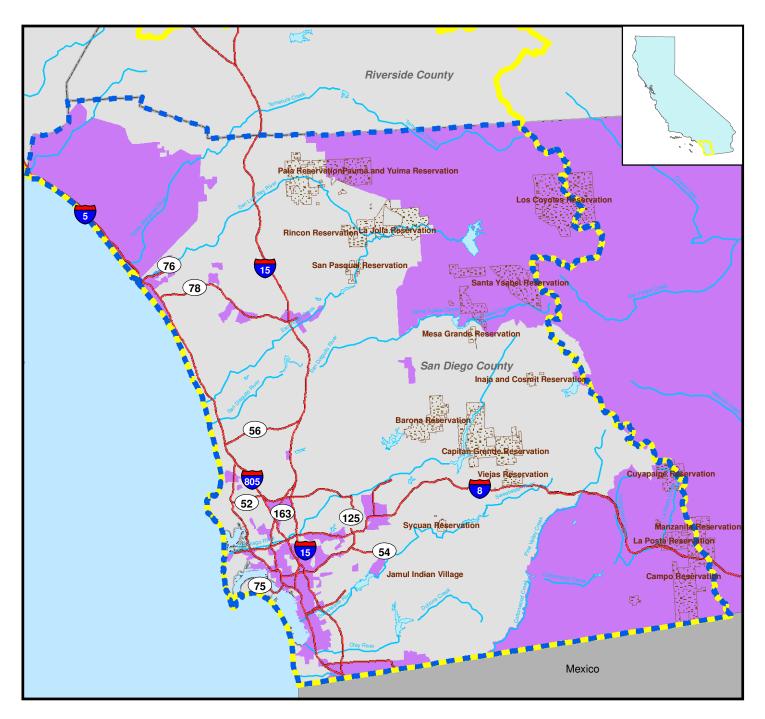
Watersheds tributary to San Diego Bay include several underserved communities including the communities of Barrio Logan, Harbor, Southeast San Diego, and Centre City. Preliminary needs assessment for the San Diego Bay watersheds identified the following key issues: toxic air emissions from plating industries; polluted waterways from sewage spills; and pollution resulting from the shipbuilding and boating industry. Recently, the RWMG worked directly with numerous DAC representatives (including San Diego Coastkeeper, Environmental Health Coalition, RCAC, and California Rural Water Association) to identify DAC issues and needs within the San Diego IRWM region. Identified DAC issues include:

- Effective management of small water systems permitted by the County Department of Environmental Health. Operations and maintenance are difficult. Small water systems need funding for improvements.
- Groundwater contamination in the San Dieguito and San Diego basins.
- Water conservation education to DACs in both urban areas (Pueblo/Otay watersheds) and rural (eastern San Diego County) areas. Outreach techniques are different. Urban DACs need to hear messaging from their peers (not the agencies).
- Implementation of the Chollas Creek TMDL (metals, bacteria).
- Flooding at creek constrictions in EJ communities.
- Support for implementation of Low Impact Development (LID) techniques to reduce storm water runoff and subsequent flooding.
- Leaking septic systems in eastern/rural San Diego County.
- How to pay for conversion of septic systems to advanced water treatment.
- Lack of recreational access for DAC/EJ communities. Can LID retrofits in parks provide the venue for implementing access improvements?
- Impacts of Bay water quality contamination on subsistence fishing populations.
- Plastic/trash reduction in local creeks and watersheds.

Subsequent work with these organizations led to the identification of the following two proposed projects that directly address critical DAC needs.

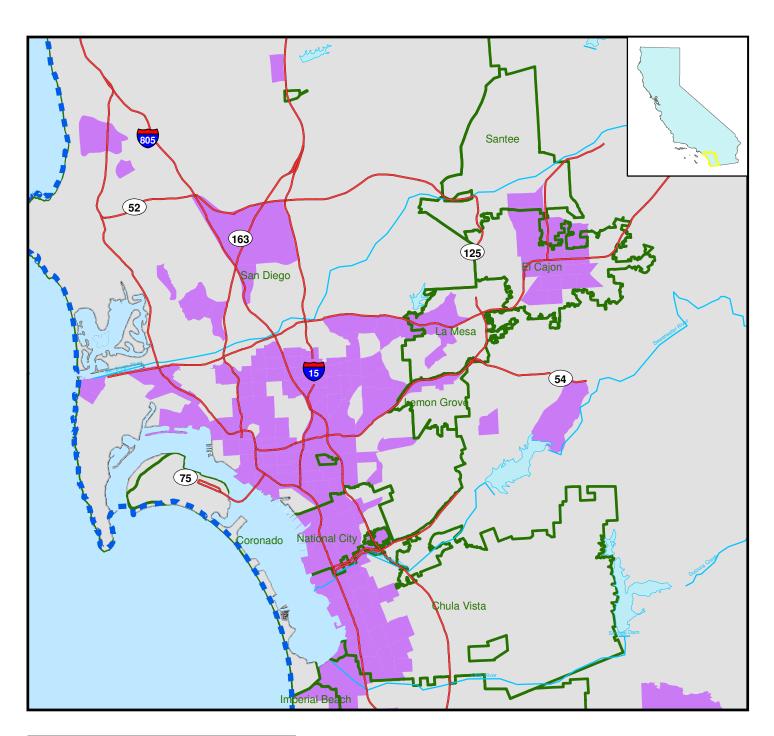
¹ U.S. Census Bureau. 2000 Census: Summary File 1 and Summary File 3. American FactFinder Website: http://factfinder.census.gov/home/saff/main.html?_lang=en.

Figure 12-1: Disadvantaged Communities





U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp Tribal Lands, Available: http://www.sangis.org/Download_GIS_Data.htm



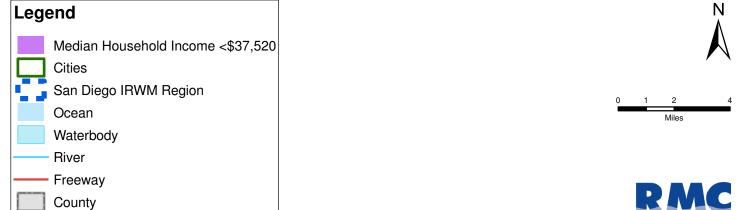


Figure 12-2: Disadvantaged Communities City Center

U.S. Census Bureau, 2000 Census, Median Household Income by Census Tract, Available: http://www.sandag.cog.ca.us/resources/maps_and_gis/gis_downloads/admin.asp



Rural DAC Partnership Project

Drinking water systems that serve 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.² Three major problems that impede the sustainability of a small community water system include:

- 1) 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
- 3) 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 have water quantity 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.

There is not enough available funding to meet the needs of rural DACs. The California Department of Public Health (CDPH) has 97 small (less than 10,000 population) systems located in San Diego County on its 2010 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 are faced with water supply 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 technical expertise and financial stability to access and comprehend funding programs. The *Rural DACs Partnership Project* will support these small community water systems in rural areas by providing the grant funding and technical expertise necessary to implement infrastructure improvements.

Chollas Creek Integration Project

The *Chollas Creek Integration Project* is needed to address water quality, flooding, and habitat protection concerns within the DACs surrounding Chollas Creek (Pueblo Hydrologic Unit). The Chollas Creek watershed has been subject to urban runoff pollution and hydromodification by adjacent landowners and poor maintenance over the past few decades. Through analysis of hydrologic conditions and identification of pollution prevention strategies, these concerns will be addresses. Further, development of a stakeholder-driven water management process will benefit the urban DACs by engaging them in the identification of key watershed issues and priorities.

This project will also restore riparian habitat and improve flood management in Chollas Creek Section 2A in order to improve environmental health/safety, surface water quality, and availability of green open space for the Encanto area, a disadvantaged urban community.

San Diego Regional Water Quality Assessment and Outreach Project

While recent regulatory programs (e.g., MS4 Stormwater Permit R9-2007-0001) and the Surface Water Ambient Monitoring Program (SWAMP) have increased the monitoring efforts and availability of surface water quality data in the County's watersheds, there is still insufficient information to adequately assess the status of many local rivers and streams. Additional ambient water quality data is needed to establish a baseline of water quality conditions in San Diego County watersheds, identify impaired water bodies, and provide focus for non-point source pollution prevention efforts. This data is needed to determine if

² U.S. EPA 2007. Small Drinking Water Systems: State of the Industry and Drinking Water Technologies to Meet the Safe Drinking Water Act Requirements. EPA/600/R-07/110.

local DACs are receiving undue burden of water quality impairments within the neighborhoods, and also to ensure that existing impairments are addressed through regulatory and voluntary clean-up programs.

The San Diego Regional Water Quality Assessment and Outreach Project continues important regional water quality assessment work completed by San Diego Coastkeeper through funding provided under Proposition 50. Proposition 84 funds will leverage partnerships we have built with other organizations and funders and a trained core of citizen water monitoring volunteers.

Description of Proposed Project and Targeted Benefits to DACs

The proposed projects contribute to water supply and/or water quality needs in both urban (*Chollas Creek Integration Project*) and rural (*Rural DAC Partnership Project*) DACs in San Diego County.

Rural DAC Partnership Project

In the *Rural DAC Partnership Project*, RCAC will manage the Proposition 84 grant funds to address inadequate water supply and water quality in rural DACs, including tribal communities, with populations less than 10,000. The targeted benefit is a reliable source of quality water supply to rural DACs in the region. DACs will be selected based on U.S. Census 2000 income data, as defined above.

RCAC will lead a representative group of stakeholders and agencies, including a representative of the San Diego IRWM Regional Advisory Committee (RAC), to solicit and select rural DACs for funding of critical infrastructure improvement projects. Rural DACs will be contacted for eligible projects as well as agencies for DACs in non-compliance with local, state, and federal agencies. Criteria for selection will be based on the following factors: 1) public health risks, 2) environmental justice, 3) multiple benefits, 4) affordability and sustainability, and 5) incorporation of green technologies. Opportunities to merge related projects will be evaluated. Projects will be selected from both tribal and non-tribal rural DACs. Preference will be given to DAC projects that are ready to be constructed. In every case, RCAC will look at other available funding resources to leverage Proposition 84 dollars.

RCAC will provide DACs with outreach, program information, assisting with project scope and readiness, project documentation for funding, assistance with engineering and contractor selection, project oversight, and disbursement of individual DAC project payments. To extend Proposition 84 dollars, RCAC will provide supplementary capacity development, training, and technical assistance to support project sustainability utilizing existing RCAC programs.

RCAC is a certified Community Development Financial Institution and will be responsible for disbursements for selected DAC projects. Reporting process for the DAC projects will, at a minimum, include quarterly reporting and invoices. Work will be verified by RCAC before payments are made. RCAC will provide written quarterly reports to the San Diego IRWM program and will be available to report directly to the RWMG if requested.

DAC projects may not have the economic base to fully support ongoing operation and maintenance (O&M) needs. In addition, DACs may not have adequately trained personnel that can provide effective O&M of new infrastructure. To offset these shortcomings, RCAC will do the following:

- 1) In the selection process, RCAC will determine how project O&M will be sustained;
- 2) Whenever possible, select technologies that are straight-forward and require less technical expertise and expense to operate;
- 3) Provide technical assistance and training during project start-up to bring system staff up-to-speed on proper O&M; and
- 4) Work with outside entities such as the Indian Health Services and the California Rural Water Association to further support the O&M of each project through ongoing technical assistance. This additional technical assistance will not use Proposition 84 funds, but will be provided by other RCAC resources leveraging the grant funds.

No environmental justice issues or substantial environmental impacts (beyond temporary constructionrelated impacts) are anticipated to result from the *Rural DAC Partnership Project*.

Chollas Creek Integration Project

The *Chollas Creek Integration Project* will prepare the Chollas Creek Enhancement Program (City of San Diego 2002) for full-scale implementation by providing a comprehensive analysis of creek conditions, opportunities and constraints for habitat protection, restoration, enhancement, preventing pollution and reducing storm water TMDLs. The Opportunities Assessment will then prioritize projects and match them to funding opportunities that will improve conditions in this disadvantaged neighborhood.

Within Chollas Creek Section 2A, the project partners will restore creek habitat, prevent surface water pollution, and reduce erosion and flooding associated with channelization. Through the removal of concrete and debris from the creek, widening creek bank slopes (treatment of hydraulic problem), and soil erosion prevention measures, flooding contributors such as velocity and sedimentation will be reduced and Section 2A will be stabilized for 100-year design flows. Reduction of flood hazards is important to this urban DAC which is seeking new and expanded economic development opportunities to improve the quality of life of its residents. Through cultivation of native plant species, removal of debris and trash, and maintenance of a soil creek bottom to promote biofiltration, the project will reduce toxic metals and bacteria in the creek steam and other environmental stressors. Reduction of environmental pollutants in the creek will improve surface water quality, ability of the creek to host vegetation and wildlife, and the overall well-being of this important neighborhood resource.

This is a community-based effort that has and will continue to strengthen the grass-roots connection of the neighborhoods to the open space canyon and creek system and the watershed. This project will strengthen community connections by encouraging community participation in improving the watershed. Stakeholders will be empowered to address and advocate for large-scale improvements to their watershed, combined with an awareness of the significance of personal choices and behaviors in protecting their watershed.

Ongoing O&M costs for the Chollas Creek Section 2A restoration activities will be provided by the Jacobs Center for Neighborhood Innovation through private funding from the Jacobs Family Foundation, as well as various grant opportunities secured by the project partners. The Jacobs Center will manage ongoing O&M activities and payments within its annual budget.

No environmental justice issues or substantial environmental impacts (beyond temporary constructionrelated impacts) are anticipated to result from the *Chollas Creek Integration Project*.

San Diego Regional Water Quality Assessment and Outreach Project

The San Diego Regional Water Quality Assessment and Outreach Project continues critical work conducted by San Diego Coastkeeper through 2011. The project will engage community stakeholders to collect and analyze surface water samples in eight to nine watersheds throughout San Diego County and conduct trash removal in these areas. Most watersheds contain pockets of urban DACs that are facing critical surface water quality issues.

The San Diego Regional Water Quality Assessment and Outreach Project will benefit local communities already overburdened with health issues. The program monitors almost coastal watersheds that flow through some of San Diego's most impacted communities where environmental hazards and some of San Diego County's most polluted waterways exist. Samples will be analyzed for physical, chemical, bacterial, dissolved metals and nutrient constituents, as well as toxicity and bioassessment indicators. Resultant water quality data will be publically accessible to support public involvement in water resource conservation and stewardship of watershed function and health.

Documentation of DAC Representation and Participation

Outreach to DACs is complex – some economically disadvantaged areas are not well represented by water management groups. If organized groups exist within the identified DACs (such as Groundwork San Diego-Chollas Creek in the Pueblo hydrologic unit), the RWMG and RAC members reached out to invite participation in the IRWM program. For example, RWMG staff recently gave a presentation on the IRWM program to the emerging Chollas Creek Project Implementation Group. If no organized group exists, however, outreach was coordinated through the water agencies and municipalities serving those areas in order to identity water resources projects that provide DAC benefits. The RWMG also worked to

establish lines of communication (such as RCAC and California Rural Water Association) with rural DACs that depend on groundwater.

The Watershed Planning and Outreach Workgroup, established in December 2008, helped to clarify critical water supply and water quality needs in the Region's watersheds, and to identify outreach strategies that will bring DAC leaders to the table to engage in projects and partnerships that help to solve those critical needs. The Watershed Planning and Outreach Workgroup suggested conducting targeted presentations to community and stakeholder groups in DACs. RWMG members have since given presentations on the IRWM program and project solicitation at meetings of the Watershed Urban Runoff Management Program (WURMP), Southern California Tribal Chairman's Association, and Cuyamaca College.

Additionally, the Workgroup developed guidance for the current Proposition 84 grant cycle(s), for distribution to DACs and other stakeholders. The handout, which was provided to stakeholders at outreach meetings and public workshops in the summer of 2010, included information about the 'Call for Projects' and contracting topics. This handout was used in targeted meetings with DAC representatives to explain the purpose of IRWM and help them to formulate integrated, multi-benefit projects that address their critical water resources needs.

The following sections summarize those outreach strategies suggested by the Workgroup. The RWMG will continue to work with the Workgroup to develop and implement a watershed outreach strategy that targets DACs. The RWMG intends to build on DWR's support for targeted DAC outreach, DAC participation in IRWM planning, technical assistance, feasibility studies, and construction.

Coordination with Regional Agencies / Programs

SANDAG is the regional planning agency responsible for generating the regional growth projections upon which SDCWA and member agencies base their UWMP demand calculations. SANDAG has been an active participant in the RAC and other IRWM-related planning activities. Coordination with SANDAG will assist the RWMG in surveying the Region's DACs, monitoring changes to these communities, and identifying their needs.

Additionally, the RWMG has reached out to the WURMP workgroups established under the regional MS4 permit. Because WURMP activities target specific watershed areas, group members can offer ideas and suggestions about water quality needs in underprivileged neighborhoods.

One-on-one Communication between DAC Leaders and RWMG or RAC Representatives

The RWMG and RAC have contacted community leaders within the DACs, as well as organizations that support rural water systems, and asked to work with them to identify the current state of their water-related resources. This one-on-one correspondence will ensure that DACs have access to the planning process, allowing their input to be incorporated and their interests to be represented early-on, prior to project implementation. Additionally, critical needs of the DACs which are identified through these discussions will be translated into long-term targets for the Plan and potential projects.

The RWMG has also approached RCAC, California Department of Public Health, and County Department of Environmental Health for lists of rural mutual water companies and other organizations that may be targeted for outreach. Many of these rural water companies face groundwater quality concerns, as they're outside of the Water Authority's service area.

Disadvantaged Community Representation on the RAC

To ensure consideration of diverse views, RAC membership included organizations that identify and address DAC and environmental justice issues. San Diego Coastkeeper and SCWRP, for example, are active in addressing several key DAC projects within the Region. San Diego Coastkeeper sits on the RAC and Workgroups as a disadvantaged community and environmental justice advocacy organization primarily concerned about water quality issues. RCAC also sits on the RAC as a representative of small community water systems in rural areas. Having this rural 'voice' at the table has allowed the RAC and Workgroups to explore the needs of rural DACs, including groundwater quality and infrastructure improvements.



Strategic Location of Public Meetings

To overcome financial constraints that may prevent DACs from traveling to public meetings, public meetings related to the planning and implementation of the IRWM Plan were hosted in disadvantaged areas to the greatest extent feasible. This recommendation was included in the *Public Outreach and Disadvantaged & Environmental Justice Community Involvement Plan.* The Project Workshops held to solicit project submittals for this *San Diego IRWM Implementation Grant Proposal* were hosted in different locations throughout the County to reduce commute times and encourage use of transit (City of Encinitas City Hall/Transit Center and City of Chula Vista Public Works Center). These workshops were also held in the evening (6:00 – 8:00pm) to encourage participation by DAC representatives.

Targeted Presentations

The Watershed Planning and Outreach Workgroup also suggested conducting targeted presentations to community and stakeholder groups in DACs. The Workgroup developed project guidance geared toward DAC and tribal representatives for the upcoming Proposition 84 grant cycle(s). The RWMG convened targeted outreach meetings (described below), as well as Project Workshops intended to bring together watershed groups, DAC leaders, municipalities, and agencies. These Project Workshops were an essential tool for helping DACs to formulate integrated, multi-benefit projects that incorporate environmental stewardship to address their critical water resources needs.

Outreach Meetings

Special DAC outreach meetings were held with San Diego Coastkeeper, Environmental Health Coalition for Water, RCAC, San Diego Groundwork-Chollas Creek, WildCoast, and tribal representatives from throughout the County to identify solutions to DAC and environmental health concerns.

Three DAC and tribal outreach meetings were held, one in April 2010 and two in June 2010. Table 12-1 indicates the principal participants who were represented in meetings. The meetings were facilitated and technical assistance provided by the RWMG.

A brief discussion of the results of the DAC and tribal outreach meetings follows:

- April 22, 2010. CoastKeeper, Environmental Health Coalition, and RCAC were in attendance. The group was provided information on the IRWM program and upcoming Proposition 84/1E grant cycles and the role for DAC leaders in identifying water resources projects. The group discussed the key water supply and water quality issues facing DACs/EJ communities in the San Diego region and integrated projects that may address these issues. Additionally, the group discussed what other DAC representatives should be contacted to discuss DAC/EJ issues, needs, and project concepts.
- June 2, 2010. The Jacobs Center, Wildcoast, CoastKeeper and Groundworks were in attendance. The group was given an overview and update on the IRWM program and Proposition 84/1E grant opportunities. The group discussed key water management issues facing DACs in the San Diego region and project concepts that would address those issues. The group reviewed the 'Project Guide' to understand the project submittal process, as well as anticipated Prop 84 contract requirements.
- June 3, 2010. The Campo, La Jolla, Mesa Grande, Pala, Pauma, Sycuan and Viejas bands of American Indians were in attendance. The group was given an overview of the IRWM program, the roles of the RWMG and RAC, and information on the upcoming Proposition 84/1E grant opportunities. The group discussed key water management issues facing tribes in the San Diego region and project concepts that may address those issues. The group reviewed the 'Project Guide' to understand the project submittal process, as well as anticipated Prop 84 contract requirements.

Names	Organization
Gabriel Solmer	San Diego CoastKeeper
Jen Kovecses	
Dave Harvey	Rural Community Assistance Corporation
Chris Klein	San Diego EarthWorks
Nicole Capretz	Environmental Health Coalition
Jeff Ortmeier	California Rural Water Association
Lori Vereker	City of Escondido (coordinates with San Luis Rey Indian Water Authority)
Hiram Sarabia-Ramirez	UCSD-SRP
Brandon Everret	Elementary Science Institute
Roque (Rocky) Barros	The Jacobs Center
Leslie Reynolds	San Diego Groundwork-Chollas Creek
Katie Westfall	WildCoast
Diana Ross	Mid City Can
Via Dave Harvey	Southern California Tribal Chairman's Association
Eric Bowlby Brian Moehl	San Diego Canyonlands
Lisa Gover	Campo Band of Kumeyaay Indians
George Wilkins LaVonne Peck Rob Roy	La Jolla Band of Indians
Louis Guassac	Mesa Grande Band of Mission Indians
Heidi Brow	Pala Band of Mission Indians
Miguel Hernandez	Pauma/Yuima Band of Mission Indians
Anna Rzepko	Sycuan Band of the Kumeyaay Nation
Don Butz Lisa Haws	Viejas Band of Kumeyaay Indians

As a result of these DAC and tribal outreach meetings, the attendees were encouraged to develop project concepts and work plans that address their water supply and water quality needs, and are structured competitively for the IRWM program. The RWMG staff and consultants provided technical support, as requested, to the DAC representatives in developing their project submittals. This technical support included review and refinement of project scope and approach to ensure that the projects addressed the San Diego IRWM Plan objectives and grant eligibility requirements.

Special consideration was given in the project prioritization process to projects that address the critical water supply and water quality needs of DACs and environmental justice communities. Following selection of the funding package through the region's Project Selection Workgroup, the RWMG staff and consultants have provided the selected DAC project sponsors with additional technical support, including review of work plan and budget materials, project mapping, and identification of economic benefits associated with project implementation.

Further, the DAC and tribal representatives listed in Table 12-1 are all continuing to participate in the IRWM program through the stakeholder email list and/or attendance at RAC meetings. The RWMG is committed to maintaining and expanding relationships with these DAC representatives to ensure that identified critical needs are addressed through the IRWM program. During the IRWM Plan Update (anticipated in 2012), these DAC representatives will participate in refinement of the regional priorities, goals and objectives, project prioritization, and other water management policies.



Letters of Support

Letters of support that were submitted by agencies and organizations representing DACs in the San Diego region are included in Appendix 12-1.

- Rural DAC Partnership Project
 - o State of California Health and Human Services Agency, Department of Public Health
 - o La Jolla Band of Luiseño Indians
- Chollas Creek Integration Project
 - o City of San Diego
 - o Southeastern Economic Development Corporation
- San Diego Regional Water Quality Assessment and Outreach Project
 - o Environmental Health Coalition
 - o WildCOAST



Appendix 12-1: DAC Letters of Support State of California—Health and Human Services Agency Department of Public Health



ARNOLD SCHWARZENEGGER Governor

December 22, 2010

San Diego Regional Water Management Group c/o Mark Stadler San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123

RE: SUPPORT FOR SAN DIEGO IRWM PROJECT- "RURAL DISADVANTAGED COMMUNITY (DAC) PARTNERSHIP PROJECT"

Dear Mr. Stadler

The California Department of Public Health – Drinking Water Program (CDPH-DWP) is requesting that this letter, expressing support for the Rural Disadvantaged Community (DAS) Partnership Project, be submitted as part of the San Diego IRWM Implementation Grant Proposal.

The Rural Disadvantaged Community (DAC) Partnership Project is an important project for the San Diego Region by providing outreach and funding opportunities to local disadvantaged communities in order to improve the availability of safe and reliable drinking water for these communities. CDPH-DWP views and appreciates this regional planning process as a positive, collaborative effort of a wide range of water management stakeholders such as the Environmental Justice Coalition for Water, California Rural Legal Assistance Foundation, and Clean Water Action.

The CDPH-DWP supports and encourages the submittal of the San Diego IRWM Implementation Grant Proposal to fund projects that address the critical water management needs of our disadvantaged communities.

If you have any questions, please do not hesitate to contact me at (916) 449-5600 or Steve.Woods@cdph.ca.gov

Sincerely,

In Alland

Stephen Woods, Assistant Chief Division of Drinking Water & Environmental Managment

LaVonne Peck Tribal Chair

James Trujillo Vice Chairman

Adam Geisler Secretary

Fred Nelson, Jr. Treasurer

Karlene Clifford Council Member Appendix 12-1: DAC Letters of Support



LA JOLLA BAND OF LUISEÑO INDIANS

22000 Hwy 76 * Pauma Valley, CA. 92061 (760) 742-3771 * Fax (760) 742-3779

November 17, 2010

Mr. Dave Harvey Southern California Regional Manager - Environmental Rural Community Assistance Corporations Southern California Office 417 Carmel, Suite #104 San Marcos, CA 92078

Re: Rural Community Assistance Corporations (RCAC) San Diego Integrated Regional Management Plan (SD IRWMP) selection

Dear Mr. Harvey,

We are pleased to hear that the SD IRWMP advisory group has selected RCAC to serve as a pass through entity to San Diego Counties most disadvantaged communities. As a Tribal Nation located within northeast San Diego County we face many of the same issues found throughout the County. Obviously, drought has plagued the backcountry for years resulting in inadequate supplies. In addition the La Jolla Tribe has dealt with water quality issues that require costly treatment. In short, both water quantity and water quality issues often require cost- prohibitive infrastructure improvements that small rural communities simply cannot afford.

With this in mind, the La Jolla Band of Luiseno Indians fully supports all efforts to assist San Diego's rural communities with infrastructure improvements. We also applaud the SD-IRWMP for recognizing these issues and for providing a mechanism for disadvantaged communities to access project funding.

Sincerely

James Trujillo Tribal Vice-Chairman La Jolla Band of Luiseno Indians





THE CITY OF SAN DIEGO

November 19, 2010

San Diego Integrated Regional Water Management Program c/o Rosalyn Prickett, AICP Project Manager

RMC Water and Environment 4225 Executive Square, Suite 750 San Diego, CA 92037

Subject: Letter of Support for Chollas Creek Watershed Opportunity Assessment Planning Study

Dear Ms. Prickett:

The City of San Diego's City Planning & Community Investment Department supports the San Diego Integrated Regional Water Management (IRWM) grant application to the State of California, Proposition 84 funding for a series of regional water quality and environmental protection projects. The Jacobs Center for Neighborhood Innovation (JCNI) and Groundwork San Diego joint grant application for \$900,000 would prepare a Chollas Creek Watershed Opportunity Assessment Plan and would revitalize and restore segment 2A of the South Branch of Chollas Creek. The Watershed Opportunity Planning Study would expand on the earlier work of the Chollas Creek Enhancement Program and Chollas Creek Implementation program adopted May 14, 2002 and is a precursor to a Pueblo Watershed Management Plan. The scope and purpose of the grant application conforms to goals and policies of the San Diego General Plan, the Southeastern San Diego Community Plan, the Chollas Creek Enhancement Plan, and the Integrated Regional Water Management Program.

The communities along the creek way were largely developed in the 1930 through the 1950's, are highly diverse ethnic minority, and are some of San Diego's lowest per capita income neighborhoods. The communities have been underserved in infrastructure, open space, recreational opportunities as well as development and redevelopment of commercial, industrial and residential structures. The City is collaborating on catalyst mixed-use development with the Southeastern Economic Development Corporation, Inc, JCNI, the State of California Department of Housing and Community Development (HCD) to encourage employment opportunities, affordable housing, open space, and environmental sustainability.

The Chollas Creek South Branch flows through numerous Southeastern San Diego neighborhoods to its terminus in San Diego Bay. The creek restoration is an opportunity to convert an environmentally denigrated and partially channelized segment to a thriving natural riparian habitat that functions as an open space, active recreation, educational opportunity, and community mobility linkage. Over the past few years, portions of this creek habitat have been successfully restored through a demonstrated collaborative approach by JCNI and Groundwork San Diego. Their track record for restoration work is exemplary and should be awarded funding to further their collaborative efforts.



City Planning and Community Investment 202 C Street, MS 4A • San Diego, CA 92101-3864

Tel (619) 235-5200 Fax (619) 533-5951

Appendix 12-1: DAC Letters of Support

November 19, 2010 Ms. Rosalyn Prickett, AICP Page 2

The City Planning & Community Investment Department strongly supports the joint efforts of Jacobs Center for Neighborhood Innovation and Groundwork San Diego for the watershed planning and physical improvements along the creek way. The funding will help to provide for the long term sustainable natural environment, watershed and community attribute.

Sincerely,

William Anderson City Planning & Community Investment

cc: Leslie Reynolds, Groundwork San Diego Karen Bucey, Community Planner



Southeastern Economic Development Corporation

T 619.527.7345 F 619.262.9845 www.sedcinc.com

November 29, 2010

San Diego Integrated Regional Water Management Program c/o Rosalyn Prickett, Project Manager, AICP RMC Water and Environment 4225 Executive Square, Suite 750 San Diego, CA 92037

Subject: Letter of Support for Chollas Creek Integrated Project

Dear Ms. Prickett:

The Southeastern Economic Development Corporation (SEDC) supports the Chollas Creek Integrated Project which has been recommended by the Regional Advisory Committee of the San Diego Integrated Regional Water Management for Proposition 84 funding. The goals and objectives of the project will lead to multiple benefits, including improved health, environment and economic conditions, for residents of the disadvantaged communities located within the affected Pueblo watershed.

SEDC is a nonprofit public benefit corporation responsible for redevelopment activities within a 7.2 square mile area immediately east of downtown San Diego. Established in 1981 by the City of San Diego, SEDC's sphere of influence covers 15 neighborhoods, including and four distinct redevelopment project areas. The south branch of Chollas Creek traverses most of these redevelopment areas and is both an obstacle to and a potential resource for revitalization of our underinvested urban neighborhoods. We have worked collaboratively with citizens and community partners such as the Jacobs Center for Neighborhood Innovation (JCNI) for over a decade to implement the goals of the southeastern San Diego community for development of new commercial, retail and cultural centers, improved infrastructure, and the creation or preservation of affordable housing. Underlying these efforts is the difficult challenge of obtaining public and private investment to address the neglected, unsafe and deteriorating condition of Chollas Creek and to transform it into an asset for natural habitat preservation, climate change mitigation, and environmental health.

With JCNI and Groundworks San Diego Chollas Creek, SEDC strongly supports the Chollas Creek Enhancement Program (adopted by the City in 2002) and will promote the Chollas Creek Integrated Project as an engaged and committed community partner. With the Opportunities Assessment and restoration of Section 2A, Chollas Creek will continue to become a valued natural resource that assists in creating jobs, attracts new businesses, and new developing affordable housing, creates green space, and attracts other partners for investment in critical revitalization projects that are desperately needed and deserved by this disadvantaged community.

Sincerely,

Thatin

Brian L. Trotier Acting President/CEO

Appendix 12-1: DAC Letters of Support



December 8, 2010

San Diego Regional Water Management Group c/o Mark Stadler San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123

RE: Support for San Diego IRWM Project – San Diego Regional Water Quality Assessment and Outreach Project, 2010

Dear Mr. Stadler:

On behalf of Environmental Health Coalition, we wish to express our strong support for the San Diego Regional Water Quality Assessment and Outreach Project (Assessment Project) to be submitted as part of the San Diego IRWM Implementation Grant Proposal. The Assessment Project plays an important role in the San Diego region – it provides scientifically defendable water quality data for the majority of our region's inland waters and it trains and educates local residents about watershed science and pollution prevention.

The Assessment Project builds on and will continue the successes of San Diego Coastkeeper's current water quality monitoring program. Stakeholder involvement, community participation, and community involvement are at the core of the project. For example, the project will teach a minimum of 100 members of the community each year how to monitor water quality in a scientifically defendable way in watersheds throughout the county.

Importantly, the Assessment Project will also benefit local communities already overburdened with health issues. The Assessment Program monitors almost all coastal watersheds in the County including waters that flow through some of San Diego's most impacted communities where we work to reduce environmental hazards and where some of San Diego County's most polluted waterways exist.

We support and encourage the submittal of the *San Diego IRWM Implementation Grant Proposal* to fund projects that address the critical water management needs of our disadvantaged communities.

Sincerely,

Saura Hunter

Laura Hunter, Associate Director for Programs

2727 Hoover Avenue, Suite 202 * National City, CA 91950 619.474.0220 * 619.474.1210 fax * <u>www.environmentalhealth.org</u>



December 2nd, 2010 San Diego Regional Water Management Group c/o Mark Stadler San Diego County Water Authority 4677 Overland Avenue San Diego, CA 92123

RE: Support for San Diego IRWM Project – San Diego Regional Water Quality Assessment and Outreach Project, 2010

Dear Mr. Stadler:

On behalf of WiLDCOAST, we wish to express our strong support for the San Diego Regional Water Quality Assessment and Outreach Project (Assessment Project) to be submitted as part of the *San Diego IRWM Implementation Grant Proposal*. The Assessment Project plays an important role in the San Diego region – it provides scientifically defendable water quality data for the majority of our region's inland waters and it trains and educates local residents about watershed science and pollution prevention.

The Assessment Project builds on and will continue the successes of San Diego Coastkeeper's current water quality monitoring program. Through the Assessment Project, community members will be engaged on a monthly basis to assess surface waters and are mobilized to remove trash from inland and coastal areas. Stakeholder involvement, community participation and community involvement are at the core of the project. For example, the project will teach a minimum of 100 members of the community each year how to monitor water quality in a scientifically defendable way in watersheds throughout the county.

Importantly, the Assessment Project will also benefit local disadvantaged communities. The Assessment Program monitors almost all coastal watersheds in the County including waters that flow through some of San Diego's most disadvantaged communities, like Barrio Logan and Imperial Beach. Sadly, these waters are also some of San Diego County's most polluted waterways. Because the monitoring data is available to any member of the community for free through Coastkeeper's water quality website, the Assessment Project will serve to educate and empower members of these affected communities. In addition, the Project is geared towards training community members from each watershed to represent their own watersheds. Thus, the program furthers local environmental empowerment. In addition, data generated by the project is shared with water quality regulators and jurisdictions to enable more effective management and clean up of the polluted waters that plague local disadvantaged neighborhoods.

At WiLDCOAST, we have been working with underserved communities to conserve coastal and marine ecosystems and wildlife since the organization's inception in 2000. Two of our programs are working to conserve and restore the Tijuana and Otay River Valleys, which represent some of the last areas of open space in the region. These river valleys provide important ecological and recreational resources to south San Diego County and the San Diego-Tijuana border region, communities that are among the lowest income and most ethnically diverse in the County. Ongoing pollution concerns, lack of diverse stakeholder involvement, and an environmental disconnect in the lives of the local population are all challenges to the long-term stewardship of the Tijuana and Otay River Valleys. These are all issues that we have been working to address by

increasing the stewardship capacity of the south San Diego County community to conserve and restore these important river valleys. Efforts such as Coastkeeper's Assessment Project are in line with WiLDCOAST's work to conserve coastal watersheds for the benefit of underserved communities.

WiLDCOAST views this regional planning process as a positive, collaborative effort by a wide range of water management stakeholders. We support and encourage the submittal of the *San Diego IRWM Implementation Grant Proposal* to fund projects that address the critical water management needs of our disadvantaged communities.

Should you have any questions, please do not hesitate to contact me at 619.423.8665 x202.

Sincerely,

Serge Dedina, Ph.D. Executive Director

Attachment 13

AB 1420 and Water Meter Compliance Information



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment San Diego Integrated Regional Water Management Implementation Grant Proposal AB 1420 and Water Meter Compliance

Attachment 13 consists of the following items:

- AB 1420 and Water Meter Self Certification Forms. San Diego County Water Authority (SDCWA), Olivenhain Municipal Water District (OMWD), and City of San Diego are all urban water suppliers that would receive grant funding, and have therefore completed and submitted AB 1420 Self-Certification Tables 1 and 2 and self certification forms for compliance with water metering requirements.
- Appendix 13-1. AB 1420 Self Certification forms, Water Meter Compliance forms, and concurrence letters are attached.

As defined in the IRWM Grant Program Guidelines, all urban water suppliers must provided the required documentation of compliance with AB 1420 (CWC §10631.5) and water meter implementation (CWC §525 et seq.).

AB 1420 Self Certification Forms

AB 1420 conditions the receipt of IRWM grant funds on implementation of demand management measures in compliance with CWC §10631. There are three urban water suppliers included in this grant proposal which must also comply with AB 1420 requirements: SDCWA, OMWD, and City of San Diego.

SDCWA and OWMD had both previously submitted AB 1420 Self Certification forms to DWR. DWR has responded with confirmations that SDCWA and OWMD are in compliance with AB 1420 and are eligible for state grants and loans. Those compliance letters are included in Appendix 13-1.

One original hard copy of the AB 1420 Self Certification form for the City of San Diego was submitted in a separate envelope, and an electronic version of this form is available as Appendix 13-1.

Water Meter Compliance Forms

CWC §529.5 requires urban water suppliers applying for IRWM grant funds to demonstrate that they meet the State's water meter requirements. There are three urban water suppliers included in this grant proposal which must also comply with Water Meter requirements: SDCWA, OMWD, and City of San Diego.

Electronic versions of the Water Meter Compliance forms for SDCWA, OMWD, and City of San Diego have been submitted in Appendix 13-1.



STATE OF CALIFORNIA - CALIFORNIA NATURAL RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES

1416 NINTH STREET, P.O. BOX 942836 SACRAMENTO, CA 94236-0001 (916) 653-5791







November 22, 2010

Mr. William J. Rose Water Conservation Program Executive San Diego County Water Authority 4677 Overland Avenue San Diego, California 92123-1233

Dear Mr. Rose:

The Department of Water Resources (DWR) has reviewed the San Diego County Water Authority's (SDCWA) Self-Certification Statement – Table 1 submitted on September 9, 2010, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of the SDCWA to receive water management grant or loan funds. DWR has followed the Draft AB 1420 Compliance Requirements dated June 1, 2009. For detailed information, please visit http://www.water.ca.gov/wateruseefficiency/finance/.

Based on DWR's review of the information in Table 1, the SDCWA has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation, including reports from the SDCWA to substantiate the accuracy of the information provided in Table 1. DWR may reverse or modify its eligibility determination and notify you and the funding agency if inaccuracies are found in the supporting documentation or in Table 1.

If you have any questions, please contact me at (916) 651-7025 or Jodi Evans at (916) 651-7026.

Sincerely.

Rey Jemaa &h

Fethi BenJemaa Ag Water Use Efficiency Section Chief

Note: Table 1 documents Status of Past and Current BMP implementation.

compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office.

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Appendix 13-1: AB 1420 and Water Meter Forms

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For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements.aspx.
 (2) BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU
 (3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

L:WCPDBpDDniv0280 - CONSERVATION DEPATIMENT PROGRAMS102 - STATE GRANTS1002.003 - DWR AB 1420 complianceAB 1420-table1.xls

Appendix 13-1: AB 1420 and Water Meter Forms

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Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds.

such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1 and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 2, and in any supporting documents substantiating Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding

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Appendix 13-1: AB 1420 and Water Meter Forms

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 C3: BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.

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Appendix 13-1: AB 1420 and Water Meter Forms

STATE OF CALIFORNIA - CALIFORNIA NATURAL RESOURCES AGENCY

DEPARTMENT OF WATER RESOURCES 1416 NINTH STREET, P.O. BOX 942836 SACRAMENTO, CA 94236-0001 (916) 653-5791

0²³⁻⁻⁻²1/ F. (1.7 9³1) 4¹/₂

October 27, 2009

Ms. Teresa Chase Olivenhain Municipal Water District 1966 Olivenhain Road Encinitas, California 92024

Dear Ms. Chase:

The Department of Water Resources (DWR) has reviewed the Olivenhain Municipal Water District's (OMWD) Self-Certification Statement – Tables 1 and 2 submitted by OMWD on October 2, 2009, regarding implementation of the Urban Best Management Practices (BMPs).

The purpose of DWR's review is to determine eligibility of OMWD to receive water management grant or loan funds. DWR has followed the *Compliance with AB 1420 Requirements* dated June 1, 2009. For detailed information, please visit www.owue.water.ca.gov/finance/index.cfm.

Based on DWR's review of the information in Table 1, OMWD has and is currently implementing the BMPs consistent with AB 1420 and, therefore, is eligible to receive water management grant or loan funds.

DWR reserves the right to request additional information and documentation to substantiate the accuracy of the information provided in Tables 1 and 2. Additionally, DWR may reverse or modify its eligibility determination and notify you if it finds inaccuracies in the supporting documentation or in Tables 1 and 2.

If you have any questions, please contact me at (916) 651-9666 or Chriss Fakunding at (916) 651-9673.

Sincerely,

Baryohay Davidoff, Chief Agricultural Water Management Planning And Financial Assistance



ARNOLD SCHWARZENEGGER, Governor

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Note: Table 1 documents Status of Past and Current BMP implementation.

compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office. Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding

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		is the UWM Plan Deemed Complete by DWR? Yes/No			<u>tchase@olivenhain.com</u>		ority		C17	BMP Implementation Requirements Met	amentation to DWR in tt (Non MOU						
		med Complete b		C. C. D. C. C. C. C. C. C. C. C. C. C. C. C. C.	E-mail:	Wholesaler (List Below)	San Diego County Water Authority		C16	P Implementat	Dale of BMP Report Submitted to CUWCC for (2007-2008)	(MOU Signatories) 12/31/2008	12/31/2008	12/31/2008	12/31/2008	12/31/2008	12/31/2008
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on Date.	dentificatio	Water Suj		itle:	s Contact I				ឌ		BMPs required for Retail Supplier	1	,	<u>, </u>	>	<u> </u>	<u>.</u>
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	C18	All Supporting Documents have been Submitted							Yes						
20	BMP Implementation Requirements Met	Date BMP (mplementation Date Submitted to DWR in CUWCC Format (Non MOU	Signatones) (3)												Teresa L. Chase OMWD Representative
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ទ		BMPs required for Retail Supplier	\$	<u> </u>	<u> </u>	、 、	<u> </u>		2	<u> </u>	<u>, c. </u>		aler may a and C10	s, please s xempt base I signatorie	
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Note: Table 1 documents Status of Past and Current BMP implementation.

compliance and implementation of the BMPs, including alternative conservation approaches, are true and accurate. This signed AB 1420 Self-Certification Statement Table 1, and Table 2 substantiating such claims may, at the discretion of the funding agency, result in loss of all State funds to the applicant. Additionally, the Funding Agency, in its sole discretion, may halt disbursement of grant or loan funds, not pay pending invoices, and/or pursue any other applicable legal remedy and refer the matter to the Attorney General's Office. are the basis for granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1, and Table 2 and in any supporting documents Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding

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ų			Yes/No			Igeneroso@sandiego.gov		anartment			C17	BMP Implementation Requirements Met	ementation to DWR in t(Non MOU	Signatories) (3)	1		1	1		1	I
9			is the UWM Plan Deemed Complete by DWR?			E-mail:	ľ	Wholesaler (List Below) Citv of San Diego Public Utilities Denartment			C16	P Implementa	Date of BMP Report Submitted to CUWCC for (2007-2008)	(MOU Signatories)	1/13/2009	1/13/2009	1/13/2009	1/13/2009		1/13/2009	1/13/2009
h Date			/M Plan Dee			619.533.5258		Wholesal San Diego Pi	5		C15	BM	ant	Yes/No	I	1	Yes	Yes		1	I
11 Alen	/	2	Is the UW					City of S			C14		cuwcc mou Requirement Met: Retailer	Yes/No	No	Yes	Yes	Yes		res	No
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tle of Signate			Vater Manag	Department	P 41	Luis Generoso		Retailer (List Below) City of San Diego Public Utilities Department			*C6	BMP Implemented by Retailers and/or Wholesalers / BMP	Wholesaler Regional Vescalor		1	1	Yes	Yes	1		1
Enoso			05 Urban V	lic Utilities I	IRWM	Name:		Retailer (Diego Pui			C5	BMP Retailers	Retailer VasA/to			601	Yes	Yes	Yes		res
LUI S GENEROS Title of Signatory PR09. MC		Proposal Identification Number:	Has Urban Water Supplier submitted a 2005 Urban Water Management Plan? Yes/No	City of San Diego Public Utilities Department	SAN DIGED	Applicant's Contact Information:		City of San			C4		a M M	Water Survey gle/Multi- Residential	BMP 2 Residential	BMP 3 System Water Audits, Leak	Detection	BIMP 3 LEaK Repairs	Commodity Rates for All New connections	BMP 4 Retrofit of Existing Connections	
signatory	Application pate:	dentificati	Water Su			s Contact	ts:				8		BMPs required for Retail Sumiler				<u> </u>		× 0.4	<u> </u>	
Name of Signatory_	Applicat	Proposal	Has Urbar	Applicant Name:	Project Title:	Applicant's	Participants:				C1 C2		BMPs required for Wholesale i Subblier				> >				

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C16	P Implementa	Date of BMP Report Submitted to CUWCC for (2007-2008) (MOU Signatories)	1/13/2009	1/13/2009	1/13/2009	1/13/2009		1/13/2009	1/13/2009	1/13/2009	000012111	0000/01/1	1/13/2009	achieved using o
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C14		CUWCC MOU Requirement Met: Yes/No	ĝ	Yes	Yes	Yes		No	1	Yes	Yes	Apr V	Yes	t which they
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C12	BMP Is Exempt (2)	Lack of Funding	J	I	1	I		1	I	1	I	1	1	qual or grea
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C5	BMP Retailers	Retailer Yes/No	Yes	Yes	Yes	Yes		Yes	1	Yes	Yes	Yes	Yes	ing water to n alternative pro/mou/exh
C4		BMPs	BMP 5 Large Landscape Conservation Programs and Incentives	BMP 6 High- Efficiency Washing Machine Rebate Programs	BIMP / Public	Education	programs for programs for Commercial, Industrial, and	Accounts	Agency Assistance Programs BMD 11 Construction	Pricing	BMP 12 Conservation Coordinator	BMP 13 Water Waste Prohibitions	BMP 14 Residential ULFT Replacement Programs	*C8: Wholesaler may also be a retailer (supplying water to end water users) *C8, **C9, **, and C10: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list. (1) For details, please see: http://www.cuwcc.org/mon/exhibit.1.htmo.definitions.schedulos.com/com.do
ទ		BMPs required for Retail Supplier	<u> </u>	<u> </u>	>	>		<u>- 4 c</u>		<u>, </u>	<u> </u>	× 10		*, and C10 s, please se
		BMPs required for Wholesale Supplier			>	>			>		>			*C6: Wholes **C8, **C9, * (1) For detail:

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For details, please see: http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements aspx.
 BMP is exempt based on cost-effectiveness, lack of funding, and lack of legal authority criteria as detailed in the CUWCC MOU (3) Non MOU signatories must submit to DWR reports and supporting documents in the same format as CUWCC.

Provide Schedule, Budget, and Finance Plan to Demonstrate Commitment to Implement All BMP's to Become in Compliance with BMP Implementation - Commencing Within 1st Year of Agreement for Which Applicant Receives Funds. Self-Certification Statement: The Urban Water Supplier and its authorized representative certifies, under penalty of perjury, that all information and claims, stated in this table, regarding compliance and implementation of the BMPs, including alternative conservation approaches, and each sector and immorphant and claims, stated in this table, regarding compliant granting funds by the Funding Agency. Falsification and/or inaccuracies in AB 1420 Self Certification Statement Table 1 and Table 2 are the basis for may, at the discretion of the funding agency, result in loss of all State funds in the annihorm, the Euroding Accuracies in Such the and trainers, stated and in any supporting documents substantiating such claims

		Yes	Yes						C19							No			No			No		No		DN
		Yes/No	Yes/No						C18	of Agreement	Meets CUWCC	Coverage Yes/No				Yes			Yes	Constant and a second		Yes		Yes	/ac	103
Ĩ		2	8			And the second second			C17	ithin 1st Year o						Iternal Water Fund		1	Iternal Water Fund	Contraction of the second		ternal Water Fund			al Water	
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									δ		CUWCC 2010 Flex Track BMPs		1.11	1.12	1.13	1.20		1.30		Г		10			3.12	3.20
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Yes/No 619.533-5258 [generoso@sandiego.gov]	Name of Signatory, MLS, Grave, Grave, MLS, Grave	Name of Signatory MIS Grandory MIS Grandory MIS, MAR Manuel of Signatory MIS, MIS, MIS, MIS, MIS, MIS, MIS, MIS,	Name of Signatory, LMS, CAMPLOCATILe of Signatory PML, MAR Signature of signatory Application Date: CUWC Member? Yerko Application Number: CUWC Member? Yerko Proposal Identification Number: CUWC Member? Yerko Applicating Current: CUWC Member? Yerko Cumpor CUWC Member? Yerko Applicating Current: State UNM Plan Deemed Complete by DWR? Yerko Applicating Current: CUWC Member? Yerko Applicating Current: State UNM Plan Deemed Complete by DWR? Yerko Applicating Current: Currentson CUWC Member? Yerko Applicating Current Cu	Name of Signatory. MIS. GMMS. Publ. MIS., M	Nume of Signaton, MLS GERMENCR, of Signatory PULL, MGR Signature of signatory Multimeter of signatory Multimeter of signatory Multimeter of signatory Multimeter Date. 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MCM: Constrained in Synthesis and Sy	Run of Signatory ML Charles ML Ch

Appendix 13-1: AB 1420 and Water Meter Forms

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	Funds Requested, if Available (See AB 1420 Compliance	Table 3) Yes/No				No		No
f Agreement	Meets CUWCC	Coverage Yes/No				Yes		(es
ithin 1st Year o		Implement BMPs			Internal Water		and the local states	Iternal Water Fund
o Commence w				A Designed and the second second second second second second second second second second second second second s		Jun-20 \$400,000 annually Fund		Jun-20 \$330,000 annually Internal Water Fund Yes
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	IAPs IAPs	BMP 6 High-Efficiency Washing Machine Rebate Programs	BMP 14 Residential ULFT Replacement Programs	4. Commercial, Industrial, Institutional	for Commercial, Industrial, and Institutional (CII) Accounts		BMP 5 Large Landscape	Conservation Programs and Incentives
	BMPs required for Retail Supplier BN	M III	< Bi	cial, Industi		je l	B	ž <u>ř</u>
	Ps uired olesale			4. Commer		5. Landscape		
	BMPs BMPs CUWCC required 2010 Flex for Track Wholesal BMPs Supplier	3,30	3.40		4.00			5.00

*C6: Wholesaler may also be a retailer (supplying water to end water users)
*C9, ** C10, and **C11: Agencies choosing an alternative conservation approach are responsible for achieving water savings equal or greater than that which they would have achieved using only BMP list.
(1) For details, please see http://www.cuwcc.org/mou/exhibit-1-bmp-definitions-schedules-requirements aspx.
(2) BMP is exempt based on cost-effectiveness, lack of funding, or lack of legal authority, as detailed in the CUWCC MOU.

California State Water Resources Control Board California Department of Water Resources California Department of Public Health







CERTIFICATION FOR COMPLIANCE WITH WATER METERING REQUIREMENTS FOR FUNDING APPLICATIONS

Funding Agency name: Department of	Water Resources
Funding Program name: Integrated Re	egional Water Management Grant Program
Applicant (Agency name): San Diego (County Water Authority
Project Title (as shown on application fo	rm): San Diego IRWM Implementation Grant
Proposal (January 2011)	

Please check one of the boxes below and sign and date this form.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

Ken Weinberg

Name of Authorized Representative (Please print)

Director of Water Resources

Signature

Date

March 2010

Recycled Paper

California State Water Resources Control Board California Department of Water Resources California Department of Public Health







CERTIFICATION FOR COMPLIANCE WITH WATER METERING REQUIREMENTS FOR FUNDING APPLICATIONS

Funding Agency name: Department of Water Resources	
Funding Program name: Prop 84	
Applicant (Agency name): Olivenhain Municipal Water District	
Project Title (as shown on application form):	North San Diego County Regional
Recycled Water Project	

Please check one of the boxes below and sign and date this form.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

Kimberly A. Thorner

(Please print)

General Manager

Kumbulg & Morner Signature 12/6/10

Name of Authorized Representative

Title

March 2010

Recycled Paper

California State Water Resources Control Board California Department of Water Resources California Department of Public Health







CERTIFICATION FOR COMPLIANCE WITH WATER METERING REQUIREMENTS FOR FUNDING APPLICATIONS

Funding Agency name: Department of Wa	ater Resources
Funding Program name: Integrated Regional Water Management Grant Program	
Applicant (Agency name): City of San Diego, Public Utilities Department	
Project Title (as shown on application form)	: San Diego IRWM Implementation Grant
Proposal (January 2011)	

Please check one of the boxes below and sign and date this form.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the agency is not an urban water supplier, as that term is understood pursuant to the provisions of section 529.5 of the Water Code.

As the authorized representative for the applicant agency, I certify under penalty of perjury under the laws of the State of California, that the applicant agency has fully complied with the provisions of Division 1, Chapter 8, Article 3.5 of the California Water Code (sections 525 through 529.7 inclusive) and that ordinances, rules, or regulations have been duly adopted and are in effect as of this date.

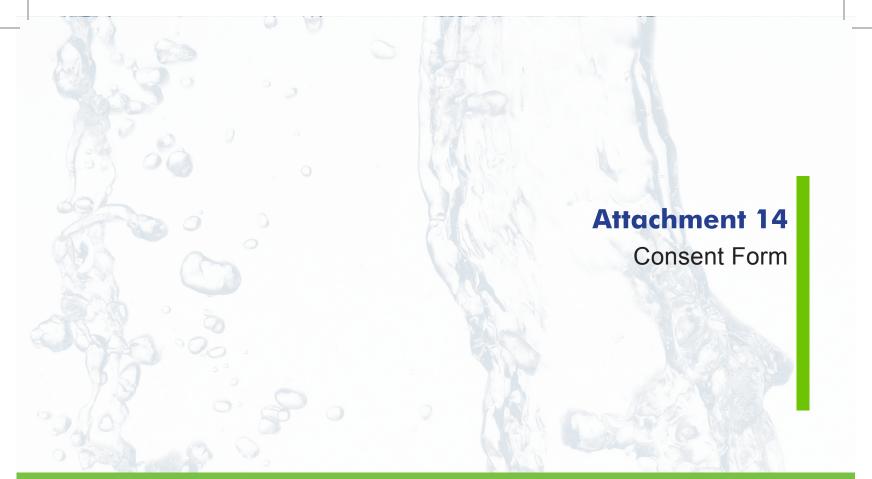
I understand that the Funding Agency will rely on this signed certification in order to approve funding and that false and/or inaccurate representations in this Certification Statement may result in loss of all funds awarded to the applicant for its project. Additionally, for the aforementioned reasons, the Funding Agency may withhold disbursement of project funds, and/or pursue any other applicable legal remedy.

Marsi A. Steirer Name of Authorized Representative (Please print)

Deputy Public Utilities Department Director Title

Signature

January 5, 2011 Date





Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment San Diego Integrated Regional Water Management Implementation Grant Proposal **Consent Form**

Attachment 14 consists of the following item:

Consent Form. This attachment contains a consent form that acknowledges the San Diego RWMG's commitment to enter into a binding agreement with DWR to meet the conditions detailed in Section II.B of the IRWM Grant Program Guidelines.

This attachment contains a consent form demonstrating that the San Diego RWMG acknowledges that it agrees to enter into a binding agreement with DWR to update, within two years of the execution date of the Implementation Grant Agreement (assumed June 1, 2011), to meet the IRWM Plan Standards contained in the IRWM Grant Program Guidelines. Further, the RWMG acknowledges that it has undertaken all reasonable and feasible efforts to take into account water-related needs of DACs within the San Diego IRWM region. The outreach mechanisms that the RWMG used to engage DACs in the project solicitation and selection process for this San Diego IRWM Implementation Grant Proposal are described in Attachment 12.



Appendix 14-1: SDCWA Consent Form IRWM Plan Update

Applicant: Mark Stadler, San Diego County Water Authority

IRWM Region: San Diego IRWM Region

RWMG: San Diego RWMG – San Diego County Water Authority, City of San Diego, and County of San Diego

Date of Adoption: October 25, 2007

As the authorized representative of the above-referenced RWMG, I acknowledge and affirm that the RWMG is utilizing an IRWM Plan that was adopted on or before September 30, 2008, to meet part of the grant Eligibility Criteria for the Round 1, Proposition 84 IRWM Grant Program, Implementation Grant solicitation.

I also acknowledge that the RWMG understands that it must enter into a binding agreement with DWR to update, within two years of the execution date of the grant agreement, the IRWM Plan to meet the IRWM Plan standards contained in the Guidelines; and to undertake all reasonable and feasible efforts to take into account water-related needs of disadvantaged communities in the area within the IRWM region.

I further acknowledge that the RWMG understands that failure to meet the condition listed above may result in termination of the grant agreement by DWR and that DWR may demand the immediate repayment to State of an amount equal to the amount of grant funds disbursed to Grantee prior to such termination.

Mark Stadler

Name of Authorized Representative

Principal Water Resources Specialist

Title

Mark SC

Signature

Dec. 17, 2010

Date

Attachment 15

Reduce Delta Water Dependence



Implementation Grant, Round 1

San Diego IRWM Implementation Grant Proposal

Attachment San Diego Integrated Regional Water Management Implementation Grant Proposal Reduce Delta Water Dependence

Attachment 15 consists of the following item:

- Summary of IRWM Plan Relating to Reducing Delta Water Dependence. This attachment describes how the San Diego IRWM Plan will reduce dependence on the Sacramento-San Joaquin Delta for water supply.
- Assurances that IRWM Plan Update Will Continue Reducing Delta Water Dependence. The San Diego RWMG is committed to ongoing implementation and revision of the IRWM Plan in ways that continue to reduce dependence on the Sacramento-San Joaquin Delta.

This attachment summarizes the portions of the San Diego IRWM Plan (Plan) that reduce dependence on the Sacramento-San Joaquin Delta for water supply and documents relevant Plan excerpts to support this summary.

Summary of IRWM Plan Relating to Reducing Delta Water Dependence

The San Diego IRWM Plan addresses reduced water supply dependence on the Sacramento-San Joaquin Delta water in three key areas:

- 1) IRWM Plan Objectives (Section C);
- IRWM Plan Benefits (Section H); and
- 3) Selection of the Tier 1 projects that reduce the region's reliance on imported water (Section L).

These three areas are described below with Plan excerpts provided for support and documentation.

IRWM Plan Objectives Relating to Reducing Delta Water Dependence

One of the nine objectives of the San Diego IRWM Plan, Objective D, is to "Develop and maintain a diverse mix of water resources" in order to reduce dependence on imported water supplies. The presentation of that objective includes eight designated targets for the region in achieving that objective. as shown in the excerpt below from Section C: Vision, Mission, Goals and Objectives.

Section C: Vision, Mission, Goals and Objectives (pages C-8 to C-10)

Objective D: Develop and maintain a diverse mix of water resources.

Continue to develop diverse water resources to meet the local supply and conservation goals identified in the Region's local water plans, and reduce dependence on imported water supplies and avoid shortages during drought periods. The diverse mix of water resources being developed includes water transfers, recycled water, water conservation, seawater desalination, local surface water, and groundwater.

The focus of this objective is to meet the requirements of Goal 1 (optimize local water supply reliability). The Region's approximate population of three million and the Region's economy (gross regional product of more than \$160 billion, as shown in Table B-7) are both dependent upon a reliable water supply.

Determination and Rationale for Objective D. As documented within the California Water Plan Update 2005 (DWR, 2005), water allocation, environmental, and hydrologic constraints present significant challenges to the sustainability of historic State Water Project and Colorado River supplies, particularly during long-term droughts. Additionally, the Region's reliance on Metropolitan water supplies renders the region vulnerable to short-term reliability issues (e.g., earthquake,

landslides, terrorism). Water demands within the region are also expected to increase, based on SANDAG's Regional Growth Forecast despite conservation efforts (see Table B-28 on page B-67).

During the last major drought in California (1987-1992), the Region was over 90 percent reliant on supplies from Metropolitan. As a result of the drought, however, Metropolitan ordered a 50 percent cutback of the Region's imported supplies. The results of Metropolitan's cutback would have been devastating to the businesses and residents in the Region except for a late season "Miracle March" rainfall that allowed Metropolitan to roll back its proposed imported water reductions from 50 to 31 percent. Even at this level the Region was impacted more than other regions in Southern California because of its high dependence upon imported supplies from Metropolitan.

Since the 1987-1992 drought, the Water Authority and its member water supply agencies adopted plans and policies to diversify the Region's supplies and reduce reliance on a single supply source. Diversification of regional water portfolios is also a key element of Initiative (see pages A-3 and A-4) of the *California Water Plan Update 2005* (DWR, 2005). Maximizing development of local supplies is a key objective of the Water Authority's *Updated 2005 Urban Water Management Plan* and in water management plans developed by the Region's water supply agencies. Objective D is consistent with these plans and policies.

Water conservation (reducing water demand and use) is the Region's most cost effective option, and is a central component of the Region's diversification program. Significant progress in water conservation has resulted in over 50,000 acre-feet of water savings within the region, and forecasted water conservation within the region is projected to result in water savings of more than 100,000 acre-feet per year by 2030 (see Table B-29 on page B-70).

Objective D Targets. Table C-4 presents quantifiable Objective D targets established by the RWMG with input from the RAC. Objective D targets were derived from the water supply targets and goals within water plans of the Water Authority and County.

Table C-4 Designated Targets for Achieving IRWM Plan Objective D Develop and Maintain a Diverse Mix of Water Resources

Targets for Measuring Progress Toward Achieving Objective D1

- 1. Increase water conservation savings from about 51,090 AFY in 2006 to at least 79,960 AFY by 2010 and 108,400 AFY by 2030.
- Increase seawater desalination capability within the region from zero AFY to 34,690 AFY by 2015
- 3. Increase recycled water use from about 14,830 AFY in 2006 to 33,670 AFY by 2010 and 47,580 AFY by 2030.
- 4. Increase groundwater supply within the Water Authority service area from about 14,960 AFY in 2006 to 28,580 AFY by 2010 and 31,180 AFY by 2030.
- 5. Implement Colorado River conservation and transfer programs, increasing deliveries from 35,000 AFY in 2006 to 277,700 AFY by 2030.
- 6. Include an analysis in the Water Authority 2010 Urban Water Management Plan that assesses the effect of climate change on future water supplies.
- 7. Develop and implement regional drinking water source protection guidelines for the Region by 2012.
- 8. Meet groundwater supply and water quality objectives identified in the County's General Plan 2020 for groundwater-dependent communities by 2012.

¹ IRWM Plan objective targets developed by the RWMG and RAC IRWM Plan objective targets developed by the RWMG and RAC to be collectively achieved by the Region's IRWM institutional structure, government agencies, non-government organizations, and stakeholders. Targets are from Water Authority's Fiscal Year 2006 Annual Report (Water Authority, 2007).

The numerical targets for Objective D (water supply diversity) address water conservation, seawater desalination, recycled water use, groundwater use, water transfers, climate change effects, and drinking water source protection. The targets also address sustaining water supply in groundwater-dependent areas of the Region.

IRWM Plan Benefits Relating to Reducing Delta Water Dependence

The IRWM Plan lists reduced Delta water dependence as one of the inter-regional benefits of implementing proposed Tier 1 projects that focus on water conservation, groundwater, water transfer, desalination and recycled water, as presented in *Section H: Impacts and Benefits*:

Section H: Impacts and Benefits (page H-11)

H.3 Inter-Regional Benefits and Impacts

Tier 1 projects proposed as part of this IRWM Plan help implement recommendations presented in the *Updated 2005 Urban Water Management Plan*. Implementation of proposed Tier 1 water conservation, groundwater, water transfer, desalination, and recycled water projects within the Region are projected to result in a decreased demand for State Water Project and Colorado River supplies within the next 20 years. (As shown in Tables B-30 and B-31 on pages B-72 and B-73, this overall decline in imported water needs is forecast both for normal year and for drought conditions.)

Reduced dependency of the Region on imported water supplies will, in turn, reduce needs for Bay-Delta waters delivered through the State Water Project. This reduction in imported water need, in concert with other statewide programs, will help implement the following two objectives established as part of the CALFED Bay Delta Program for Bay-Delta waters:

- Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species. (CALFED, 2000)
- Reduce the mismatch between Bay-Delta water supplies and current and projected beneficial uses dependent on the Bay-Delta system. (CALFED, 2000)

Reducing the Region's dependence on imported water will also result in inter-regional benefits associated with reductions in capacity and flows within the State Water Project, Colorado River Aqueduct, and Metropolitan conveyance, treatment, and storage facilities. Populations within Riverside County, in particular, will benefit from reductions in the Region's capacity needs at Metropolitan's Lake Skinner Water Filtration Plant. Such a reduction in treated water needs (both as a result of reduced imported water demands and as a result of increased local water treatment capacity) will free treatment capacity within the Lake Skinner facility that will be required to serve significant growth increases within Riverside County.

Selection of Tier 1 Projects That Reduce Delta Water Dependence

According to Section L: Statewide Priorities of the Plan, over 30 IRWM implementation projects would help achieve the CALFED Bay-Delta goal of reducing the Region's reliance on imported water from the Sacramento-San Joaquin Bay Delta by increasing local supply or resulting in demand reduction. As noted above, these projects focus on water conservation, groundwater, water transfer, desalination and recycled water.

Section L: Statewide Priorities (pages L-5 to L-6)

L.3 Conformance of Tier I Projects with Statewide Priorities

Appendix 12 summarizes conformance of the proposed Tier I water management projects with statewide priorities. A general description of how these projects conform to the statewide priorities is presented below.

...

CALFED Goals and Water Quality Objectives. Tier 1 projects that increase local supply or result in demand reduction (water use efficiency) will help to achieve CALFED Bay-Delta goals and water quality objectives by reducing the Region's reliance on imported water from the Bay-Delta. More than 20 Tier 1 projects (see Appendix 12) would help achieve CALFED Bay-Delta water quality objectives, and over 30 projects would help achieve CALFED Bay-Delta goals.

Assurances that IRWM Plan Update Will Continue Reducing Delta Water Dependence

The San Diego RWMG is committed to updating the Plan within two years of execution of the Implementation Grant Agreement (estimated June 1, 2011) to meet the IRWM Plan Standards contained within the 2010 IRWM Grant Program Guidelines (refer to Attachment 14). As such, the RWMG anticipates updating the San Diego IRWM Plan by June 1, 2013. Due to an increasing importance of issues involving water supply availability and reliability in the Delta, and the reflection of that importance within the Guidelines, the IRWM Plan update will include an increased emphasis on helping to reduce San Diego region's dependence on the Sacramento-San Joaquin Delta for water supply through expansion of local supply sources.