

Attachment 4

Budget



San Diego Region Implementation Grant Proposal

ATTACHMENT 4: Budget

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TOTAL PROPOSAL COST ESTIMATE

As described in Attachment 3, the San Diego Implementation Grant Proposal involves implementation of four high priority programs to meet the region's water management needs including:

- Conservation
- Water Recycling
- Local Supply Protection and Development
- Education and Outreach

The total cost to implement this proposal is **\$378,892,694**. Of this amount, **\$353,162,718** (~93%) is provided as funding match, and **\$25,000,000** is being requested from the State through the IRWM Grant Program.

Project administration costs included in this proposal include those costs required to administer, manage, and report on each individual project. In addition, the Regional Advisory Committee agreed that all project proponents will set aside three percent of their recommended grant allocation for the Regional Water Management Group (the San Diego County Water Authority, the City of San Diego, and the County of San Diego) to administer the grant contract. This amount totals \$750,000, and is based on one administrative assistant at each agency (\$90/hr) working 68 hours per month for 3 years and one accountant (\$150/hr) working 30 hours per month for 3 years.

Project administration costs for individual projects are described in detail in the individual project budgets.

Table 8 presents the overall cost of proposal implementation. Detailed cost estimates for each project contained in the proposal follow. The specific work items shown in Attachments 3 and 5 are reflected in the detailed cost estimates.

Table 8 – Budget, 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: Summary Budget						
Budget Category		Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$3,890,570	\$868,713	\$4,759,283	
(b)	Land Purchase/Easement	\$0	\$1,109,236	\$2,012,906	\$3,122,142	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$10,401,178	\$5,114,750	\$15,515,928	
(d)	Construction/Implementation	\$729,976	\$233,525,908	\$15,461,136	\$249,717,020	
(e)	Environmental Compliance/ Mitigation/ Enhancement	\$0	\$4,981,600	\$99,930	\$5,081,530	
(f)	Construction Administration	\$0	\$7,413,720	\$953,325	\$8,367,045	
(g)	Other Costs	\$0	\$34,299,581	\$203,800	\$34,503,381	
(h)	Construction/Implementation Contingency	\$0	\$57,540,925	\$285,440	\$57,826,365	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$729,976	\$353,162,718	\$25,000,000	\$378,892,694	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$353,162,718		\$378,892,694	93%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>See Individual Project Cost Estimates *The Total Cost of the entire proposal includes \$729,976 of other expected and received state funding not included in the Funding Match total.</i>				
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.

CONSERVATION PROGRAM

Work Item #1: Implementation of Integrated Landscape and Agricultural Efficiency Programs

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Implementation of Integrated Landscape and Agricultural Efficiency Programs</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$316,800	\$62,505	\$379,305	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d)	Construction/Implementation	\$729,976	\$2,374,103	\$1,971,050	\$5,075,129	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$0	\$49,950	\$49,950	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$729,976	\$2,690,903	\$2,083,505	\$5,504,384	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$2,690,903		\$5,504,384	49%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>Water Authority In-Kind Services, Water Authority Incentives, Water Authority Funds, MWD Incentives, USBR Incentives</i>				
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.						

Table 1-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 1A	Direct Project Administration	\$379,305
	Proposal Administration	\$62,505
1A.1	Project Management	\$312,000
1A.2	Quarterly and Final Reports	\$4,800
Task 1D	Construction/Implementation	\$5,075,129
1D.1	Agricultural Efficiency and Research	\$480,000
1D.2	Web-Driven Water Budget Program and Implementation Assistance	\$1,443,679
1D.3	Commercial, Multifamily, Institutional, Public and Residential Landscape Irrigation Retrofits	\$2,006,000
1D.4	Branding Outreach and Education	\$775,500
1D.5	Regional Landscape Model Ordinance Support	\$170,000
1D.6	Landscape Conservation Research and Development	\$199,950
Task 1G	Other Costs	\$49,950
1G.1	Preparation of PAEP	\$49,950
	Grand Total	\$5,504,384

Row (a) Direct Project Administration Costs

The total direct project administration costs are \$316,800.

- **Subtask 1A.1 Project Management.** This includes the cost for project management. It is based on a formula used by the San Diego County Water Authority (Water Authority) to calculate Project Management costs: [$\frac{1}{4}$ FTE (Full Time Employee) x 2080 hrs x 2.4 (Indirect cost rate) x 5 year term of IRWM grant x \$50/hr] = \$312,000.
- **Subtask 1A.2 Quarterly and Final Reports.** This includes the cost for preparing quarterly and final reports. This is based on 20 reports @ \$240/report = \$4800.

Row (b) Land Purchase/Easement

Not applicable

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

Not applicable

Row (d) Construction/Implementation

The total implementation costs for the project are \$5,075,129.

- **Subtask 1D.1 Agricultural Efficiency and Research.** The total cost for this subtask is \$480,000. The costs are broken down by components below:
 - Agricultural Audits: 250 mini audits will be conducted at a cost of \$500 each for a total of \$125,000. 125 full audits will be conducted at a cost of \$1,000 each for total of \$125,000. This cost is based on historical experience with contractors. The Water Authority will adaptively manage this grant to ensure varying customer needs are met.

- Agricultural Assessment: Assessment of existing agriculture using aerial imagery was performed by SDCWA staff. Remaining work will be completed by consultant for \$100,000. This was based on 500 hrs @ \$150/hr +\$25,000 for expenses.
- Agricultural Efficiency Research: Funds available for research = \$80,000. The amount will fund research projects of varying amounts (Note: the Water Authority has cost estimate experience from funding prior research projects).
- Agricultural Audit Savings Evaluation: This is based on 250 consultant hrs (hrs) @ \$150/hr +\$12,500 for expenses = \$50,000.
- **Subtask 1D.2 Web-Driven Water Budget Program and Implementation Assistance.** The total cost for this subtask is \$1,443,679. The costs are broken down by components below:
 - Web Driven Water Budget Software, Imagery Classification and Measurement Tool: \$440,774.
 - \$194,000 for system and software design, pilot testing, website launch, training and knowledge transfer, quarterly hosting for first year. Based on contract with consultants.
 - \$24,000 for 2nd year of web hosting. Based on continuing hosting from initial contract.
 - \$10,000 for imagery classification. Based on consultant contract.
 - \$75,000 for additional enhancements. (Based on experience with prior contract).
 - \$137,744 for imagery classification and other software needs.
 - Water Budget Implementation Incentives: \$927,935.
 - \$285,870 for Landscape Intern Contract.
 - \$642,065 for mini-audits, direct agency incentives or as needed to implement water budgets (costs per site vary). The Water Authority will adaptively manage this grant to ensure funds are used to generate the highest savings feasible.
 - Water Budget Feasibility Study for Mixed Meter Sites: \$75,000. Based on experience with previous consultant contracts for similar work.
- **Subtask 1D.3 Commercial, Multifamily, Industrial, Institutional, Public and Residential Landscape Retrofits.** The total cost for this subtask is \$2,006,000. The costs are broken down by components below (additional supporting detail is found in Appendix 4.1 at the end of this attachment):
 - Commercial, Multifamily, Industry, Institutional and Public Sites Irrigation Retrofits: 250 sites @ estimated average of \$6,796/site (actual costs will vary per site) = \$1,699,000
 - Residential Irrigation Retrofits: \$307,000. 85 sites @ estimated average of \$3,611/site (actual costs will vary per site)
- **Subtask 1D.4 Branding Outreach and Education.** The total cost for this subtask is \$775,500. The costs are broken down by components below:
 - Website Content and Graphics Redevelopment: \$25,950 (173 consultant hrs @ \$150/hr)
 - Marketing Materials Redevelopment: \$24,000 (3 programs + reproduction)
 - Outreach: \$100,050 (667 consultant hrs @ \$150/hr)
 - Ongoing Branding Contract: \$170,550
 - Marketing/Website: \$50,000 (Based on experience)
 - Landscape Program Outreach: \$39,950 (\$10,000 for development + \$10,000 for reproduction + 133 hrs @ \$150/hr = \$19,950 for consultant outreach)
 - Water Conservation Garden: \$200,000
 - Homeowner Landscape Contest: \$50,000
 - San Diego County Fair Outreach: \$20,000
 - Landscape Awards: \$20,000
 - North County Garden Outreach: \$75,000

- **Subtask 1D.5 Regional Landscape Model Ordinance Support.** The total cost for this subtask is \$170,000. The costs are broken down by components below:
 - Adoption and Implementation Assistance: \$75,000 (325 consultant hrs @\$150 hr +\$26,250 expenses)
 - Retrofit of Strategic Sites: \$95,000 (average incentive per site approximately \$15,000)
- **Subtask 1D.6 Landscape Conservation Research and Development.** The total cost for this subtask is \$199,950.
 - Various research studies:\$150,000 (1,000 consultant hrs @ \$150/hr)
 - Water savings modeling : \$49,950 (333 consultant hrs @\$150/hr)

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 1G.1 Preparation of PAEP. The cost for development of a PAEP is estimated to be \$49,950. This is based on 333 consultant hrs @ \$150/hr = \$49,950.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project, \$5,504,384, was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 49%.

Work Item #2: Irrigation Hardware Giveaway and Dry Weather Runoff Reduction Demonstration

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Irrigation Hardware Giveaway and Dry Weather Runoff Reduction Demonstration</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$47,046	\$37,634	\$84,680	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$114,000	\$114,000	
(d)	Construction/Implementation	\$0	\$326,082	\$971,046	\$1,297,128	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$0	\$0	\$0	
(h)	Construction/Implementation Contingency	\$0	\$5,000		\$5,000	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$378,128	\$1,122,680	\$1,500,808	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$378,128		\$1,500,808	25%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>City of San Diego SWPPP matching funds, City of San Diego In-Kind, Water Authority Incentives, MWD Incentives</i>				
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.						

Table 2-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 2A	Direct Project Administration	\$84,680
	Proposal Administration	\$33,680
2A.1	Project Management	\$34,500
2A.2	Final Reports	\$16,500
Task 2C	Planning/Design/Engineering/Environmental Documentation	\$114,000
2C.1	Runoff Reduction Demonstration: Design	\$24,000
2C.2	Runoff Reduction Demonstration: Preoptimization Field Testing/Inspection/Analysis	\$90,000
Task 2D	Construction/Implementation	\$1,297,128
2D.1	Irrigation Hardware Giveaway: Outreach and Marketing	\$90,528
2D.2	Irrigation Hardware Giveaway: Residential and Commercial Surveys and Verifications	\$320,000
2D.3	Irrigation Hardware Giveaway: Residential and Commercial WBICs	\$412,000
2D.4	Irrigation Hardware Giveaway: Residential and Commercial Hardware Irrigation Retrofits	\$220,000
2D.5	Runoff Reduction Demonstration: Media/Public Outreach/Education	\$10,000
2D.6	Runoff Reduction Demonstration: Landscape Contractor Selection	\$10,000
2D.7	Runoff Reduction Demonstration: Irrigation Optimization for 50 Homes	\$75,000
2D.8	Runoff Reduction Demonstration: Before and After Residential Surveys	\$29,600
2D.9	Runoff Reduction Demonstration: Residential WBICs	\$20,000
2D.10	Runoff Reduction Demonstration: Other Irrigation Hardware	\$10,000
2D.11	Runoff Reduction Demonstration: California Friendly Plants	\$10,000
2D.12	Runoff Reduction Demonstration: Post Optimization Field Testing/Inspection/Analysis	\$90,000
Task 2G	Other Costs	\$5,000
2G.1	Preparation of PAEP	\$5,000
	Grand Total	\$1,500,808

Row (a) Direct Project Administration Costs

The total cost for Direct Project Administration is \$51,000. It is based on the following:

- **Subtask 2A.1 Project Management.** The total cost for this subtask is \$34,500. It is based on 265 hrs of staff labor @ \$100/hr + \$8,000 for non-personnel expense (media, mileage, equipment etc.).
- **Subtask 2A.2 Final Report.** The total cost for this subtask is \$16,500. This cost is for preparation of final reports. It is based on 220 hrs of staff labor @ \$75/hr = \$16,500.

Row (b) Land Purchase/Easement

Not applicable

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

The total cost for Planning/Design/Engineering and Environmental Documentation is \$114,000. It includes the following:

- **Subtask 2C.1 Runoff Reduction Demonstration: Design.** The total cost for this subtask is \$24,000. It is based on the following:
 - Project Design/Development/Approval Process: \$15,000 (200 analyst hrs @\$75/hr)
 - Storm Drain Zones Identification: \$4,500 (60 analyst hrs @\$75/hr)
 - Participant Identification: \$4,500 (60 analyst hrs @\$75/hr)
- **Subtask 2C.2 Runoff Reduction Demonstration: Preoptimization Field Testing/Inspection/Analysis.** The total cost for this subtask is \$90,000. This is estimated at 450 hrs of consultant labor @ \$200/hr (cost for consultant is currently undetermined).

Note: All or portions of subtasks may be performed by a consultant.

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$1,297,128. This is based on the following:

- **Subtask 2D.1 Irrigation Hardware Giveaway: Outreach and Marketing.** The total cost for this subtask is \$90,528. It is based on 700 hrs staff labor @\$100/hr + \$20,528 for expenses.
- **Subtask 2D.2 Irrigation Hardware Giveaway: Residential and Commercial Reviews and Verifications.** The total cost for this subtask is \$320,000. It assumes that the following surveys and verifications will occur:
 - Residential: 600 sites @\$200/site = \$120,000
 - Commercial: 100 sites @\$2,000/site = \$200,000
- **Subtask 2D.3 Irrigation Hardware Giveaway: Residential and Commercial WBICs.** The total cost for this subtask is \$412,000. It assumes that WBICs would be given away:
 - Residential WBICs: 600 WBICs @\$400/unit= \$240,000
 - Commercial: 100 WBICs @\$1,720/unit = \$172,000
- **Subtask 2D.4 Irrigation Hardware Giveaway: Residential and Commercial Hardware Irrigation Retrofits.** The total cost for this subtask is \$220,000. It assumes that the following retrofits would occur:
 - Residential Retrofits: 600 Retrofits @\$200/unit= \$120,000
 - Commercial: 100 Retrofits @\$1,000/unit = \$100,000
- **Subtask 2D.5 Dry Weather Runoff Reduction Demonstration: Media/Public Outreach/Education.** The total cost for this subtask is \$10,000. It is based on approximately 120 hrs of staff labor @ \$75/hr + materials expense of \$1,000.
- **Subtask 2D.6 Dry Weather Runoff Reduction Demonstration: Landscape Contractor Selection.** The total cost for this subtask is \$500. It is based on 4.5 hrs of staff labor @\$100/hr + \$50 for materials and printing.
- **Subtask 2D.7 Dry Weather Runoff Reduction Demonstration: Irrigation Optimization for 50 Homes.** The total cost for this subtask is \$75,000. It assumes that optimization will be performed for 50 sites @ \$1,500/site.
- **Subtask 2D.8 Dry Weather Runoff Reduction Demonstration: Before and After Residential Surveys.** The total cost for this subtask is \$29,600. This is based on an average cost of \$592 per site to perform 50 surveys and follow up assessments.

- **Subtask 2D.9 Dry Weather Runoff Reduction Demonstration: Residential WBICs.** The total cost for this subtask is \$20,000. This is based on providing Residential WBICs to 50 sites @ \$400 per WBIC.
- **Subtask 2D.10 Dry Weather Runoff Reduction Demonstration: Other Irrigation Hardware.** The total cost for this subtask is \$10,000. This is based on providing irrigation hardware to 50 sites that averages \$200 per site.
- **Subtask 2D.11 Dry Weather Runoff Reduction Demonstration: California Friendly Plants.** The total cost for this subtask is \$10,000. This is based on providing \$200 worth of palletes of plants to 50 sites.
- **Subtask 2D.12 Dry Weather Runoff Reduction Demonstration: Post Optimization Field Testing/Inspection/Analysis.** The total cost for this subtask is \$90,000. This is based on 450 hrs of consultant labor @ \$200/hr.

Note: All or portions of subtasks may be performed by a consultant. Installation services by a contractor will be considered in work efforts associated with Subtasks 2.D.3 and 2.D.4.

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 2G.1 Preparation of PAEP. The cost for this subtask is \$5,000. This is based on 50 staff hrs @ \$100/hr.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$1,500,808) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 25%.

Work Item #3: Over-Irrigation/Bacteria Reduction

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Over-Irrigation/Bacteria Reduction</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$7,650	\$10,934	\$18,584	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d)	Construction/Implementation	\$0	\$67,245	\$198,075	\$265,320	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$8,975	\$22,950	\$31,925	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$83,870	\$231,959	\$315,829	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$83,870		\$315,829	27%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>City of Encinitas In-Kind Services, City of Solana Beach In-Kind, City of Escondido In-Kind, Olivenhain MWD In-Kind, Water Authority Rebates, MWD Incentives</i>				
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.						

Table 3-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 3A	Direct Project Administration	\$18,584
	Proposal Administration	\$6,958.76
3A.1	Project Administration/Management	\$7,650
3A.2	Quarterly and Final Reporting	\$3,975
Task 3D	Construction/Implementation	\$265,320
3D.1	Source/Site Identification	\$2,400
3D.2	Water Quality Monitoring	\$57,900
3D.3	Flow Monitoring	\$32,700
3D.4	Implement Water Conservation Program	\$83,520
3D.5	Program Monitoring and Maintenance	\$18,000
3D.6	Data Analysis and Assessment of Load Reduction/Reporting	\$70,800
Task 3G	Other Costs	\$31,925
3G.1	Preparation of PAEP	\$1,500
3G.2	Preparation of MP	\$17,325
3G.3	Preparation of QAPP	\$10,200
3G.4	Public Outreach and Education	\$2,900
	Grand Total	\$315,829

Row (a) Direct Project Administration Costs

Direct Program Administration costs total \$11,625. They consist of the following:

- **Subtask 3A.1 Project Administration/Management.** Estimated as 102 hrs (4.25 hrs/month for 24 months) @ \$75/hr = \$7,650.
- **Subtask 3A.2 Quarterly and Final Reporting.** Estimated as 53 hrs @ \$75/hr = \$3,975.

Row (b) Land Purchase/Easement

Not applicable

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

Not applicable

Row (d) Construction/Implementation

The Implementation costs for the project are estimated to be \$265,320. These costs include:

- **Subtask 3D.1 Source/Site Identification.** The cost of source/site identification is based on 32 hrs (8 sites x 4 hrs) @ \$75/hr = \$2,400.
- **Subtask 3D.2 Water Quality Monitoring.** The total cost for water quality monitoring is \$57,900. This include:
 - 184 samples (8 sites x 23 sample) @ \$300 per sample = \$55,200
 - Staff labor of 36 hrs (8 sites x 4.5 hrs) @ \$75/hr = \$2,700

- **Subtask 3D.3 Flow Monitoring.** The total cost of flow monitoring is \$32,700. This includes:
 - 8 sites @ \$3,750/site = \$30,000
 - Staff labor of 36 hrs (8 sites x 4.5 hrs) @ \$75/hr = \$2,700
- **Subtask 3D.4 Implement Water Conservation Program.** The cost of implementing the water conservation program is \$83,520. This is based on the costs of audits, WBICs and irrigation retrofits for 8 sites @ \$10,440/site on average.
- **Subtask 3D.5 Program Monitoring and Maintenance.** The cost of program monitoring and maintenance is \$18,000. It is based on 120 hrs (8 sites x 15 hrs/site) @ \$150/ hr for a consultant.
- **Subtask 3D.6 Data Analysis and Assessment of Load Reduction/Reporting.** The cost of data analysis is \$70,800. It is determined as 472 hrs (8 sites x 59 hrs/site) @ \$150/hr.

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

The total of Other Costs for the project is \$31,925. It is determined as follows:

- **Subtask 3G.1 Preparation of PAEP.** The cost of preparing a PAEP is \$1,500. This based on 20 hrs of staff labor @ \$75/hr = \$1,500.
- **Subtask 3G.2 Preparation of MP.** The cost of preparing a MP is \$17,325. This is based on:
 - 100 hrs of staff labor @\$150/hr = \$15,000
 - 31 hrs of staff labor @\$75/hr = \$2,325
- **Subtask 3G.3 Preparation of QAPP.** The cost of preparing a QAPP is \$10,200 This is based on:
 - 53 hrs of staff labor @ \$150/hr = \$7,950
 - 30 hrs of staff labor @\$75/hr = \$2,250
- **Subtask 3G.4 Public Outreach and Education.** The cost for the Public Outreach and Education effort is \$2,900. It includes initial consultation and identification of specific tasks.
 - 12 hrs of staff labor @ \$75/hr = \$900
 - 8 landscape maintenance personnel training for 5 hrs @ \$50/hr = \$2,000

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$315,829) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 27%.

WATER RECYCLING PROGRAM

Work Item #4: Santee Water Reclamation Facility Expansion Project

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: Santee Water Reclamation Facility Expansion Project						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$460,000	\$92,784	\$552,784	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$754,000	\$704,000	\$1,458,000	
(d)	Construction/Implementation	\$0	\$13,532,000	\$2,296,000	\$15,828,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$1,300,000	\$0	\$1,300,000	
(g)	Other Costs	\$0	\$30,000	\$0	\$30,000	
(h)	Construction/Implementation Contingency	\$0	\$3,924,000	\$0	\$3,924,000	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$20,000,000	\$3,092,784	\$23,092,784	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$20,000,000		\$23,092,784	87%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>Padre Dam CIP Funds, Federal Funds, Prop 84</i>				
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.						

Table 4-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 4A	Direct Project Administration	\$552,784
	Proposal Administration	\$92,783.51
4A.1	Project Management and Quarterly Report Preparation	\$460,000
Task 4C	Planning/Design/Engineering/Environmental Documentation	\$1,458,000
4C.1	Design	\$1,308,000
4C.2	Mitigated Negative Declaration (MND)	\$100,000
4C.3	NPDES Permit Revision	\$50,000
Task 4D	Construction/Implementation	\$15,828,000
4D.1	Facilities Expansion	\$15,828,000
Task 4F	Construction Administration	\$1,300,000
4F.1	Construction Administration	\$1,300,000
Task 4G	Other Costs	\$30,000
4G.1	Preparation of QAPP	\$20,000
4G.2	Preparation of PAEP	\$10,000
4G.3	Effectiveness Monitoring	\$0
	Construction Contingency	\$3,924,000
	Grand Total	\$23,092,784

Row (a) Direct Project Administration Costs

- **Subtask 4A.1 Project management and quarterly report preparation.** Direct project administration costs total \$460,000. These were calculated at 2% percent of the total project budget.

Row (b) Land Purchase/Easement

Not applicable

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

The Planning/Design/Engineering/Environmental Documentation cost for the project are estimated to be \$1,458,000. It is determined as follows:

- **Subtask 4C.1 Design.** The cost of preparing construction bid documents including plans and specifications is \$1,308,000. This cost was estimated as approximately 8.3 percent of the total construction cost (\$15,828,000).
- **Subtask 4C.2 MND.** Preparation of environmental documents and implementation costs were estimated to be \$100,000 and based on an estimate from an environmental subconsultant.
- **Subtask 4C.3 NPDES Permit Revision.** The cost for to prepare a revised NPDES permit is estimated at \$50,000. It is based on a cost estimate prepared during the feasibility study (Appendix 4, 4-1 [Disc 3]).

Row (d) Construction/Implementation

Subtask 4D.1 Facilities Expansion. The Construction/Implementation costs for the project are estimated to be \$15,828,000. Some of the construction costs line items were based on experience with similar project costs, while other line items were based on price quotes from manufacturers. These costs were determined through a preliminary opinion of probable cost, as presented in Appendix 4, 4-2 [Disc 3]. These costs are summarized in the table below.

Detailed Facilities Expansion Construction Cost Estimate Based on Preliminary Opinion of Cost

Subtask 4D.1				
Cost Item	Quantity	Unit	Unit Price	Total
General Requirements				
Mobilization, field office expenses, field personnel, temporary utilities, survey, permits, job conditions, security, inspection, scheduling, office trailers, fee, home office, overhead, etc. (5%)		ls		\$326,000
General Requirements				\$326,000
Influent Pump Station				
Concrete				
Concrete Pad		ls		\$3,200
Pump Equipment (Pump & variable frequency drive (vfd)) High Lift	1	ea	\$79,000	\$79,000
Pump Equipment (Pump & vfd) Low Lift	4	ea	\$36,000	\$144,000
Pump Installation		ls		\$89,000
Piping (Fittings, Appurtenances, & Testing)		ls		\$21,000
Influent Pump Station				\$336,000
Headworks Facilities (7.0 mgd Peak Flow)				
Building (3000 square feet)		ls		\$600,000
1 mm Fine Screens	2	ea	\$120,000	\$240,000
7.0 mgd Self-Cleaning Filter Screen		ls		\$125,000
7.0 mgd Grit Chamber		ls		\$108,000
Screening / Grit Piping		ls		\$16,000
Eq Res. Submersible Pumps (2 Mgd)	2	ea	\$16,000	\$32,000
Eq Flow Diversion Structure		ls		\$53,000
Grit Chamber Concrete/Earthwork		ls		\$26,000
Flow Channel		ls		\$42,000
Yard Piping				
24-Inch Influent Forcemain	400	lf	\$253	\$101,200
18-Inch Overflow/Grit To Metro	260	lf	\$190	\$49,400
18-Inch Plant Influent	480	lf	\$190	\$91,200
Headworks Facilities				\$1,484,000
Flow Equalization Basins - 490,000 Gal Tanks (2)				
Sitework				
Clear & Grub		ls		\$1,300
Earthwork				
Site Excavation	1775	cy	\$6	\$10,700
Finish Grading	355	cy	\$5	\$1,800
Concrete	273	cy	\$634	\$173,100
Yard Piping		ls		\$53,000
Flow Control/Distribution Structure		ls		\$79,000
Valves, Flow Meter, & Appurtenances		ls		\$53,000
Tank Assembly & Coating		ls		\$148,000
Tank Cover	2	ea	\$140,000	\$280,000

Subtask 4D.1				
Cost Item	Quantity	Unit	Unit Price	Total
Mixers	4	ea	\$26,000	\$104,000
Odor Control (Sized For Flow Eq And Pc)		ls		\$264,000
Flow Equalization Basin				\$1,168,000
Fermentation Tank				
Bring Fermentation Tank Back Online		ls		\$11,000
Fermentation Tank				\$11,000
Aeration Basin Modification				
Modification To Transition Zones Equipment		ls		\$27,000
Aeration Header Modification		ls		\$32,000
Mixers	17	ea	\$13,000	\$221,000
Panels	96	ea	\$4,160	\$399,360
Mlss Pumps	3	ea	\$32,000	\$96,000
Miscellaneous Piping & Appurtenances		ls		\$22,000
Aeration Basin Modification				\$798,000
Blower Building				
Blower Building		ls		\$600,000
Blower Building				\$600,000
Membrane Bioreactor				
2 Mgd Membrane Bioreactor		ls		\$5,375,000
Membrane Bioreactor				\$5,375,000
Chlorine Contact Basin				
Add (1) Chlorine Contact Tank And Cover				
Sitework		ls		\$16,000
Earthwork		ls		\$22,000
Concrete	680	cy	\$634	\$431,120
Metals		ls		\$16,000
Piping		ls		\$6,000
Cover		ls		\$32,000
Miscellaneous Piping & Appurtenances		ls		\$9,000
Chlorine Contact Basin				\$532,000
Chemical Facilities				
Chlorine Building With Scrubber (4.0 Mgd Capacity)		ls		\$507,000
Misc. Facilities Improvements		ls		\$43,000
Chemical Facilities				\$550,000
GENERAL REQUIREMENTS AND FACILITIES SUBTOTAL				\$11,180,000
Electrical	10% of Facilities Subtotal			\$1,118,000
Instrumentation and Control (I&C)	7% of Facilities Subtotal			\$783,000
SUBTOTAL				\$13,081,000
Contractor Overhead and Profit	15% of (above subtotal + \$3,924,000 contingency)			\$2,551,000
SUBTOTAL				\$15,632,000
Bond	1% of Above Subtotal			\$196,000
TOTAL CONSTRUCTION COST				\$15,828,000

Note: Does not include any contingency costs. These costs are included in another section

Row (e) Environmental Compliance/Mitigation/Enhancement

Environmental Compliance, Mitigation, and Enhancement are included in the Planning/Design/Environmental category.

Row (f) Construction Administration

Subtask 4F.1 Construction Administration. The engineering, legal and administrative costs associated with managing the project are estimated to be \$1,300,000. This cost was estimated as approximately 8.2 percent of the total construction cost of \$15,828,000.

Row (g) Other Costs

Other costs are estimated to be \$30,000. They are determined as follows:

- **Subtask 4G.1 Preparation of QAPP.** Costs for preparation of a QAPP are \$20,000, based on costs for similar projects.
- **Subtask 4G.2 Preparation of PAEP.** Costs for preparation of a PAEP are \$10,000, based on costs for similar projects.
- **Subtask 4G.3 Effectiveness Monitoring.** There are no costs associated with effectiveness Monitoring. Effectiveness monitoring will be performed however the monitoring of project performance will be included in the yearly operations costs for meeting and reporting as will be required in the NPDES permit.

Row (h) Construction/Implementation Contingency

Construction Contingency. At the current stage of project completion (planning phase) the construction/Implementation contingency is estimated to be \$3,924,000. This was estimated as approximately 30% percent of the total construction cost (with electrical and instrumental costs included) of \$13,081,000.

Row (i) Grand Total

The Grand total for the project (\$23,092,784) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 87%.

Work Item #5: Recycled Water Retrofit Assistance Program

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Recycled Water Retrofit Assistance Program</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$15,200	\$24,742	\$39,942	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$1,520	\$0	\$1,520	
(d)	Construction/Implementation	\$0	\$800,000	\$800,000	\$1,600,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$2,280	\$0	\$2,280	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$819,000	\$824,742	\$1,643,742	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$819,000		\$1,643,742	50%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>Water Authority In-kind Services</i>				
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.						

Table 5-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 5A	Direct Project Administration	\$39,942
	Proposal Administration	\$24,742.27
5A.1	Project Administration	\$15,200
Task 5C	Planning/Design/Engineering/Environmental Documentation	\$1,520
5C.1	Assist in Identification and Selection of Potential Project Participants	\$1,520
Task 5D	Construction/Implementation	\$1,600,000
5D.1	Retrofit Reimbursements	\$1,600,000
Task 5G	Other Costs	\$2,280
5G.1	Preparation of PAEP	\$2,280
	Grand Total	\$1,643,742

Row (a) Direct Project Administration Costs

Subtask 5A.1 Direct project administration costs total \$15,200. These were determined as 200 staff hrs @ \$76/hr for a Senior Water Resources Specialist.

Row (b) Land Purchase/Easement

Not applicable

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

Subtask 5C.1 Assist in Identification and Selection of Potential Project Participants. The cost for assisting in identification and selection of project participants is \$1,520. This is based on 20 hrs @ \$76/hr for Senior Water Resources Specialist.

Row (d) Construction/Implementation

Subtask 5D.1 Retrofit Reimbursements. The cost of implementation of \$1,600,000 is the total of actual reimbursements that will be provided to customers. This was determined by multiplying the target number of 50 sites for the project by an average of \$32,000 per site. Actual reimbursements will vary among individual sites with a maximum of \$50,000 per site, so the actual number of sites retrofitted may be different than 50 (with a minimum of 32 sites). A list of potential public retrofit sites identified by Water Authorities and its member agencies and estimated retrofit costs per site can be found in (Appendix 4, 5-1 [Disc 3]).

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 5G.1 Preparation of PAEP. The total cost for developing a PAEP is \$2,280. This is based on 30 hrs @ \$76/hr for a Senior Water Resource Specialist.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$1,643,742) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 50%.

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>City of San Diego Recycled Water Distribution System Expansion, Parklands Retrofit, and Indirect Potable Reuse / Reservoir Augmentation</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$165,000	\$102,835	\$267,835	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$679,000	\$360,000	\$1,039,000	
(d)	Construction/Implementation	\$0	\$7,142,000	\$2,508,000	\$9,650,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$700,000	\$325,000	\$1,025,000	
(g)	Other Costs	\$0	\$367,000	\$25,000	\$392,000	
(h)	Construction/Implementation Contingency	\$0	\$1,045,000	\$107,000	\$1,152,000	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$10,098,000	\$3,427,835	\$13,525,835	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$10,098,000		\$13,525,835	75%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind services, Title XVI</i>				
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.						

Table 6-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 6A	Project Administration	\$267,835
	Proposal Administration	\$102,835
6A.1	Project Administration	\$165,000
Task 6C	Construction/Implementation	\$1,039,000
6C.1	Advanced Water Treatment Plant Design	\$300,000
6C.2	Limnology Study	\$339,000
6C.3	Conveyance Pipeline	\$50,000
6C.4	Regulatory Coordination	\$350,000
Task 6D	Construction/Implementation	\$9,650,000
6D.1	General Items	\$600,000
6D.2	Miscellaneous Sitework	\$850,000
6D.3	Pipeline and Accessories	\$2,000,000
6D.4	Design Build for Retrofit Projects	\$4,100,000
6D.5	AWT Demonstration Plant Construction and Operation	\$2,100,000
Task 6F	Construction Administration	\$1,025,000
6F.1	Construction Management	\$500,000
6F.2	Construction Engineering In-House	\$525,000
Task 6G	Other Costs	\$392,000
6G.1	Payments and Performance Bonds	\$222,000
6G.2	Preparation of PAEP	\$35,000
6G.3	Effectiveness Monitoring	\$35,000
6G.4	Final IPR / RA Project Report	\$100,000
	Construction/Implementation Contingency	\$1,152,000
	Construction Contingency	\$1,152,000
	Grand Total	\$13,525,835

Row (a) Direct Project Administration Costs

Subtask 6A.1 – Project Administration. This subtask includes administration of the D-AWT implementation project and limnology study, consultant selection, and contract management. Administration costs were estimated as a flat percentage [~4%] of the overall project costs, and then apportioned among the major task groups based on our best professional judgment of the scope of administrative work associated with each task group; e.g. number of meetings. These costs are broken out as follows:

Area	Cost
Project Administration	
Advanced Water Treatment Demonstration Plant	\$60,000
Limnology Study; consultant selection, contract management	\$40,000
Conveyance Pipeline	\$15,000
Regulatory Coordination	\$50,000
Total	\$165,000

Row (b) Land Purchase/Easement

Not applicable

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

Subtask 6C.1 – Advanced Water Treatment Demonstration Plant Design. This subtask includes design of the D-AWT, development of a testing program for the AWT process [program for sampling schedule, analyses, data management and reporting. This estimate is based on experience managing the San Diego’s water quality laboratory and the scope of the project, and includes the following elements.

Area	Cost
Advanced Water Treatment Demonstration Plant Design	
Design the AWT Demonstration process and plant	\$250,000
Develop a testing program for the AWT process [program for sampling schedule, analyses, data management and reporting]	\$50,000
Total	\$300,000

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

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

The total cost is based on a rough scope of services submitted by Flow Science Inc. That estimate is on the following assumptions: number of years of real-world data assessed, number of calibration runs, and

number of modeling runs. Flow Science has done hydrodynamic models of San Vicente in the past, and is presently working for the Water Authority doing the same; they are a recognized leader in this highly specialized field. This cost includes the following elements.

Area	Cost
<u>Limnology Study</u>	
Establish a five member Limnology Technical Advisory Committee	\$20,000
Develop and calibrate a three dimensional hydrodynamic physical model	\$55,000
Develop and calibrate three dimensional hydrodynamic biochemical model	\$55,000
Establish assumptions and conditions for twelve modeling runs	\$15,000
Perform twelve model runs of linked ELCOM / CAEDYM models	\$144,000
Prepare draft limnology report, circulate for comments	\$25,000
Incorporate comments and prepare final limnology report	\$25,000
Total	\$339,000

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

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

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

This estimate is based on a preliminary scope of services developed by RMC Water and Environment, and includes the following elements.

Area	Cost
Regulatory Coordination	
Refine Overall Regulatory Strategy	\$50,000
Conduct Source Control Assessment	\$50,000
Organize/facilitate meetings with Regulators	\$35,000
Prepare supporting documentation	\$50,000
Organize Independent Advisory Panel	\$75,000
Refine Monitoring/Response Plan	\$50,000
Conveyance System Disinfection Analysis	\$40,000
Total	\$350,000

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$7,550,000 based on the 100% Design Submittal with modifications, which are attached separately in hard copy. These costs include:

Construction Cost Estimate

Subtasks 6D.1 through 6D.5			
Cost Item	Total	Basis of Cost	
General (mobilization/demo, project safety, jobsite trailer, etc.)	\$600,000	Cost based on 100% design submittal, Appendix 4, 6-1 (Disc 3)	
Miscellaneous Site Work	\$850,000		
Pipeline and accessories	\$2,000,000	Past retrofit costs	
Design Build for retrofit projects (includes design and construction)	\$4,100,000		
AWT Demonstration Plant Construction and Operation	\$2,100,000	Cost based on from Water Reuse Study estimate (March 2006), Appendix 6, 5-1	
Total	\$7,550,000		

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

The engineering, legal and administrative costs associated with managing the project are estimated to be approximately \$1.03M. This is based on the following subtasks:

- **Subtask 6F.1 Construction Management.** The cost for construction management is estimated at \$500,000. This is based on approximately 12% of construction costs (Appendix 4, 6-2 [Disc 3]).
- **Subtask 6F.2 Construction Engineering In-House.** The cost for this subtask is \$525,000. This assuming 10% of the construction cost for construction engineering in-house. This is based on the Primavera schedule used for City of San Diego projects (Appendix 4, 6-2 [Disc 3]).

Row (g) Other Costs

Other costs associated with this project total \$277,000. These costs include:

- **Subtask 6G.1 Payments and Performance Bonds.** These costs estimated at \$217,000 are based on City of San Diego standard specifications for every project. A payment/ performance bond for not less than fifty percent of the contract price to satisfy claims of material suppliers,

mechanics and laborers employed on the Project. The bond is maintained by the contractor in full force and effect until the work is accepted by the City of San Diego and all claims for materials and labor are paid, and otherwise comply with the Government Code and Public Contract Code.

- **Subtask 6G.2 Preparation of PAEP.** The cost for preparation of a PAEP is estimated at \$30,000 based on costs for similar projects.
- **Subtask 6G.3 Effectiveness Monitoring.** This includes costs for preparation of a QAPP. This is estimated at \$30,000 are based on costs for similar projects.
- **Subtask 6G.4 – Final IPR / RA Project Report.** This subtask includes the includes technical writing and editing, graphics, review, and publication of the final IPR / RA project report. This estimate is based on best professional judgment.

Row (h) Construction/Implementation Contingency

Construction Contingency. The construction contingency is estimated at \$1,152,000. This is based on 25% of the preliminary planning cost for the Parklands Retrofit portion of the project of \$2,720,000, plus 15 percent of planning and implementation costs for the IPR / RA project.

Row (i) Grand Total

The Grand total for the project \$13,525,835) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 75%.

LOCAL SUPPLY PROTECTION AND DEVELOPMENT PROGRAM

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>San Vicente Reservoir Source Water Protection through Watershed Property Acquisition and Restoration</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$22,532	\$34,829	\$57,361	
(b)	Land Purchase/Easement	\$0	\$0	\$1,121,221	\$1,121,221	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$448	\$4,912	\$5,360	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$22,980	\$1,160,962	\$1,183,942	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$22,980		\$1,183,942	2%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		City of San Diego Water Department In-Kind Staff Services				
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.						

Table 7-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 7A	Direct Project Administration	\$57,361
	Proposal Administration	\$34,828.86
7A.1	General Oversight – Project Management	\$22,532
Task 7B	Land Purchase/Easement	\$1,121,221
7B.1	Priority List Development	\$8,150
7B.2	Coordination with Real Estate Assets Property Manager	\$18,140
7B.3	Initial Contact with Landowner	\$14,952
7B.4	Appraisal	\$25,009
7B.5	Negotiation	\$64,970
7B.6	Purchase	\$990,000
Task 7G	Other Costs	\$5,360
7G.1	Preparation of PAEP	\$5,360
	Grand Total	\$1,183,942

Row (a) Direct Project Administration Costs

Subtask 7A.1 General Oversight – Project Management. Direct Project Administration costs of \$22,532 were calculated as approximately 2% of the overall project cost (not including project management) of \$1,126,581.

Row (b) Land Purchase/Easement

The land purchase cost of \$1,121,221 consists of the following components (broken down by subtask).

- **Subtask 7B.1 Priority List Development.** The cost for Priority List Development is \$8,150. This is based on the following:
 - Project Officer II: 20 hrs @ \$115/hr = \$2,300
 - Senior Planner: 25 hrs @ \$98/hr = \$2,450
 - Associate Planner: 40 hrs @ \$85/hr = \$3,400
- **Subtask 7B.2 Coordination with Real Estate Assets Property Manager.** The cost for coordination with the Real Estate Assets Property Manager is \$18,140. This is based on the following:
 - Project Officer II: 60 hrs @ \$115/hr = \$6,900
 - Senior Planner: 80 hrs @ \$98/hr = \$7,840
 - Associate Planner: 40 hrs @ \$85/hr = \$3,400
- **Subtask 7B.3 Initial contact with land owner.** The cost for initial contact with the land owner is \$14,952. This is based on 168 hrs @ \$89/hr for a Property Agent.
- **Subtask 7B.4 Appraisal.** The cost for appraisal is estimated at \$25,009. This is based on 281 hrs @ \$89/hr for a Property Agent.
- **Subtask 7B.5 Negotiation.** The cost for negotiation with the landowner is estimated at \$64,970. This is based on 730 hrs @ \$89/hr for a Property Agent.
- **Subtask 7B.6 Purchase.** The purchase of the land is estimate at \$990,000. This is based on the City of San Diego’s experience in land acquisition and records of sale.

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

Not applicable

Row (d) Construction/Implementation

Not applicable

Row (e) Environmental Compliance/Mitigation/Enhancement

A draft MND has been prepared for this project. The mitigation requirements identified in this IS/MND fall under normal construction Best Management Practices (BMPs), no additional costs for mitigation are anticipated.

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 7GB.4 Preparation of PAEP. The total costs of \$2,080 include staff labor costs for preparation of a PAEP. This is based on:

- Senior Planner: 20 hrs @ \$98/hr = \$760
- Associate Planner: 40 hrs @ \$85/hr = \$1,320

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$1,183,942) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 2%.

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>El Capitan Reservoir Watershed Acquisition and Restoration Program</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$40,094	\$40,094	
(b)	Land Purchase/Easement	\$0	\$309,236	\$891,685	\$1,200,921	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$827	\$3,208	\$4,035	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$310,063	\$934,987	\$1,245,050	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$310,063		\$1,245,050	25%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind services (\$30K), Private Donations (\$87K)</i>				
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.						

Table 8-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 8A	Direct Project Administration	\$40,094
	Proposal Administration	\$28,049
8A.1	Grant Agreement and Grant Administration	\$5,520
8A.2	Quarterly Reports and Invoicing	\$4,416
8A.3	Final Report Preparation and Filing	\$2,108
Task 8B	Land Purchase/Easement	\$1,200,921
8B.1	Negotiation with Landowners	\$11,486
8B.2	Appraisals	\$25,981
8B.3	Acquisition	\$1,124,260
8B.4	Trash and Litter Removal	\$16,000
8B.5	Tree Planting	\$16,000
8B.6	Recognition Signage Installation	\$7,194
Task 8G	Other Costs	\$4,035
8G.1	Preparation of PAEP	\$4,035
	Grand Total	\$1,245,050

Row (a) Direct Project Administration Costs

Direct project administration costs of \$12,044 were based on 220 hrs @ an average hourly wage of \$52.70 and Other Direct Costs (ODCs) of \$450.

- **Subtask 8A.1 Grant Agreement and Grant Administration.** The estimated cost for grant management is \$5,520. This is based on the following:
 - Executive Director: 100 hrs @ \$52.70/hr = \$5,270
 - ODCs: \$250
- **Subtask 8A.2 Quarterly Reports and Invoicing.** The estimated cost for preparation of quarterly reports and invoicing is \$4,416. This is based on the following:
 - Executive Director: 80 hrs @ \$52.70/hr = \$4,216
 - ODCs: \$200
- **Subtask 8A.3 Final Report Preparation and Filing.** The estimated cost for preparation of the final report and filing is \$2,108. This is based on 40 hrs of labor for the Executive Director @ \$52.70/hr.

Row (b) Land Purchase/Easement

The land purchase cost of \$1,200,921 consists of the following components (broken down by subtask). The estimate for land purchase assumes that two properties will be acquired.

- **Subtask 8B.1 Negotiation with Landowners.** The estimated cost for negotiations with landowners is \$11,486. This assumes two sets of negotiations and is based on the following:
 - Executive Director: 2 x 40 hrs/negotiation = 80 hrs @ \$52.70/hr = \$4,216
 - Project Manager: 2 x 100 hrs/negotiation = 200 hrs @ \$36.35/hr = \$7,270
- **Subtask 8B.2 Appraisals.** The estimated cost for appraisals is \$25,981. This assumes two sets of appraisals and is based on the following:

- Appraisal contract: 2 appraiser contracts x \$7,000/contract = \$14,000. This estimated is based on experience with prior land transactions in the area.
- Appraisal review: Cost to review the appraisal. 2 x \$5,000/appraisal review = \$10,000.
- Executive Director: 2 x 5 hrs/appraisal = 10 hrs @ \$52.70 = \$527
- Project Manager: 2 x 20 hrs/appraisal = 40 hrs @ \$36.35/hr = \$1,454
- **Subtask 8B.3 Acquisition.** The cost for land acquisition is \$1,156,260. This assumes that two parcels of land will be acquired and is based on the following:
 - Purchase price: 2 x \$570,622/parcel = \$1,141,244. This is based on an average parcel price of approximately \$9,510/acre for a total of 120 acres purchased.
 - Escrow: Contract costs for title review, opening and closing costs = 2 x \$5,000/transaction = \$10,000. This is based on prior experience with title companies.
 - Executive Director: 2 x 20 hrs/acquisition = 40 hrs @ \$52.70/hr = \$2,108
 - Project Manager: 2 x 40 hrs/acquisition = 80 hrs @ \$36.35/hr = \$2,908
- **Subtask 8B.4 – Trash and Litter Removal.** : This subtask involves the removal of trash and litter from the acquired lands. The estimated cost of this subtask is \$16,000 and includes labor, renting dumpsters, disposal fees.
- **Subtask 8B.5 – Tree planting.** : This subtask includes planting of 800 trees on the acquired property. The estimated cost of this subtask is \$16,000, which includes labor, purchase of trees, and tree maintenance costs at \$200 per tree.
- **Subtask 8B.6 Recognition Signage Installation.** The cost for development and installation of recognition is estimated at \$7,194. This is based on the following:
 - Design:
 - Project Manager: 2 x 10 hrs/parcel = 20 hrs @ \$36.35/hr = \$727
 - Graphic Designer 2 x 40 hrs/parcel = 80 hrs @ \$21.75/hr = \$1,740
 - Fabrication and Installation
 - Project Manager: 2 x 10 hrs/parcel = 20 hrs @ \$36.35/hr = \$727
 - Fabrication and Installation: 2 x \$2,000 = \$4,000 for subcontractor to fabricate and install signage. This is based on prior experience with signage fabrication and installation.

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

Not applicable

Row (d) Construction/Implementation

Not applicable

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 8G.1 Preparation of PAEP. The estimated cost for PAEP preparation is \$4,035. This is based on 100 hrs of Project Manager labor @ \$36.35/hr plus \$400 in other direct costs.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$1,245,050) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 25%.

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: Northern San Diego Invasive Non-Native Species Control Program						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$51,629	\$51,629	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$55,000	\$55,000	
(d)	Construction/Implementation	\$0	\$2,070,199	\$819,701	\$2,889,900	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$54,950	\$54,950	
(f)	Construction Administration	\$0	\$0	\$50,005	\$50,005	
(g)	Other Costs	\$0	\$0	\$25,000	\$25,000	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$2,070,199	\$1,056,285	\$3,126,484	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$2,070,199		\$3,126,484	66%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind services, direct funding of projects in program by federal agencies: Army Corps of Engineers, Department of Defense and National Resources Conservation Service</i>				
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.						

Table 9-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 9A	Direct Project Administration	\$51,629
	Proposal Administration	\$31,689
9A.1	Direct Project Administration	\$19,940
Task 9C	Planning/Design/Engineering/Environmental Documentation	\$55,000
9C.1	Planning and Environmental Documentation	\$55,000
Task 9D	Construction/Implementation	\$2,889,900
9D.1, 2, 3	Treatment Approval and Contractor Selection, Herbicide Treatment, and Re-vegetation	\$2,889,900
Task 9E	Environmental Compliance/Mitigation Enhancement	\$54,950
9E.1	Biological Oversight as Required by Permits	\$54,950
Task 9F	Construction Administration	\$50,005
9F.1	Contractor Management	\$50,005
Task 9G	Other Costs	\$25,000
9G.1	Preparation of PAEP	\$25,000
	Grand Total	\$3,126,484

Row (a) Direct Project Administration Costs

Subtask 9A.1 Direct Project Administration. The cost for direct project administration costs are estimated at \$19,940. This was calculated as 0.69% percent of the construction/implementation cost estimate (\$2,889,900). This cost is based on past completed state grants managed under the SWRCB (Propositions 13 and 40).

Row (b) Land Purchase/Easement

Not applicable

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

Subtask 9C.1 Planning and Environmental Documentation. The estimated cost for planning and environmental documentation is \$55,000. Costs were determined based on hourly wage of project staff and consultants used to complete permitting (United States Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Game, United States Fish and Wildlife Service, CEQA). This includes maintenance of existing permits on Santa Margarita, San Luis Rey, and the San Dieguito Rivers and the Carlsbad Watershed Hydrologic Unit, as well as obtaining new permits (preparation and regulatory fees) for expanded program areas and agreements that expire during the course of the project. Annual reporting and meetings, as specified under the permits, are also included under this task. These costs are based on completed invasive plant control and re-vegetation State projects (SWRCB, Coastal Conservancy, DWR) under Prop 13 and 40 for similar projects.

Planning/Design/Engineering Environmental Documentation Cost Estimate

Subtask 9C.1				
Cost Item (Task)	Quantity	Unit	Unit Price	Total
Permitting: Project Manager	550	hr	\$85	\$46,750
Supplies: Printing reports, copying	1	materials	\$2,000	\$2,000
Regulatory Fees	1	fees	\$6,250	\$6,250
Total				\$55,000

Row (d) Construction/Implementation

Subtasks 9D.1 through 9D.3 Treatment Approval and Contractor Selection, Herbicide Treatment, and Re-vegetation. The estimated costs of removal, retreatment and revegetation are \$2,889,900. Numerous contractors have completed invasive plant control and re-vegetation under past projects managed by Mission Resources Conservation District . These contractual service costs were divided by acreage totals required for State Grants (SWRCB, DWR, and Coastal Conservancy) to generate costs per acre for each plant type. These costs are based on completed invasive plant control and re-vegetation State projects (SWRCB, Coastal Conservancy, DWR) under Prop 13 and 40 for similar projects. Reference removal costs for Arundo are found in Appendix 4, 9-1, pp 3-5 [Disc 3].

Implementation Cost Estimate

Subtasks 9D.1 through 9D.3				
Cost Item	Quantity	Unit	Unit Price	Total
Control, re-treatment, re-veg: Arundo	185	acres	\$11,778	\$2,178,930
Control, re-treatment, re-veg: pampas grass	8.5	acres	\$6,000	\$51,000
Control, re-treatment, re-veg: pepper weed	90	acres	\$1,500	\$135,000
Control, re-treatment, re-veg: tamarisk	90	acres	\$5,833	\$524,970
373.5				acres
			Total	\$2,889,900

Row (e) Environmental Compliance/Mitigation/Enhancement

Subtask 9E.1 Biological Oversight as Required by Permits. The estimated cost for Environmental Compliance/Mitigation/Enhancement is \$54,950. This consists of biological oversight required under USFWS Section 7 and DFG 2600 permits as follows :

- Toad oversight: 235 hrs @ \$85/hr = \$19,975
- Avian oversight: 230 hrs @ \$65/hr = \$14,950
- General oversight: 445 hrs @ 45/hr = \$20,025

Row (f) Construction Administration

Subtask 9F.1 Contractor Management. The estimated cost for contractor management is \$50,005. This is based on the following:

- Project Manager: 353 hrs @ \$85/hr = \$30,005
- Field Coordinator: 154 hrs @ \$65/hr = \$10,010
- Field Worker: 445 hrs @ 45/hr = \$9,990

Row (g) Other Costs

Subtask 9G.1 Preparation of PAEP. The estimated cost for preparation of a PAEP is \$25,000. This is based on extensive previous experience with developing PAEPs for similar work in the same Hydrologic Units.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$3,126,484) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 66%.

Work Item #10: Santa Margarita Conjunctive Use Project

Table 8 – Budget (continued), 2006 dollars					
Proposal Title: San Diego Implementation Grant Proposal					
Project Title: Santa Margarita Conjunctive Use Project					
Budget Category	Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a) Direct Project Administration Costs	\$0	\$286,492	\$79,270	\$365,762	
(b) Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c) Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$1,145,966	\$0	\$1,145,966	
(d) Construction/Implementation	\$0	\$111,664,631	\$2,563,067	\$114,227,698	
(e) Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f) Construction Administration	\$0	\$0	\$0	\$0	
(g) Other Costs ²	\$0	\$33,288,923	\$0	\$33,288,923	
(h) Construction/Implementation Contingency	\$0	\$28,556,925	\$0	\$28,556,925	
(i) Grand Total (Sum rows (a) through (h) for each column)	\$0	\$174,942,937	\$2,642,337	\$177,585,274	
(j) Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$174,942,937		\$177,585,274	99%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds	<i>Fallbrook PUD, USBR, Camp Pendleton DofD, SCAO/ESO</i>				
<p>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.</p> <p>2) Excludes \$13,830,000 (in 2006 dollars) for Open Space Management Zone land acquisition, as land was acquired before March 20, 2007.</p>					

Table 10-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 10A	Direct Project Administration	\$365,762
	Proposal Administration	\$79,270
10A.1	Administration of Engineering Feasibility Study and EIR/EIR Contracts	\$286,492
Task 10C	Planning/Design/Engineering/Environmental Documentation	\$1,145,966
10C.1	Engineering Feasibility Study	\$580,998
10C.2	Environmental Documentation	\$564,968
Task 10D	Construction/Implementation	\$114,227,698
10D.1	Diversion Dam – Obermeyer Installation	\$3,559,400
10D.2	Headworks Gates – Reconstructed with Obermeyer Dam	\$132,328
10D.3	O'Neill Ditch Widening Improvements Along with Road Siphoning Crossings	\$487,463
10D.4	Rehabilitate Existing Recharge Ponds	\$1,513,768
10D.5	Construct New Recharge Ponds	\$2,723,345
10D.6	Groundwater Extraction Wells	\$14,040,000
10D.7	Groundwater Collection Pipe System	\$2,787,316
10D.8	Water Treatment Plant	\$19,943,950
10D.9	Brine Pipeline	\$3,747,223
10D.10	Product Transmission Pipeline	\$14,263,179
10D.11	Elevated Regulating Tank - Knoll Park	\$1,250,000
10D.12	Pumping Plants	\$12,483,913
10D.13	Electrical Power Hookup	\$1,248,391
10D.14	SCADA Hookup	\$1,621,393
10D.15	Lake O'Neill Rehabilitation	\$15,388,080
10D.16	Mobilization	\$4,759,487
10D.17	Unlisted Items	\$14,278,462
Task 10G	Other Costs	\$33,288,923
10G.1	Non-Contract Items ^a	33,288,923
	Construction Contingency	\$28,556,925
	Grand Total	\$177,585,274

a. Excludes \$13,830,000 (in 2006 dollars) for Open Space Management Zone land acquisition, as land was acquired before March 20, 2007.

Row (a) Direct Project Administration Costs

Subtask 10A.1 Administration of Engineering Feasibility Study and EIS/EIR Contracts. The Direct Project Administration costs total \$286,492. These costs include management of the TSC Engineering Feasibility Study contract and the TEC Environmental Documentation Contract. The basis is 25% of the total cost for both contracts (\$1,145,966).

Row (b) Land Purchase/Easement

Not applicable

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

The Planning/Design/Engineering and Environmental Documentation costs are estimated at \$1,145,966. This includes cost for an engineering feasibility study and preparation of environmental documentation to include development of an Environmental Impact Statement/Environmental Impact Report (EIS/EIR). These costs are shown in detail below.

- **Subtask 10C.1 Engineering Feasibility Study.** The cost for the engineering feasibility study is estimated at \$580,998. This is based on an estimate provided by USBR Technical Service Center (TSC) for completion of this task. The breakdown of the contract costs are shown below.

Design Detailed Cost Estimate

Subtask 10C.1	
Engineering Feasibility Study Contract Cost Item (TSC)	Total
EIS/EIR Completion	\$35,180
Haybarn Canyon/Gwell Design Completion	\$85,020
Distribution System Design Completion/EIS Review	\$136,688
Distribution System Design Completion	\$40,524
WTP Plant Design Completion	\$19,836
Economics Analysis Completion	\$29,340
HVAC, Fire, Compressed Air, Drainage, Interior Waste Design Completion	\$20,416
Distribution System Design Completion	\$75,740
Distribution System Design Completion	\$18,560
Electrical Design Completion	\$24,128
Hydrologic Evaluation as Needed/EIS Review	\$9,980
EIS/EIR Review	\$2,784
Project Management/Project Closeout	\$20,704
EIS/EIR Review as Needed	\$9,280
Subtotal	\$528,180
Contingency (10% of subtotal)	\$52,818
Total	\$580,998

- **Subtask 10C.2 Environmental Documentation.** The cost of preparing environmental documentation is \$564,968. This is based on actual contract (Appendix 4.1, 10-1) that has been awarded to The Environmental Company (TEC) for completion of this task. Includes awarded contract and admin costs to complete the EIR/EIS documentation, and estimate to complete feasibility study based on tasks remaining and best professional judgment.

Environmental Documentation Cost Estimate

Subtask 10C.2	
Environmental Documentation Contract Cost Item (TEC)	Total
Kick-off Meeting and Schedule	\$8,110
Response to Public Scoping Comments	\$22,117
Cultural Resources	\$30,782
Vegetative Community Surveys and Mapping	\$69,395
Special Status Wildlife and Fishery Surveys and Mapping	\$11,086
Other Special Status Species	\$11,764
Open Space Management Zone	\$27,298
Clean Water Act Permits	\$11,455
California Coastal Commission	\$3,911
Air Quality-Record of Non-Applicability	\$8,562
Fish and Wildlife Coordination Act	\$14,264
Environmental Justice	\$4,604
Assessment of Traffic Impacts	\$9,068

Subtask 10C.2	
Environmental Documentation Contract Cost Item (TEC)	Total
Wetland Delineation	\$5,959
Assessment of Hydrologic Impacts	\$51,385
Endangered Species Act Biological Assessment	\$23,035
Preliminary Draft EIS/EIR	\$95,282
Prepare Draft EIS/EIR	\$63,662
Prepare Preliminary Final EIS/EIR	\$44,313
Prepare Final EIS/EIR	\$28,819
Monthly Meetings	\$20,099
Total	\$564,970

Row (d) Construction/Implementation – Preliminary Conceptual Cost Estimates

The preliminary Construction/Implementation costs for the project are estimated to be \$114,297,698. These are conceptual costs and represent a conservative estimate. Most of the component costs are based on the Facilities estimate completed in the United States Bureau of Reclamation (USBR) pre-feasibility study completed in May 2005 (Appendix 4, 4-10-2, page A-5) adjusted for inflation. A more refined estimate will be available after completion of the completion of the USBR Feasibility Study in 2008. The costs and the cost basis for each construction component are shown below.

Preliminary Construction Cost Estimate

Subtasks 10D.1 through 10D.17		
Cost Item	Total	Basis
Diversion dam - Obermeyer Installation	\$3,559,400	For installation of a dam with dimensions of 280' long, 7.9' high and costs of replacement of existing sheet pile diversion dam. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.3.
Headworks Gates - Reconstructed with Obermeyer Dam	\$132,328	For modifications required to raise flow capacity from 60 to 200 cfs. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.3.
O'Neill Ditch Widening Improvements Along with Road Siphoning Crossings	\$487,463	For widening of O'Neill ditch to increase maximum flow from 60 to 200 cfs. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.2.
Recharge Ponds - Existing	\$1,513,768	For work necessary to rehabilitate 5 existing ponds with a total volume of 312 acre-feet (AF). Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.2.
Recharge Ponds - New	\$2,723,345	For work necessary to construct 2 new ponds with a total volume of 242 AF. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.2.
Groundwater Extraction Wells	\$14,040,000	Estimate for construction of 9 new wells. Based on a Camp Pendleton cost estimate.
Groundwater Collection Pipe System	\$2,787,316	For construction of a groundwater collection pipe system. Based Drawing Set #1 estimate + 5% for valves.

Subtasks 10D.1 through 10D.17		
Cost Item	Total	Basis
Water Treatment Plant	\$19,943,950	For construction of Haybarn Canyon AWT sized for 37 cfs and construction of 18 cfs Iron-Manganese Treatment Plant (IM-2). Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5). Note: The Pre-Feasibility included the costs of the pumping plants Haybarn WTPP and Booster PP1 in the cost of the Water Treatment Plant. These are broken out separately here (see below).
Brine Pipeline	\$3,747,223	Based on Drawing Set #2
Product Transmission Pipeline	\$14,263,179	For construction of bi-directional product delivery pipeline to Fallbrook: 67,000 feet, 30 inch to 27 inch diameter, 1100 feet of head, 24-19 cubic feet per second. Based on Drawing Set #3 with 5% added for valves and deliveries.
Elevated Regulating Tank - Knoll Park	\$1,250,000	For construction of an elevated regulating tank with a capacity of 250,000 gallons; approx 150', u/s of PP2.
Pumping Plants		
Haybarn WTPP	\$4,065,703	For construction of Haybarn WTPP with air chambers. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5). Note: The Pre-Feasibility Study included this pumping plant in the cost of the Water Treatment Plant.
Booster PP1	\$4,654,416	For construction of Booster PP1 with air chambers. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5). Note: The Pre-Feasibility Study included this pumping plant in the cost of the Water Treatment Plant.
Booster PP2	\$3,763,794	For construction of Booster PP2 with air chambers. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5). Note: The Pre-Feasibility Study included this pumping plant in the cost of the Distribution Pipeline.
Electrical Power Hookup	\$1,248,391	For required electrical power drops for the pumping plants. Calculated as 10% of the total of Haybarn WTPP, Booster PP1 and Booster PP2 costs (\$12,483,913).
SCADA Hookup	\$1,621,393	For purchase and installation of supervisory control and data acquisition system to control and/or acquire data from the groundwater well system, pumping plants, spillway gates, turnouts to percolation ponds and Lake O'Neill, production and monitoring wells, pumping plants and flow measuring devices. The SCADA control room would be located at Camp Pendleton's existing operations center. Based on 5% of cost of total of 3 pumping plants plus costs of water treatment plants (\$32,427,863).
Lake O'Neill Rehabilitation	\$15,388,080	For dredging of Lake O'Neill to its original capacity. Based on the USBR Pre-Feasibility Study (Appendix 4, 4-10-2, page A-5) with a conservative inflation adjustment factor of 1.2.

Subtasks 10D.1 through 10D.17		
Cost Item	Total	Basis
Preliminary Construction Cost Subtotal	\$30,741,777	
Mobilization (5% of subtotal)	\$4,759,487	Mobilization/demobilization costs were estimated as 5 percent of the total construction costs.
Unlisted Items	\$14,278,462	Unlisted items were estimated as 15 percent of the construction cost. The cost for unlisted items accounts for ancillary features of the project that are not detailed or quantified at the conceptual design level.
Construction Cost Total	\$114,227,698	

b. Note: Does not include any contingency costs. These costs are included in another section

Row (e) Environmental Compliance/Mitigation/Enhancement

A draft MND has been prepared for this project. The mitigation requirements identified in this IS/MND fall under normal construction BMPs, no additional costs for mitigation are anticipated.

Row (f) Construction Administration

As this is a preliminary construction cost estimate, the construction administration costs are included in the Non-Contract Costs described in Other Costs. After completion of the USBR Feasibility Study, a more detailed estimate will be available.

Row (g) Other Costs

Subtask 10G.1 Non-Contract Items. Non-contract costs are estimated to be \$34,288,923. Non-contract costs would include development of an adaptive groundwater management plan, permitting, engineering, construction management, owner’s administration, legal, and other costs. These were calculated as 33% of Field Costs (\$142,784,623), minus \$13,830,000 in costs associated with land acquisition for the Open Space Management Zone (because these costs were incurred prior to March 20, 2007, they have been excluded from this budget). Field costs are defined as the sum of construction costs and construction contingency costs.

Row (h) Construction/Implementation Contingency

Contingency. At the current stage of project completion (planning phase) the estimated construction/Implementation contingency of \$28,556,925 is estimated to be 25% of the contract cost (\$114,267,698). The contingency accounts for items that may cost more once the design is further developed, or when construction is complete.

Row (i) Grand Total

The Grand total for the project (\$177,585,274) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 99%.

Work Item #11: Carlsbad Desalination Project Local Conveyance

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Carlsbad Desalination Local Conveyance</u>						
Budget Category		Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$1,500,000	\$65,757	\$1,565,757	
(b)	Land Purchase/Easement	\$0	\$800,000	\$0	\$800,000	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$3,193,867	\$2,126,133	\$5,320,000	
(d)	Construction/Implementation	\$0	\$43,790,000	\$0	\$43,790,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$2,740,000	\$0	\$2,740,000	
(f)	Construction Administration	\$0	\$1,600,000	\$0	\$1,600,000	
(g)	Other Costs	\$0	\$250,000	\$0	\$250,000	
(h)	Construction/Implementation Contingency	\$0	\$24,000,000	\$0	\$24,000,000	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$77,873,867	\$2,191,890	\$80,065,757	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$77,873,867		\$80,065,757	97%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>Poseidon Resources Private Financing</i>				
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.						

Table 11-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 11A	Direct Project Administration	\$1,565,757
	Proposal Administration	\$65,756
11A.1	Procurement of Engineering and Construction Services	\$650,000
11A.2	Review of Project Plans and Studies	\$750,000
11A.3	Preparation of Progress Reports	\$100,000
Task 11B	Land Purchase/Easement	\$800,000
11B.1	Preparation of Legal Description	\$150,000
11B.2	Easement Acquisition	\$650,000
11B.3	Land Purchase	TBD
Task 11C	Planning/Design/Engineering/Environmental Documentation	\$5,320,000
11C.1	Pipeline Route and Pump Station Sites – Aerial Survey and Mapping	\$250,000
11C.2	Geotechnical Survey	\$350,000
11C.3	Underground Utility Survey	\$220,000
11C.4	Preliminary Design and Construction Review	\$1,100,000
11C.5	Detailed Design	\$3,200,000
11C.6	Engineering Oversight during Construction	\$200,000
Task 11D	Construction/Implementation	\$43,790,000
11D.1	Preparation of Construction Execution Plan	\$90,000
11D.2	Construction Mobilization and Demobilization	\$150,000
11D.3	Utility Relocation	\$1,200,000
11D.4	Construction and Commissioning of Pump Stations	\$7,000,000
11D.5	Construction and Commissioning of Pipelines	\$31,600,000
11D.6	Construction and Commissioning of Other Services Facilities	\$3,500,000
11D.7	Traffic Control	\$250,000
Task 11E	Environmental Compliance/Mitigation Enhancement	\$2,740,000
11E.1	Pre-Construction Biological Survey	\$220,000
11E.2	Project Permitting	\$2,300,000
11E.3	Post-construction Survey	\$100,000
11E.4	Preparation of Environmental Compliance Management Plan	\$50,000
11E.5	Stormwater Management Plan	\$70,000
Task 11F	Construction Administration	\$1,600,000
11F.1	Review of Construction Documentation	\$950,000
11F.2	Review of Monthly Progress Reports	\$200,000
11F.3	Review and Processing of Payment Requests	\$100,000
11F.4	Review and Processing of Change Orders	\$100,000
11F.5	Site Inspections	\$250,000
Task 11G	Other Costs	\$250,000

Task	Category	Total
11G.1	Coordination and Reporting with Member Water Agencies	\$40,000
11G.2	Preparation of QAPP and PAEP	\$140,000
11G.3	Effectiveness Monitoring	\$70,000
	Construction Contingency	\$24,000,000
	Grand Total	\$80,065,757

Row (a) Direct Project Administration Costs

The direct project administration costs are estimated to be \$1,500,000. This is based on 1.875% of the construction cost total (\$80,000,000). The costs will be broken down into the following subtasks:

- **Subtask 11A.1 Procurement of Engineering and Construction Services.** The procurement of engineering and construction services is estimated to cost \$650,000. This is based on experience with similar projects.
- **Subtask 11A.2 Review of Project Plans and Studies.** The review of project plans and studies is expected to cost \$750,000. This is based on experience with similar projects.
- **Subtask 11A.3 Preparation of Progress Reports.** The preparation of progress reports is expected to cost \$100,000. This is based on experience with similar projects.

Row (b) Land Purchase/Easement

The Land Purchase/Easement costs associated with the Carlsbad Desalination Local Conveyance Project total \$800,000 and include:

- **Subtask 11B.1 Preparation of Legal Description.** The estimated cost to complete this task is \$150,000. The cost is based on experience on similar projects.
- **Subtask 11B.2 Easement Acquisition.** The estimated cost to complete this task is \$650,000. The cost is based on experience on similar projects.
- **Subtask 11B.3 Land Purchase.** The land needed to implement the project is not yet known, so this cost has not been estimated.

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

The Planning/Design/Engineering and Environmental Documentation costs associated with this project were calculated as \$5,320,000. Detailed costs are shown in the table below.

Planning Cost Estimate

Subtasks 11C.1 through 11C.6		
Cost Item (Task)	Total	Basis
Pipeline Routing & Pump Station Siting Studies	\$250,000	Based on Actual Costs Incurred During the EIR Phase of the Project (included as reference 11-2 in Appendix 6).
Geotechnical Survey	\$350,000	Based on Experience on Similar Projects and Carollo Engineers October 2005 Recommended Route for Offsite Desalination Water Delivery System (included as reference 11-1 in Appendix 6)

Underground Utility Survey, Pump Station Surge Analysis, Corrosion Study, Structural Analysis of Crossing Macarlo Canyon Bridge, and Pipeline Aerial Survey and Mapping	\$220,000	Based on Actual Costs Incurred During the EIR Phase of the Project (included as reference 11-2 in Appendix 6)
Preliminary Design and Construction Review	\$1,100,000	Based on Carollo Engineers October 2005 Recommended Route for Offsite Desalination Water Delivery System pg 43 (included as reference 11-1 in Appendix 6)
Detailed Design	\$3,200,000	Based on Carollo Engineers October 2005 Recommended Route for Offsite Desalination Water Delivery System pg 43 (included as reference 11-1 in Appendix 6)
Engineering Oversight During Construction	\$200,000	Estimated as approximately 4% of total Task Costs Excluding Oversight (\$5,120,000)
Total	\$5,320,000	

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$43,790,000. As presented in detail in Appendix 4.1, these costs include:

Construction Cost Estimate

Subtasks 11D.1 through 11D.7		
Cost Item	Total	Basis
Preparation of Construction Execution Plan	\$90,000	Estimated as approximately 0.2 % of total Task costs
Construction Mobilization and Demobilization	\$150,000	Estimated as approximately 0.3 % of total Task costs
Utility Relocation	\$3,500,000	Based on Similar Projects Completed by San Diego County Water Authority
Construction and Commissioning of Other Service Facilities	\$1,200,000	Based on Preliminary Utility Plan Prepared by Carollo Engineers as part of the project EIR.
Construction and Commissioning of Pump Stations	\$7,000,000	Based on Cost Estimate by Engineering, Construction, Procurement Team
Construction and Commissioning of Pipelines	\$31,600,000	Based on Cost Estimate of Carollo Engineers October 2005 Recommended Route for Offsite Desalination Water Delivery System, p43 (provided in Attachment 6)
Traffic Control	\$250,000	Per traffic mitigation requirements set forth in project EIR, estimated as approximately 0.6% of Total Task Cost Excluding Traffic Control (\$56,940,000)
Total	\$43,790,000	

Note: Does not include any contingency costs.

Row (e) Environmental Compliance/Mitigation/Enhancement

The following table summarizes budget assumptions for this line item:

Subtasks 11E.1 through 11E.5		
Cost Item	Total	Basis
Pre-construction Biological Survey	\$220,000	Based on Prior Experience with Similar Projects
Project Permitting	\$2,300,000	Based on Actual Costs Incurred During EIR Preparation and Prior Experience with Similar Projects.
Post-construction Survey	\$100,000	Based on Prior Experience with Similar Projects.
Preparation of Environmental Compliance Management Plan	\$50,000	Estimated as 2 % of Total Task Costs
Stormwater Management Plan	\$70,000	Based on Prior Experience with Similar Projects
Total	\$2,740,000	

Row (f) Construction Administration

The engineering, legal and administrative costs associated with managing the project are estimated to be approximately \$1.6M. This is based on 2% of the total construction cost (\$80,000,000). These costs can further be broken down as shown below.

- **Subtask 11F.1 Review of Construction Documentation.** The review of construction documents is estimated to cost \$950,000. This is estimated as approximately 1.2% of total project costs (\$80,000,000) and is based on prior experience.
- **Subtask 11F.2 Review of Monthly Progress Reports.** The review of monthly progress reports is estimated to cost \$200,000. This is estimated based on approximately 12.5% of total task costs (\$1,600,000). This is based on prior experience.
- **Subtask 11F.3 Review and Processing of Payment Requests.** The review and processing of payment requests is estimated to cost \$100,000. This is estimated based on approximately 6% of total task costs (\$1,600,000). This is based on prior experience.
- **Subtask 11F.4 Review and Processing of Change Orders.** The review and processing of change orders is estimated to cost \$100,000. This is estimated assuming change orders to not exceed 2% of total contract value (\$1,600,000). This is based on prior experience.
- **Subtask 11F.5 Site Inspections.** Site inspections are expected to cost \$250,000. This is based on 50 inspections @ \$5,000 per inspection.

Row (g) Other Costs

The total cost for the Other Cost task items is budgeted as \$250,000 and is based on the following assumptions:

- **Subtask 11G.1 Coordination and Reporting with Member Water Agencies.** The estimated cost to complete this task is \$40,000. The cost is based on experience with similar projects.
- **Subtask 11G.2 Preparation of QAPP and PAEP.** The combined cost of preparing a QAPP and PAEP is \$140,000. The estimated cost to complete a QAPP is \$60,000, while the estimated cost to complete a PAEP is \$80,000. The cost is based on experience with similar projects.
- **Subtask 11G.3 Effectiveness Monitoring.** The estimated cost to complete this task is \$70,000. The cost is based on experience with similar projects.

Row (h) Construction/Implementation Contingency

Contingency. The construction/Implementation contingency is estimated to be 30% percent of total construction cost (\$80,000,000), or approximately \$24,000,000. The contingency is based on the prudent

engineering practices and the current level of detail of project development and design. These costs include funds to handle unknown and unspecified conditions encountered during construction or implementation of the project.

Row (i) Grand Total

The Grand total for the project (\$80,065,757) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 97%.

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

Table 8 – Budget (continued), 2006 dollars					
Proposal Title: San Diego Implementation Grant Proposal					
Project Title: San Diego Region Four Reservoir Intertie Project Conceptual Design					
Budget Category	Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a) Direct Project Administration Costs	\$0	\$0	\$23,488	\$23,488	
(b) Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c) Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$2,218,040	\$751,960	\$2,970,000	
(d) Construction/Implementation	\$0	\$0	\$0	\$0	
(e) Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f) Construction Administration	\$0	\$0	\$0	\$0	
(g) Other Costs	\$0	\$22,500	\$7,500	\$30,000	
(h) Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i) Grand Total (Sum rows (a) through (h) for each column)	\$0	\$2,240,540	\$782,948	\$3,023,488	
(j) Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$2,240,540		\$3,023,488	74%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds	<i>In-kind services, federal and local funds.</i>				
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.					

Table 12-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
	Proposal Administration	\$23,488
Task 12C	Planning/Design/Engineering/Environmental Documentation	\$2,970,000
12C.1	Project Management	\$100,000
12C.2	Define Project Elements	\$60,000
12C.3	Analysis of Existing Facilities	\$60,000
12C.4	Evaluation of New Facilities	\$150,000
12C.5	Future Supply and Demand Estimates	\$300,000
12C.6	Alternative Analysis	\$300,000
12C.7	Recommended Facilities	\$400,000
12C.8	Electricity Generation	\$400,000
12C.9	Environmental Compliance	\$150,000
12C.10	Cost Benefit Analysis	\$450,000
12C.11	Identification of Preferred Alternative	\$150,000
12C.12	Implementation Plan	\$150,000
12C.13	Final Report	\$300,000
Task 12G	Other Costs	\$30,000
12G.1	Preparation of PAEP	\$30,000
	Grand Total	\$3,023,488

Row (a) Direct Project Administration Costs

Not applicable

Row (b) Land Purchase/Easement

Not applicable

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

The Planning/Design/Engineering and Environmental Documentation costs associated with the San Diego Region Four Reservoir Intertie Feasibility Study are budgeted at \$2,970,000. A consultant will be contracted to complete the San Diego Region Four Reservoir Intertie Conceptual Design for a fee not to exceed that amount. A scope of work for the Conceptual Design has not been finalized. Sweetwater Authority has developed a Scope Template. Cost estimates by task are estimated, but will be finalized once a consultant is contracted.

Planning Cost Estimate

Subtasks 12C.1 through Subtask 12C.13		
Task Item	Total	Basis
Project Management	\$100,000	Previous experience
Define Project Elements	\$60,000	
Analysis of Existing Facilities	\$60,000	
Evaluation of New Facilities	\$150,000	
Future Supply and Demand Estimates	\$300,000	
Alternatives Analysis	\$300,000	
Recommended Facilities	\$400,000	
Electricity Generation	\$400,000	
Environmental Compliance	\$150,000	
Cost Benefit Analysis	\$450,000	
Identification of Preferred Alternative	\$150,000	
Implementation Plan	\$150,000	
Final Report	\$300,000	Previous experience
Total	\$2,970,000	

Row (d) Construction/Implementation

Not applicable

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 12G.1 Preparation of PAEP. The cost for the development of the PAEP is estimated to be \$30,000. This is based on experience on experience with similar projects.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$3,023,488) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 74%.

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: South San Diego County Water Supply Strategy						
Budget Category		Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$9,410	\$9,410	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$1,022,343	\$297,657	\$1,320,000	
(d)	Construction/Implementation	\$0	\$0	\$0	\$0	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$23,400	\$6,600	\$30,000	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$1,045,743	\$313,667	\$1,359,410	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$1,045,743		\$1,359,410	77%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>Funds and in-kind services from cooperating partners and potential federal sources.</i>				
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.						

Table 13-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
	Proposal Administration	\$9,410
Task 13C	Planning/Design/Engineering/Environmental Documentation	\$1,320,000
13C.1	Collect Samples of Groundwater Quality	\$80,000
13C.2	Conduct Aquifer Test	\$50,000
13C.3	Install One-Multiple-Depth Monitoring Well	\$400,000
13C.4	Install One-Multiple-Depth Monitoring Well	\$400,000
13C.5	Develop a Regional Groundwater Flow Computer Model	\$300,000
13C.6	Prepare Final Report	\$90,000
Task 13G	Other Costs	\$30,000
13G.1	Preparation of QAPP	\$10,000
13G.2	Preparation of PAEP	\$20,000
	Grand Total	\$1,359,410

Row (a) Direct Project Administration Costs

Not applicable

Row (b) Land Purchase/Easement

Not applicable

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

Subtasks 13C.1 through 13C.6. The United State Geologic Survey (USGS) will be contracted to complete Phase III of the USGS Implementation Study for a fee of \$1,350,000. The proposed scope of work is included in the Work Plan, but has not been finalized. Cost estimates by task are estimated, and will be finalized once the USGS contract is finalized. The Planning/Design/Engineering and Environmental Documentation costs associated with the South San Diego County Water Supply Strategy project are budgeted at \$1,320,000, as shown in the following table.

Planning Cost Estimate

Subtasks 13C.1 – 13C.6		
Task Item	Total	Basis
Collect Samples of Groundwater Quality	\$80,000	Based on Phase I and Phase II costs.
Conduct Aquifer Test	\$50,000	
Install One Multiple-Depth Monitoring Well	\$400,000	
Install One Multiple-Depth Monitoring Well	\$400,000	
Develop a Regional Groundwater Flow Computer Model	\$300,000	
Prepare Final Report	\$90,000	
Total	\$1,320,000	

Row (d) Construction/Implementation

Not applicable

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

The total of other costs is \$30,000. This consists of preparation of a QAPP and PAEP as shown below.

- **Subtask 13G.1 Preparation of a QAPP.** The cost for the development of the PAEP is estimated to be \$10,000. This is based on experience with similar projects.
- **Subtask 13G.2 Preparation of a PAEP.** The cost for the development of a QAPP is estimated to be \$20,000. This is based on experience on experience with similar projects.

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The grand total for the project (\$1,359,410) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 77%.

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

Table 8 – Budget (continued), 2006 dollars					
Proposal Title: San Diego Implementation Grant Proposal					
Project Title: <u>El Monte Valley Groundwater Recharge and River Restoration Project, Phases 1 and 2</u>					
Budget Category	Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a) Direct Project Administration Costs	\$0	\$1,050,000	\$128,539	\$1,178,539	
(b) Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c) Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$1,100,000	\$0	\$1,100,000	
(d) Construction/Implementation	\$0	\$51,710,583	\$1,989,417	\$53,700,000	
(e) Environmental Compliance/ Mitigation/Enhancement	\$0	\$2,200,000	\$0	\$2,200,000	
(f) Construction Administration	\$0	\$3,765,000	\$485,000	\$4,250,000	
(g) Other Costs	\$0	\$135,000	\$15,000	\$150,000	
(h) Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i) Grand Total (Sum rows (a) through (h) for each column)	\$0	\$59,960,583	\$2,617,956	\$62,578,539	
(j) Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$59,960,583		\$62,578,539	96%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds					
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.					

Table 14-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 14A	Direct Project Administration	\$1,100,000
	Proposal Administration	\$78,538
14A.1	Project Administration	\$1,100,000
Task 14C	Planning/Design/Engineering/Environmental Documentation	\$1,100,000
14C.1	Environmental Documents and Permitting	\$1,100,000
Task 14D	Construction/Implementation	\$53,700,000
14D.1	River Restoration	\$29,300,000
14D.2	Hubble Bridge	\$1,500,000
14D.3	Equestrian Trails	\$1,800,000
14D.4	Grading	\$3,000,000
14D.5	Utilities (Buried)	\$800,000
14D.6	Site Improvements	\$1,100,000
14D.7	Monitoring Wells	\$300,000
14D.8	Extraction Wells	\$500,000
14D.9	Permits and Other Fees	\$300,000
14D.10	General Contract Items	\$4,400,000
14D.11	Pipeline and Connection	\$3,600,000
14D.12	Spreading Basins	\$5,800,000
14D.13	Initial Water Fill	\$1,300,000
Task 14E	Environmental Compliance/Mitigation/Enhancement	\$2,200,000
14E.1	Biological Monitoring	\$100,000
14E.2	Interim Biological Management	\$700,000
14E.3	Environmental Education	\$1,400,000
Task 14F	Construction Administration	\$4,250,000
14F.1	Fire Management Plan	\$100,000
14F.2	Project Management	\$3,450,000
14F.3	Security	\$700,000
Task 14G	Other Costs	\$150,000
14G.1	Preparation of QAPP	\$50,000
14G.2	Preparation of PAEP	\$50,000
14G.3	Effectiveness Monitoring	\$50,000
	Grand Total	\$62,578,539

Row (a) Direct Project Administration Costs

Subtask 14A.1 Project Administration. Direct project administration costs were budgeted as \$1,100,000. This was calculated as 2% of the construction cost estimate (\$53,700,000).

Row (b) Land Purchase/Easement

Not applicable

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

Subtask 14C.1 Environmental Documents and Permitting. Environmental documentation costs are budgeted at \$1,100,000, based on estimated costs for environmental documents and permitting being prepared by El Capitan Golf Club/EHC from their consultant – EDAW Inc.

Row (d) Construction/Implementation

Total construction costs were estimated at \$53,700,000. Construction costs were based on preliminary facility plans and conceptual level designs and mapping. Standard unit costs were applied to conceptual-level areas and quantities to develop the estimates. A detailed construction cost estimate is shown below.

Construction Cost Estimate

Subtasks 14D.1 through 14D.13					
Cost Item	Quant.	Unit	Unit Price	Total	Basis
River Restoration/Revegetation	304	acres	\$96,380	\$29,300,000	Based on experience and preliminary cost data in the Final Feasibility Study
Hubble Bridge	1	ls	\$1,500,000	\$1,500,000	
Equestrian Trails	4	miles	\$450,000	\$1,800,000	
Grading	1	ls	\$3,000,000	\$3,000,000	
Utilities (buried)	1	ls	\$800,000	\$800,000	
Site Improvements	1	ls	\$1,100,000	\$1,100,000	
Monitoring Wells	1	ls	\$300,000	\$300,000	
Extraction Wells	1	ls	\$500,000	\$500,000	
Permits and Other Fees	1	ls	\$300,000	\$300,000	
General Contract Items	1	ls	\$4,400,000	\$4,400,000	
Pipeline and Connection	3	miles	\$1,200,000	\$3,600,000	Based on estimated costs using standard unit prices developed from similar projects.
Spreading Basins	80	acres	\$72,500	\$5,800,000	
Initial Water Fill	2500	AF	\$520	\$1,300,000	Based on current raw water costs.
Total				\$53,700,000	

Row (e) Environmental Compliance/Mitigation/Enhancement

The total for environmental compliance and mitigation enhancement costs is estimated at \$2,200,000. These were developed for the River Restoration component of the project based on areas of habitat and costs from similar projects. Monitoring and management of the River Restoration project occurs throughout the construction phase, and once completed a separate endowment fund will be established to maintain the habitat in perpetuity. The environmental education element includes physical kiosks, signs, and habitat features within the River Restoration component of the project.

Environmental Compliance & Mitigation Enhancement Cost Estimate

Subtasks 14E.1 through 14E.3		
Cost Item	Total	Cost Basis
Biological Monitoring	\$100,000	Based on prior experience
Interim Biological Management	\$700,000	
Environmental Education	\$1,400,000	
Total	\$2,200,000	

Row (f) Construction Administration

Direct project administration costs are estimate to be \$4,250,000. This is based on 8% of the construction cost estimate (\$53,700,000). Specific Tasks are listed below.

Construction Documentation Cost Estimate

Subtasks 14F.1 through 14F.3		
Cost Item (Task)	Total	Basis
Fire Management Plan	\$100,000	Based on prior experience
Project Management	\$3,450,000	
Security	\$700,000	
Total	\$4,250,000	

Row (g) Other Costs

Other costs were estimated as \$150,000. This includes preparation of QAPP, PAEP and effectiveness Monitoring.

- **Subtask 14G.1 Preparation of a QAPP.** The cost for the development of the QAPP is estimated to be \$50,000. This is based on approximately 333 hrs @ \$150/hr.
- **Subtask 14G.2 Preparation of a PAEP.** The cost for the development of a PAEP is estimated to be \$50,000. This is based on approximately 333 hrs @ \$150/hr.
- **Subtask 14G.3 Effectiveness Monitoring.** The cost for effectiveness monitoring is estimated to be \$50,000. This is based on approximately 333 hrs @ \$150/hr.

Row (h) Construction/Implementation Contingency

No construction/implementation contingency percentage was applied. The contingency is based on the design level estimates, which typically include any contingencies within the cost.

Row (i) Grand Total

The Grand total for the project (\$62,578,539) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 96%.

EDUCATION AND OUTREACH PROGRAM

Work Item #15: San Diego Regional Pollution Prevention

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: San Diego Regional Pollution Prevention						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$35,649	\$35,649	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$85,000	\$528,000	\$613,000	
(d)	Construction/Implementation	\$0	\$14,885	\$142,020	\$156,905	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$0	\$15,980	\$15,980	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$99,885	\$721,649	\$821,534	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$99,885		\$821,534	12%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind volunteer services, matching grants, membership donations, donated equipment</i>				
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.						

Table 15-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 15A	Direct Project Administration	\$35,649
	Proposal Administration	\$21,649
15A.1	Project Administration	\$2,000
15A.2	Submit Quarterly Reports	\$3,000
15A.3	Submit Final Report	\$9,000
Task 15C	Planning/Design/Engineering/Environmental Documentation	\$613,000
15C.1	Establish Regional Water Monitoring Training and Resource Center	\$613,000
Task 15D	Construction/Implementation	\$156,905
15D.1	Develop and Implement Public Outreach and Educational Campaign	\$62,455
15D.2	Manage Data, Analyze Data and Develop San Diego Regional Watersheds Report	\$94,450
Task 15G	Other Costs	\$15,980
15G.1	Preparation of QAPP	\$4,990
15G.2	Preparation of PAEP	\$4,990
15G.3	Effectiveness Monitoring	\$4,025
15G.4	Preparation of MP	\$1,975
	Grand Total	\$821,534

Row (a) Direct Project Administration Costs

The following breakdown of costs was assumed in determining the budget for Direct Project Administration costs.

Task Item (Subtasks 15A.1 through 15A.3)	Executive Director	Water Monitoring Program Director	Lab & Data Mgr.	Education & Outreach Mgr.	Water Quality Analysis Intern	Volunteer	Total labor costs	Other Costs	Total Costs
	[\$75/hr]	[\$65/hr]	[\$40/hr]	[\$40/hr]	[\$25/hr]	[\$21/hr]			
Project Administration	1	30	-	-	-	-	\$2,000	-	\$2,000
Submit Quarterly Reports	4	20	35	-	-	-	\$3,000	-	\$3,000
Submit Final Report	4	50	80	-	90	-	\$9,000	-	\$9,000
Total	9	100	115	-	90	-	\$14,000	-	\$14,000

Row (b) Land Purchase/Easement

Not applicable

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

The Planning/Design/Engineering and Environmental Documentation costs associated with this project include the establishment of a Regional Water Monitoring Training and Resource Center which is broken down in the table below.

Planning/Design/Engineering/Environmental Documentation Costs

Subtask 15C.1									
Task Item	Executive Director	Water Monitoring Program Director	Lab & Data Mgr.	Education & Outreach Mgr.	Water Quality Analysis Intern	Volunteer	Total labor costs	Non-Staff Costs ¹	Total Costs
	[\$75/hr]	[\$65/hr]	[\$40/hr]	[\$40/hr]	[\$25/hr]	[\$21/hr]			
Establish Regional Water Monitoring Training and Resource Center	166	1,700	2,500	1,250	810	4,000	\$378,200	\$234,800	\$613,000
Total	166	1,700	2,500	1,250	810	4,000	\$377,200	\$234,800	\$613,000

¹See Breakdown of Other Costs table below.

Breakdown of non-staff costs included in Subtask 14C.1, 15D.1 and 15D.2

Non-staff costs associated with the project total \$249,800. These costs appear in the tables for Subtasks 14C.1, 15D.1 and 15D.2 as "Non-staff costs".

Non-Staff Costs

Other Fees and Costs	Total
Professional / Contractual Services	
San Diego Stream Team – San Diego County Bioassessment Surveys	\$35,000
San Diego State University – Graduate School of Public Health - Metals Analyses	\$60,000
Data Display Services (Water Information Systems Environment & other contractors)	\$50,000
I Love a Clean San Diego – Inland Cleanups	\$15,000
Certified Lab Sample Analyses	\$15,000
Materials, supplies & other expenses	
Data Summit Fees	\$3,000
Travel and Mileage	\$5,800
Supplies and Materials	\$66,000
Total "Other Fees"	\$249,800

Row (d) Construction/Implementation

The Construction/Implementation costs associated with this project are estimated at \$156,905. The costs are described below.

Implementation Costs

Subtasks 15D.1 and 15D.2									
Task Item	Executive Director	Water Monitoring Program Director	Lab & Data Mgr.	Education & Outreach Mgr.	Water Quality Analysis Intern	Volunteer	Total labor costs	Non-Staff Costs	Total Costs
	[\$75/hr]	[\$65/hr]	[\$40/hr]	[\$40/hr]	[\$25/hr]	[\$21/hr]			
Develop and Implement Public Outreach and Education Campaign	20	300	75	125	640	355	\$52,455	\$10,000	\$62,455
Manage Data, Analyze Data, and Develop SD Regional 'Watersheds Report'	5	800	73	125	868	355	\$89,450	\$5,000	\$94,450
Total	25	1,100	148	250	1,508	710	\$141,905	\$15,000	\$156,905

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Other costs associated with this project total \$15,980 and include four task items which are broken down in the table below.

Other Costs

Subtasks 15G.1 through 15G.4									
Task Item	Executive Director	Water Monitoring Program Director	Lab & Data Mgr.	Education & Outreach Mgr.	Water Quality Analysis Intern	Volunteer	Total Labor Costs	Other Fees	Total Costs
	[\$75/hr]	[\$65/hr]	[\$40/hr]	[\$40/hr]	[\$25/hr]	[\$21/hr]			
Preparation of QAPP	-	30	76	-	-	-	\$4,990	-	\$4,990
Preparation of PAEP	-	30	76	-	-	-	\$4,990	-	\$4,990
Effectiveness Monitoring	-	25	60	-	-	-	\$4,025	-	\$4,025
Preparation of MP	-	15	25	-	-	-	\$1,975	-	\$1,975
Total	0	100	237	0	0	0	\$15,980	0	\$15,980

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$821,534) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 15%.

Work Item #16: Biofiltration Wetland Creation and Education Program

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>Biofiltration Wetland Creation and Education Program</u>						
Budget Category		Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$32,349	\$32,349	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$80,000	\$0	\$80,000	
(d)	Construction/Implementation		\$14,700	\$520,300	\$535,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$30,000	\$0	\$30,000	
(f)	Construction Administration	\$0	\$0	\$60,000	\$60,000	
(g)	Other Costs	\$0	\$16,400	\$9,000	\$25,400	
(h)	Construction/Implementation Contingency	\$0	\$0	\$100,000	\$100,000	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$141,100	\$721,649	\$862,749	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$141,100		\$862,749	16%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind services, donations</i>				
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.						

Table 16-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 16A	Direct Project Administration	\$32,349
	Proposal Administration	\$21,649
16A.1	Project Administration	\$10,700
Task 16C	Planning/Design/Engineering/Environmental Documentation	\$80,000
16C.1	Permits and Construction Documents	\$80,000
Task 16D	Construction/Implementation	\$535,000
16D.1	Set/Install Equipment	\$200,000
16D.2	Build Wetlands/Conveyance Systems	\$247,000
16D.3	Set/Install Electric Wiring and Controls	\$28,000
16D.4	Mobilization	\$40,000
16D.5	Maintenance	\$20,000
Task 16E	Environmental Compliance/Education Programs	\$30,000
16E.1	Water Conservation/Education Programs	\$30,000
Task 16F	Construction Administration	\$60,000
16F.1	Construction Management	\$60,000
	Contingency	\$100,000
Task 16G	Other Costs	\$15,000
16G.1	Preparation of QAPP	\$7,200
16G.2	Preparation of PAEP	\$3,200
16G.3	Effectiveness Monitoring	\$15,000
	Grand Total	\$862,749

Row (a) Direct Project Administration Costs

Subtask 16A.1 Project Administration. Direct project administration tasks are budgeted as \$10,700, and were calculated as 2% of construction cost estimate (\$535,000). They are divided into three subdivisions: Administration (1%), which includes preparing documents, communications and schedules. Support staff (0.5%) may include plant documentation and equipment inventory. Ordering staff (0.5%) may include ordering specific plants and equipment.

Row (b) Land Purchase/Easement

Not applicable

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

Subtask 16C.1 Permits and Construction Documents. The estimated costs for obtaining permits and developing construction documents are \$80,000. Costs were calculated as approximately 15 percent of the \$535,000 construction cost estimate. The construction cost estimate is the capital cost of construction. The budget of \$80,000 is split into two items: \$15,800 is estimated to obtain a building permit and \$64,200 is estimated to complete the construction documentation. Construction documentation includes creating a mini-master plan for the project site, and developing project construction documents. Costs are based on prior projects.

Row (d) Construction/Implementation

Costs for construction items are detailed in the table below. Cost estimates are included in Appendix 4.1, 16-1.

Subtasks 16D.1 through 16D.5					
Cost Item	Quantity	Unit	Unit Price	Total	Basis
Set/Install Equipment					
Force Main Piping & Fittings	2,500	LF	\$42	\$105,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1. The estimate was based on the distance between two ponds and cost of 80 PVC pipe with valves, elbows, couplings, primer glue and other needed fittings.
80-gpm Pump	2	EA	\$10,000	\$20,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1. They include a pump and motor designed for correct flow.
Pump Station, Piping/Appurtenances	2	LS	\$37,500	\$75,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1, and include a weatherproof enclosure, associated corrosion resistant fitting and valves, drainage piping and vibration dampening mounting.
Build Wetlands/Conveyance Systems					
Wetlands and Earthwork	1.5	Acre	\$84,700	\$127,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1, and include excavation, liner purchase and placement, aggregate transport and placement, and plants for wetlands.
Waterfall Treatment	1	LS	\$50,000	\$50,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1 for the waterfall construction with rock placement and construction and liner.
Grouted Channel and Treatment	5,600	SF	\$12.5	\$70,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1 and include the lined channel construction connection ponds with wetlands.

Subtasks 16D.1 through 16D.5					
Cost Item	Quantity	Unit	Unit Price	Total	Basis
Set/Install Electric Wiring and Controls					
Electrical Wiring/Controls	1	LS	\$28,000	\$28,000	Based on a preliminary estimate from PBS&J, see Appendix 4, 4-16-1. It includes electrical power run to pump stations and flow meters/switches to monitor pump performance and protect electrically.
Mobilization					
Mobilization	1	LS	\$40,000	\$40,000	Cost based on preliminary estimates developed by engineers at PBS&J. as part of the Wild Animal Park's Water Master Plan found in Appendix 4, 4-16-1. The estimates include the cost of transporting all equipment, vehicles, construction trailers and moving equipment to and from the site. Also includes moving some plants and aggregate from within the Wild Animal Park to the construction site.
Maintenance					
Maintenance	1	LS	\$20,000	\$20,000	Based on the Zoological Society of San Diego's experience with similar water projects. Estimate includes cost for water quality chemical testing, bacteria testing, and continuous monitoring of pH and temperature values. Also includes off site water quality testing.
Total				\$535,000	

Row (e) Environmental Compliance/Mitigation/Enhancement

Subtask 16E.1 Water Conservation/Education Programs. The total cost for Environmental Compliance/Mitigation/Enhancement is \$30,000. This is based on 100 program per year at cost of \$300/program. This estimate is based on current education programs at the Zoological Society of San Diego. Water Conservation/Education programs include interactive water testing opportunities, water conservation and watershed programming, riparian habitat restoration, plantings, public outreach programs to students, teachers, families, youth, and guests visiting the Wild Animal Park.

Row (f) Construction Administration

Subtask 16F.1 Construction Management. Construction administration tasks were budgeted at \$60,000, calculated as 11% of construction cost estimate (\$535,000). Tasks include facilitation of bi-weekly meetings to discuss project deliverables with consultants and staff, schedule review, water quality testing, project monitoring and site evaluation.

Row (g) Other Costs

Subtask 16G.1 – Preparation of QAPP. This task includes development of a State-approved QAPP. The total cost (\$7,200) assumes a total of 189 labor hrs, plus other direct costs.

Subtask 16G.2 – Preparation of PAEP. This task includes development of a State-approved PAEP. The total cost (\$3,200) assumes a total of 85 labor hrs, plus other direct costs.

Subtask 16G.3 – Effectiveness Monitoring. This task includes monitoring to establish the effectiveness of the project. The total cost of \$15,000 is based on past experience. Monitoring costs include one day every two weeks to test, record and monitor the new wetland and water quality from six water bodies. Time required for monitoring is about 210 hrs. Equipment, fees for testing, and labor for employee is included.

Row (h) Construction/Implementation Contingency

The construction/implementation contingency cost is \$100,000. This is determined as approximately 12% of the total project costs (\$830,700). The contingency is based on preliminary estimates developed by engineers at PBS&J, as part of the Educational Demonstration Project within the Wild Animal Park's Water Master Plan included in Appendix 4.1, 16-1. These costs include funds to handle unknown and unspecified conditions encountered during construction or implementation of the project.

Row (i) Grand Total

The Grand total for the project (\$862,749) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 16%.

Work Item #17: San Dieguito Watershed Management Plan Implementation

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: San Dieguito Watershed Management Plan Implementation						
Budget Category		Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$0	\$4,584	\$4,584	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d)	Construction/Implementation	\$0	\$4,480	\$25,520	\$30,000	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$5,000	\$44,980	\$49,980	
(f)	Construction Administration	\$0	\$0	\$0	\$0	
(g)	Other Costs	\$0	\$0	\$17,700	\$17,700	
(h)	Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$9,480	\$92,784	\$102,264	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$9,480		\$102,264	9%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>In-kind services provided by the San Dieguito River Park and San Dieguito River Valley Conservancy</i>				
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.						

Table 17-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 17A	Direct Project Administration	\$4,584
	Proposal Administration	\$2,783
17A.1	Project Administration	\$1,500
17A.2	Prepare and Submit Semi-Annual Reports/Invoices	\$300
Task 17D	Construction/Implementation	\$30,000
17D.1	Watershed Management Project Implementation	\$30,000
Task 17E	Environmental Compliance/Education Programs	\$49,980
17E.1	Working Group Activities Related to Environmental Action Steps	\$49,980
Task 17G	Other Costs	\$17,700
17G.1	Preparation of PAEP	\$1500
17G.2	Hiring of Contractor(s)	\$510
17G.3	Identify and Apply for Outside Funding to Carry out Council Programs	\$15,690
	Grand Total	\$102,264

Row (a) Direct Project Administration Costs

Subtask 17A.1 Project Administration. Direct project administration costs were based on an average hourly wage of \$30 over 60 hrs for a total of \$1,800.

Subtask 17A.1 Prepare and Submit Semi-Annual Reports/Invoices. This task includes preparing and submitting semi-annual reports/invoices. The estimate is based on an average hourly wage of \$30 over 10 hrs for a total of \$300.

Row (b) Land Purchase/Easement

Not applicable

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

Not applicable

Row (d) Construction/Implementation

Subtask 17D.1 Watershed Management Project Implementation. The Construction/Implementation costs for the project are estimated to be \$30,000 based on an hourly wage of \$30 over 1,000 hrs.

Row (e) Environmental Compliance/Mitigation/Enhancement

Subtask 17E.1 Working Group Activities Related to Environmental Action Steps. Environmental Compliance/Mitigation/Enhancement costs for the project include project management associated with Weed Management Working Group activities, and are estimated to be \$49,980 based on an hourly wage of \$30 over 1,666 hrs.

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Subtask 17G.1 Preparation of PAEP. Costs include development of a PAEP. Total costs were estimated as \$1,500 based on an hourly wage of \$30 over 50 hrs.

Subtask 17G.2 Hiring of Contractor(s). Costs include hiring a contractor to perform project functions. Total costs were estimated as \$510 based on an hourly wage of \$30 over 17 hrs.

Subtask 17G.3 Identify and Apply for Outside Funding to Carry out Council Programs. Costs include researching and applying for outside funding. Total costs were estimated as \$15,690 based on an hourly wage of \$30 over 523 hrs.

Other Costs

Subtask 17G.1 through 17G.3				
Cost Item	Quantity	Unit	Unit Price	Total
Preparation of PAEP	50	Hrs	\$30	\$1500
Effectiveness Monitoring	17	Hrs	\$30	\$510
Identify & apply for outside funding to carry out Council programs	523	Hrs	\$30	\$15,690

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$102,264) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 9%.

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

Table 8 – Budget (continued), 2006 dollars					
Proposal Title: San Diego Implementation Grant Proposal					
Project Title: San Diego River Watershed Management Plan Implementation					
Budget Category	Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a) Direct Project Administration Costs	\$0	\$0	\$5,393	\$5,393	
(b) Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c) Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$0	\$0	\$0	
(d) Construction/Implementation	\$0	\$15,000	\$96,700	\$111,700	
(e) Environmental Compliance/ Mitigation/Enhancement	\$0	\$0	\$0	\$0	
(f) Construction Administration	\$0	\$0	\$0	\$0	
(g) Other Costs	\$0	\$440	\$1,000	\$1,440	
(h) Construction/Implementation Contingency	\$0	\$0	\$0	\$0	
(i) Grand Total (Sum rows (a) through (h) for each column)	\$0	\$15,440	\$103,093	\$118,533	
(j) Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$15,440		\$118,533	13%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds	<i>Local funds</i>				
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.					

Table 18-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 18A	Direct Project Administration	\$5,393
	Proposal Administration	\$3,093
18A.1	Quarterly Progress Reports and Invoices	\$1,100
18A.2	Annual and Final Project Report and Invoice	\$1,200
Task 18D	Construction/Implementation	\$111,700
18D.1	Quarterly Watershed-wide Stakeholder Meetings	\$38,020
18D.2	Workshop and Outreach Activities to Identify Local Projects in Seven DACs	\$45,400
18D.3	Annual State of the Watershed Report and Forum	\$13,780
18D.4	Project Tracking Website	\$7,100
18D.5	Ongoing Funding Strategic Plan	\$4,500
18D.6	Advanced Data Clearinghouse	\$950
18D.7	Develop and Distribute Water Quality Education Materials	\$1,950
Task 18G	Other Costs	\$1,440
18G.1	Hiring of Contractor(s)	\$1,000
18G.2	Preparation of PAEP	\$440
	Grand Total	\$118,533

Row (a) Direct Project Administration costs

Direct project administration costs are budgeted at \$2,300, based on an average hourly wage of \$50 for the executive director over 46 hrs. A detailed breakdown of the budget is provided in the table below.

Administration Cost Estimate

Subtask 18A.1 and 18A.2						
Task	Quantity	Unit of Measure	Unit Price	Cost per Report	Number of Reports	Total Cost
Quarterly Progress Reports	2.75	hrs	\$50	\$137.50	8	\$1,100
2 Annual and 1 Final Project Reports	8	hrs	\$50	\$400	3	\$1,200

Row (b) Land Purchase/Easement

Not applicable

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

Not applicable

Row (d) Construction/Implementation

Implementation costs are budgeted at \$111,700, based on an average wage of \$22/hr for the a contractor and \$50/hr for the executive director. A detailed breakdown of the budget is provided in the table below.

Implementation Cost Estimate

Subtasks 18D.1 through 18D.7					
Task	Quantity	Unit of Measure	Unit Price	Total Cost	Basis
Hold Quarterly Watershed-Wide Stakeholder meetings	8	Meeting	\$4,752	\$38,020	185 hrs of contractor time and 10 hrs of executive director time to organize and hold each meeting
Workshops and outreach activities to Identify Local Projects in Seven Disadvantaged Communities	48	Workshop/ outreach activities	\$918	\$45,400	40 hrs of contractor time to coordinate and participate in each activity
Annual State of the Watershed Report and Forum	2	Report/ Forum	\$6,890	\$13,780	55 hrs of contractor time to develop the report and organize the forum plus forum and report costs
Project Tracking Website	1	Website	\$7,100	\$7,100	40 hrs of contractor time to develop and 10 hrs per month for 27 months to maintain project tracking website plus costs
Ongoing Funding Strategic Plan	4	Strategic Plan	\$1,125	\$4,500	50 hrs of contractor to research, write and distribute plan
Advance Data Clearinghouse	1	Clearing-house	\$950	\$950	40 hrs of contractor time to advance the data clearinghouse
Develop and Distribute Water Quality Education Materials	1,000	Brochures	\$1.95	\$1,950	40 hrs of contractor time to develop and distribute materials plus printing costs
Total	-	-	-	\$111,700	

Row (e) Environmental Compliance/Mitigation/Enhancement

Not applicable

Row (f) Construction Administration

Not applicable

Row (g) Other Costs

Implementation costs were based on an average hourly wage of \$22 for a contractor and \$50 for the executive director. A detailed breakdown of the budget is provided in the table below.

Other Costs Estimate

Subtasks 18D.1and 18D.7					
Task	Quantity	Unit of Measure	Unit Price	Total Cost	Basis
Hiring of Watershed Coordinator	20	hrs	\$50	\$1,000	20 hrs of executive director to hire contractor
Preparation of PAEP	20	hrs	\$22	\$440	20 hrs of contractor to prepare the PAEP and associated printing, mailing and misc. costs
Total	-	-	-	\$1,440	

Row (h) Construction/Implementation Contingency

Not applicable

Row (i) Grand Total

The Grand total for the project (\$118,533) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 13%.

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

Table 8 – Budget (continued), 2006 dollars					
Proposal Title: San Diego Implementation Grant Proposal					
Project Title: City of San Diego Green Mall Porous Paving and Infiltration, Phase I					
Budget Category	Other State Funds⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a) Direct Project Administration Costs	\$0	\$5,250	\$7,732	\$12,982	
(b) Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c) Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$86,842	\$0	\$86,842	
(d) Construction/Implementation	\$0	\$0	\$188,540	\$188,540	
(e) Environmental Compliance/ Mitigation/Enhancement	\$0	\$1,000	\$0	\$1,000	
(f) Construction Administration	\$0	\$18,520	\$33,320	\$51,840	
(g) Other Costs	\$0	\$138,388	\$0	\$138,388	
(h) Construction/Implementation Contingency	\$0	\$0	\$28,140	\$28,140	
(i) Grand Total (Sum rows (a) through (h) for each column)	\$0	\$250,000	\$257,732	\$507,732	
(j) Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$250,000		\$507,732	49%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds	<i>In-kind services and City of San Diego General Fund</i>				
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.					

Table 19-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 19A	Direct Project Administration	\$12,982
	Proposal Administration	\$7,732
19A.1	Project Administration	\$5,250
Task 19C	Planning/Design/Engineering/Environmental Documentation	\$86,842
19C.1	Draft Plan Development	\$43,421
19C.2	Final Plan Development	\$43,421
Task 19D	Construction/Implementation	\$188,540
19D.1	Demolition	\$32,030
19D.2	Porous Pavement and Enhancements Installation	\$129,900
19D.3	Erosion and Traffic Control	\$15,000
19D.4	Mobilization	\$10,610
19D.5	Pre- and Post- Implementation Photo Documentation	\$1,000
Task 19E	Environmental Compliance/Mitigation Enhancement	\$1,000
19E.1	MND Addendum Procurement	\$1,000
Task 19F	Construction Administration	\$51,840
19F.1	Construction Administration	\$5,000
19F.2	Inspection	\$46,840
Task 19G	Other Costs	\$138,388
19G.1	Preparation of QAPP	\$20,000
19G.2	Preparation of PAEP	\$15,000
19G.3	Effectiveness Monitoring	\$42,000
19G.4	Regional Partnering	\$5,000
19G.5	Stakeholder Outreach and Education	\$56,388
	Construction Contingency	\$28,140
	Grand Total	\$507,732

Row (a) Direct Project Administration Costs

Subtask 19A.1 Project Administration. Project administration costs are budgeted as \$5,250, and are estimated as approximately 2% of the requested grant portion of Construction/Implementation costs.

Row (b) Land Purchase/Easement

Not applicable

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

The total Planning/Design/Engineering and Environmental Documentation costs are budgeted as \$86,842. This was determined as shown below.

Design Estimate

Subtasks 19C.1 and 19C.2 (Combined)				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Design Contract	1	LS	\$40,000.00	\$40,000
City Engineer	669	Hr	\$70.02	\$46,842
Total				\$86,842

- **Subtasks 19C.1 Draft Plan Development.** The total costs for this subtask was \$43,421. The costs for the Design Contract and City Engineer's labor were assumed to be divided equally between the Draft Plan and Final Plan Development.
- **Subtasks 19C.2 Final Plan Development.** The total costs for this subtask was \$43,421. The costs for the Design Contract and City Engineer's labor were assumed to be divided equally between the Draft Plan and Final Plan Development.

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$188,540. This is based on the following.

Construction Estimate

Subtasks 19D.1 through 19D.5				
Cost Item	Quantity	Unit	Unit Price	Total
Demo AC pavement and base	6,600	SF	\$1.00	\$6,600
Demo concrete curb and gutter	280	LF	\$6.00	\$1,680
Haul and dispose of above	275	CY	\$50.00	\$13,750
Soil and Material export	1	LS	\$10,000	\$10,000
Install 8" pervious concret	3,100	SF	\$12.00	\$37,200
Install 9" permeable base	3,100	SF	\$1.00	\$3,100
Install 3-6" crushed rock	160	CY	\$25.00	\$4,000
Install 6" PCC curb and gutter	340	LF	\$50	\$17,000
Install 8" thick PCC wall and footing	650	LF	\$50.00	\$32,500
Install 8" thick by 1' PCC planter box	420	LF	\$20.00	\$8,400
Install 30-gallon tree	16	EA	\$200.00	\$3,200
Relocate fire hydrant	1	EA	\$10,000.00	\$10,000
Install PCC disabled access ramps	2	EA	\$5,000.00	\$10,000
Install new striping	1	LS	\$2,000.00	\$2,000
Install Misc. Landscaping	1	LS	\$2,500.00	\$2,500
Erosion Control	1	LS	\$5,000.00	\$5,000
Traffic Control	1	LS	\$10,000.00	\$10,000
Mobilization	1	LS	\$10,615.80	\$10,615.80
Pre- and Post- Photo Documentation	1	LS	\$1,000	\$1,000
Total				\$188,540

Row (e) Environmental Compliance/Mitigation/Enhancement

Subtasks 19E.1 MND Addendum Procurement. The cost for environmental compliance is budgeted as \$1,000, and includes securing an addendum to MND 134590. This is based on 15.5 hrs of a City Senior Planner @64.43/hr.

Row (f) Construction Administration

The total cost for Construction Administration is \$51,840. This is based on the following:

Construction Administration Costs

Subtasks 19F.1 and 19F.2				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
<i>Construction Administration</i>				
Purchasing and Contracting Staff	38	Hr	\$52.63	\$2,000
Reproduction Costs	1	LS	\$2,000	\$2,000
Storm Water Division Staff	17.7	Hr	\$56.54	\$1,000
<i>Inspections</i>				
Resident Engineer	600	Hr	\$65.60	\$39,360
Resident Engineer	100	Hr	\$74.82	\$7,480
Total				\$46,840

Row (g) Other Costs

Other costs are assumed to be \$138,388, and are broken out as described below.

Subtask 19G.1 Preparation of QAPP. This subtask involves preparation and maintenance of a QAPP to guide the monitoring work led by the City of San Diego – Storm Water Pollution Prevention Program. Existing, approved QAPPs will be updated and submitted for review and approval. The QAPPs will include an MP identifying where the sampling will be done, how many samples will be taken, sampling frequency, and target analyses. The QAPPs shall be approved by the RWQCB or SWRCB Quality Assurance officer prior to implementation of any sampling or monitoring activities. The \$20,000 budget is based on the following.

Subtasks 19G.1				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Associate Project Scientist	144	Hr	\$75.00	\$10,800.00
Project Engineer/ Project Scientist	54	Hr	\$100.00	\$5,400
Project Manager	13.3	Hr	\$135.00	\$1,800
City Project Administration / City Engineer	28.6	Hr	\$70.00	2,000
Total				\$20,000

Subtask 19G.2 Preparation of PAEP. This subtask includes preparation of a PAEP, monitoring and assessment of project implementation, overall project administration, and preparation of quarterly status reports and a final status report. The PAEP will include the following: 1) Identifies one (1) or more nonpoint sources of pollution, 2) Describe the baseline water quality of the water body impacted, 3) Describe the manner in which the proposed practices or measures are implemented; and 4) Determine the effectiveness of the proposed practices or measures in preventing or reducing pollution. The \$15,000 budget is based on the following.

Subtask 19G.2				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Associate Project Scientist	108	Hr	\$75.00	\$8,100
Project Engineer/ Project Scientist	41	Hr	\$100.00	\$4,100
Project Manager	10	Hr	\$135.00	\$1,350
City Project Administration / City Engineer	20.7	Hr	\$70.00	\$1,450
Total				\$15,000

Subtask 19G.3 Effectiveness Monitoring. The monitoring conducted under this subtask will include baseline and post-project monitoring according to the approved QAPP. The \$42,000 budget is based on the following.

Subtask 19G.3				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Associate Project Scientist	200	Hr	\$75.00	\$15,000
Project Engineer/ Project Scientist	100	Hr	\$100.00	\$10,000
Project Manager	46.2	Hr	\$135.00	\$6,240
Inspection / City Resident Engineer	100	Hr	\$65.60	\$6,560
City Project Administration / City Engineer	60.0	Hr	\$70.00	\$4,200
Total				\$42,000

Subtask 19G.4 Regional Partnering. This will include preparation of Memorandum of Understanding (MOU) between City of San Diego – Storm Water Pollution Prevention Program and project partners, including San Diego Coastkeeper and Groundwork Chollas – San Diego. The MOUs will identify tasks, schedule, deliverables and budget specific to project elements led by staff. Draft MOUs will be submitted to project partners for their review and a final MOU will be produced for signature. The \$5,000 budget is based on the following.

Subtask 19G.4				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
City Engineer	71.5	Hr	\$70	\$5,000
Total				\$5,000

Subtask 19G.5 Stakeholder Outreach and Education. This will include the following activities.

Outreach Activities. Produce a site-targeted outreach work schedule of planned activities and events in collaboration with project partners. Develop a map to identify all land uses adjacent to the project site, and identify the commercial business groups or areas to be targeted for outreach. The \$5,000 estimate for this item is based on the following.

Subtask 19G.5 – Outreach Activities				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Marketing Principal	8.4	Hr	\$185	\$1,550
Management Associate	30	Hr	\$115	\$3,450
Total				\$5,000

Project Outreach and Education Strategy Development. Draft the Dalbergia and Thorn Water Quality Protection and Habitat Enhancement Project Outreach and Education Strategy. This document will be based on Community Based Social Marketing Principles and will guide the outreach and identify key strategies, messages, and tools. The \$7,000 estimate for this item is based on the following.

Subtask 19G.5 – Project Outreach and Education Strategy Development				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Senior Researcher	11.4	Hr	\$175	\$2,000
Project Director	40	Hr	\$125	\$5,000
Total				\$7,000

Community Based Social Marketing (CBSM) Research and Development. Conduct CBSM research and begin development of protocols to identify potential target behaviors. Conduct survey to identify both potential barriers that prevent businesses from engaging in the desirable behaviors and potential motivations for action. Data from this survey will inform the development of effective outreach messages and approaches. The \$14,388 estimate for this item is based on the following.

Subtask 19G.5 – CBSM Research and Development				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Senior Researcher	12	Hr	\$175	\$2,100
Project Director	30	Hr	\$125	\$3,750
Project Manager	50	Hr	\$65	\$3,250
Volunteer Coordinator	151	Hr	\$35	\$5,288
Total	-	-	-	\$14,388

Data Gathering. Gather educational research data from target audience, analyze and assess. Based on findings, begin development of effective tools of behavior change (i.e. commitment, prompts, social norms) to incorporate into outreach materials. The \$10,000 estimate for this item is based on the following.

Subtask 19G.5 – Data Gathering				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Senior Researcher	5	Hr	\$175	\$875
Project Director	10	Hr	\$125	\$1,250
Project Manager	30	Hr	\$65	\$1,950
Volunteer Coordinator	169	Hr	\$35	\$5,922
Total	-	-	-	\$10,000

Pilot Education Strategy Implementation. Implement Pilot Education Strategy with recommended tools. All printed materials will be in English, Spanish and a minimum of one (1) additional language that is

dominant in the community and reflects the language demographic of the pilot business groups or areas. This includes assessment of the success of the strategy implementation. The \$7,000 estimate for this item is based on the following.

Subtask 19G.5 – Pilot Education Strategy Implementation				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Senior Researcher	5	Hr	\$175	\$875
Project Director	10	Hr	\$125	\$1,250
Project Manager	20	Hr	\$65	\$1,300
Volunteer Coordinator	102	Hr	\$35	\$3,570
Total	-	-	-	\$7,000

Business Recruitment. Recruit targeted businesses to participate in the Chollas Creek enhancement efforts by adopting pollution prevention practices and passing a storm water BMP audit of their business. The \$5,000 estimate for this item is based on the following.

Subtask 19G.5 – Business Recruitment				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Marketing Principal	8.4	Hr	\$185	\$1,550
Management Associate	30	Hr	\$115	\$3,450
Total	-	-	-	\$5,000

City Contract Administration. The \$8,000 estimate for this item is based on the following.

Subtask 19G.5 – City Contract Administration				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Public Information Officer	123	Hr	\$65	\$8,000
Total	-	-	-	\$8,000

Row (h) Construction/Implementation Contingency

Construction contingency costs (\$28,140) were estimated as approximately 15 percent of capital and implementation costs (\$188,540).

Row (i) Grand Total

The Grand total for the project (\$507,732) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 49%.

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

Table 8 – Budget (continued), 2006 dollars						
Proposal Title: San Diego Implementation Grant Proposal						
Project Title: <u>County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge</u>						
Budget Category		Other State Funds ⁽¹⁾	Non-State Share (Funding Match)	Requested Grant Funding	Total	% Funding Match
(a)	Direct Project Administration Costs	\$0	\$14,600	\$18,557	\$33,157	
(b)	Land Purchase/Easement	\$0	\$0	\$0	\$0	
(c)	Planning/ Design/ Engineering/ Environmental Documentation	\$0	\$34,600	\$178,000	\$212,600	
(d)	Construction/Implementation	\$0	\$0	\$371,700	\$371,700	
(e)	Environmental Compliance/ Mitigation/Enhancement	\$0	\$5,600	\$0	\$5,600	
(f)	Construction Administration	\$0	\$30,200	\$0	\$30,200	
(g)	Other Costs	\$0	\$15,000	\$0	\$15,000	
(h)	Construction/Implementation Contingency	\$0	\$10,000	\$50,300	\$60,300	
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$0	\$110,000	\$618,557	\$728,557	
(j)	Calculation of Funding Match % (Used in Funding Match Scoring Criterion) <i>Optional for individual component projects.</i>		\$110,000		\$728,557	15%
Sources of Funds for Non-State Share (Funding Match) and Other State Funds		<i>County of San Diego In-kind services, local funds</i>				
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.						

Table 20-1: Cost Breakdown by Workplan Task and Subtask

Task	Category	Total
Task 20A	Direct Project Administration	\$33,157
	Proposal Administration	\$18,557
20A.1	Project Administration	\$5,600
20A.2	Preparation of Reports	\$3,400
20A.3	Outreach	\$5,600
Task 20C	Planning/Design/Engineering/Environmental Documentation	\$212,600
20C.1	Technical Expert Assistance and Review	\$ 50,000
20C.2	Design	\$ 90,000
20C.3	Monitoring	\$ 60,000
20C.4	Preparation and Awarding of Contracts	\$3,400
20C.5	Staff Design Review	\$9,200
Task 20D	Construction/Implementation	\$371,700
20D.1	Mobilization, Site Security, BMPs and Surveying	\$24,200
20D.2	Demolition, Excavation, Hauling and Disposal	\$107,700
20D.3	Installation of LIDs; Infiltration Vaults, Catch Basins and Piping	\$111,500
20D.4	Backfilling and Patching	\$52,500
20D.5	Install Pavements and Berms	\$75,800
	Construction Contingency (16.2%)	\$60,300
Task 20E	Environmental Compliance/Mitigation Enhancement	\$5,600
20E.1	Prepare and Certify CEQA Requirements	\$5,600
Task 20F	Construction Administration	\$30,200
20F.1	Preparation and Awarding of Construction Contracts	\$3,400
20F.2	On-Site Construction Management	\$13,400
20F.3	Inspections	\$6,700
20F.4	Meetings	\$6,700
Task 20G	Other Costs	\$15,000
20G.1	Preparation of PAEP	\$5,000
20G.2	Preparation of QAPP and MP	\$5,000
20G.3	Effectiveness Monitoring	\$5,000
	Grand Total	\$728,557

Row (a) Direct Project Administration Costs

The total direct project administration costs were budgeted as \$14,600. This is based on the following:

- **Subtask 20A.1 Project Administration.** The total costs for this subtask are \$14,600, based on 100 hrs @ \$140/hr plus \$600 for other direct costs.
- **Subtask 20A.2 Preparation of Reports.** The total costs for this subtask was \$3,400. Based on 24 hrs @ \$140/hr.
- **Subtask 20A.3 Outreach.** The total costs for this subtask was \$5,600. Based on 40 hrs @ \$140/hr.

Direct Project Administration costs were determined based on the average hourly wage of project staff and administration hr projections with an additional contingency of 10 percent. The contingency is based on the unknown factors of underground design work and industry standards.

Row (b) Land Purchase/Easement

Not applicable

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

Planning and design costs were budgeted as \$212,600, based on the following assumptions.

Subtasks 20C.1 through 20C.5				
Cost Item (Task)	Quantity	Unit of Measure	Unit Price	Total
Technical Expert	334	hrs	\$150	\$ 50,000
Design	600	hrs	\$150	\$ 90,000
Monitoring	400	hrs	\$150	\$ 60,000
Prepare & Award Contracts, Staff Design Review	84	hrs	\$150	\$ 12,600
Total	1418	hrs	\$ 150.00	\$ 212,600

Note: Does not include any contingency costs. These costs are covered in another section

Row (d) Construction/Implementation

The Construction/Implementation costs for the project are estimated to be \$371,700 based on the Facilities Planning estimate. As presented in detail by subtask in Appendix 4, 4-20-1, these costs include:

Subtasks 20D.1 through 20D.5				
Cost Item	Quantity	Unit of Measure	Unit Price	Total
Southeast Health Center	24,150	SF	\$ 7.18	\$173,400
Comprehensive Health	18,400	SF	\$ 5.70	\$104,880
Work Furlough	59,920	SF	\$ 1.56	\$93,475
Total	102,470	SF	\$ 3.63	\$ 371,700

Note: Does not include any contingency costs.

Row (e) Environmental Compliance/Mitigation/Enhancement

Subtasks 20E.1 Prepare and Certify CEQA Requirements. Environmental Compliance costs are estimated to be \$5,600, based on an hourly rate of \$140/hr for 40 hrs for preparation of CEQA documents.

Row (f) Construction Administration

Subtasks 20F.1 through Subtasks 20F4. The engineering, legal and administrative costs associated with managing the project are estimated to be approximately \$30,200, assuming an average hourly wage of \$140 over approximately 216 hrs.

Row (g) Other Costs

The total of Other Costs was \$15,000. This is based the following:

- **Subtask 20G.1 Preparation of PAEP.** The total costs for this subtask was \$5,000. Based on approximately 36 hrs @ \$140/hr.
- **Subtask 20G.2 Preparation of QAPP and MP.** The total costs for this subtask was \$5,000. Based on approximately 36 hrs @ \$140/hr.
- **Subtask 20G.3 Effectiveness Monitoring** The total costs for this subtask was \$5,000. Based on approximately 36 hrs @ \$140/hr.

Row (h) Construction/Implementation Contingency

The construction/implementation contingency is budgeted as \$60,300, or 16.2 % of construction costs (\$371,700). The contingency is based on the unknown factors of underground design work, underground construction and industry standards.

These costs include funds to handle unknown and unspecified conditions encountered during construction or implementation of the project.

Row (i) Grand Total

The Grand total for the project (\$728,557) was calculated as the sum of rows (a) through (h) for each column.

Row (j) Calculation of Funding Match %

The percent funding match for this project is 15%.

Appendix 4: Documents Supporting Cost Estimates

San Diego Region Implementation Grant Application

APPENDIX 4 TABLE OF CONTENTS

Appendix #	Citation
4-4-1	NPDES Permit Fees Estimate from the <i>Santee Water Reclamation Facility Feasibility Study for High Rating the WRF (Black and Veatch, 2006)</i> ¹
4-4-2	Opinion of Costs for Santee WRF Expansion from the <i>Santee Water Reclamation Facility Feasibility Study for High Rating the WRF (Black and Veatch, 2006)</i> ¹
4-5-1	Retrofit Cost Information for Potential Recycled Water Retrofit Customers in the Water Authority Service Area
4-6-1	Opinion of Probable Cost for Construction of Los Penasquitos Reclaimed Water Pipeline
4-6-2	Primavera Schedule for Los Penasquitos Reclaimed Water Pipeline
4-9-1	Documented Actual Costs for Arundo Removal in the Upper San Luis Rey Watershed from the <i>Draft Final Report to the State Water Resource Control Board (SWRCB Agreement No. 02-185-559-0)</i> ¹
4-10-1	Contract for EIS/EIR Preparation by The Environmental Company (TEC)
4-10-2	Preliminary Cost Estimates for Santa Margarita Conjunctive Use Project Facilities from the USBR Santa Margarita River Conjunctive Use Pre-Feasibility Plan Formulation Study (USBR, 2005)¹
4-16-1	Preliminary Opinion of Cost for the Amani Point Wetlands by PBS&J
4-20-1	Detailed Opinion of Cost Estimates for County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Facilities

¹Full Document Provided on Disc 3 (CD)

4-4-1: NPDES Permit Fees Estimate



5.2.4 Potential Cost Associated with New Discharge Permit

Based on the analysis presented in Chapter 3, plant discharge in excess of 2.0 MGD to Santee Lakes or 2.0 MGD irrigation use will require revised NPDES and Waste Discharge Permits. In addition, a revised NPDES permit dictating nutrient loadings to Santee Lakes will also be required for discharge greater than 4.0 MGD. Although the exact requirements of the permits are difficult to determine until the actual process has been initiated, potential costs associated with additional sampling, monitoring, and reporting of a revised discharge permit have been included. Costs and additional sampling associated with the revised discharge capacities are summarized in Table 5.5 for each expansion alternatives. It is assumed the 4.0 MGD Expansion option will require additional effort in obtaining the new permit limits. Additional sampling will also be required as new nutrient loadings requirements are enforced. Both of these conditions are presented with a higher cost as compared to the 2.7 High Rating alternative. The costs provided intended to provide for a conservative analysis in calculating the payback period.

**Table 5-4
 Additional Permit and Sampling Fees**

	Permit Fees	Sampling Fees
2.7 MGD High Rating	\$30,000	\$50,000
4.0 MGD Expansion	\$50,000	\$75,000

5.2.5 WRF Out of Service Fees

During the construction of the High Rating or Expansion facilities, there will be times in which the existing plant will need to be taken off-line for modifications and connections. It is anticipated that these downtimes will be approximately 2 weeks for the High Rating and Expansion options. For the High Rating option, the main shutdowns will be required for the modification to the flocculation/sedimentation basins and for tie-ins. Modifications to the existing abandon aeration basins can occur without affecting the plant operation. For the Expansion option, the downtime will be less than the High Rating option, since most of the new facilities can be constructed in a parallel train without interruption of the existing process. Most of the expansion downtime would be due to necessary tie-ins to new facilities.

Due to these anticipated downtimes, the District will incur additional METRO fees and loss of revenue of recycled water sales. Therefore, added expenses and loss of revenue were calculated for both options and summarized in Table 5-5.

4-4-2: Opinion of Costs for Santee WRF Expansion

SANTEE WRF 4.0 MGD EXPANSION ALTERNATIVE SUMMARY SHEET BY COMPONENTS/FACILITIES

EST. DATE: November 14, 2007

CCI INDEX: LA, AVERAGE 2006: 8723

JOB NO.: 138166

CLIENT: **PADRE DAM MUNICIPAL WATER DISTRICT**

DESCRIP: **SANTEE WRF 4.0 MGD EXPANSION ALTERNATIVE PRELIMINARY OPINION OF PROBABLE COST**

	DESCRIPTION	TOTAL COST
	UPGRADES / MODIFICATIONS	
	GENERAL CONDITIONS	
	GENERAL REQUIREMENTS	\$326,000
	INFLUENT PUMP STATION	\$336,000
	HEADWORKS FACILITIES (7.0 MGD PEAK FLOW)	\$1,484,000
	FLOW EQ BASINS	\$1,168,000
	FERMENTATION TANK	\$11,000
	AERATION BASIN MODIFICATION	\$798,000
	BLOWER BUILDING	\$600,000
	MEMBRANE BIOREACTOR	\$5,375,000
	CHLORINE CONTACT BASIN	\$532,000
	CHEMICAL FACILITIES	\$550,000
	SUBTOTAL	\$11,180,000
10%	ELECTRICAL	\$1,118,000
7%	INSTRUMENTATION & CONTROL	\$783,000
	SUBTOTAL	\$13,081,000
30%	CONTINGENCY	\$3,924,000
	SUBTOTAL	\$17,005,000
15.00%	CONTRACTOR OVERHEAD AND PROFIT	\$2,551,000
	SUBTOTAL	\$19,556,000
1.00%	BOND	\$196,000
	GRAND TOTAL	\$19,752,000
	Construction Total	\$15,828,000

Under Task Item (d) - Construction

Under Task Item (h) - Contingency

Padre Dam Municipal Water District
 SANTEE WRF 4.0 MGD EXPANSION ALTERNATIVE
 PRELIMINARY Opinion of Probable Cost

Description	Qty	Units	Unit Cost	Total Cost	Basis of Costs
GENERAL CONDITIONS					
MOBILIZATION, FIELD OFFICE EXPENSES, FIELD PERSONNEL, TEMPORARY UTILITIES, SURVEY, PERMITS, JOB CONDITIONS, SECURITY, INSPECTION, SCHEDULING, OFFICE TRAILERS, FEE, HOME OFFICE, OVERHEAD, ETC. (5%)		LS		\$326,000	Based on experience with similar projects.
SUBTOTAL				\$326,000	
INFLUENT PUMP STATION					
CONCRETE					
CONCRETE PAD		LS		\$3,200	
PUMP EQUIPMENT (PUMP & VFD) High Lift	1	EA	\$79,000	\$79,000	Based on experience with similar projects.
PUMP EQUIPMENT (PUMP & VFD) Low Lift	4	EA	\$36,000	\$144,000	Equipment costs obtained from manufacturers.
PUMP INSTALLATION		LS		\$89,000	
PIPING (FITTINGS, APPURTENANCES, & TESTING)		LS		\$21,000	
SUBTOTAL				\$336,000	
HEADWORKS FACILITIES (7.0 MGD PEAK FLOW)					
BUILDING (3000 SF)		LS		\$600,000	
1 MM FINE SCREENS	2	EA	\$120,000	\$240,000	
7.0 MGD SELF-CLEANING FILTER SCREEN		LS		\$125,000	
7.0 MGD GRIT CHAMBER		LS		\$108,000	
SCREENING / GRIT PIPING		LS		\$16,000	
EQ RES. SUBMERSIBLE PUMPS (2 mgd)	2	EA	\$16,000	\$32,000	Based on experience with similar projects.
EQ FLOW DIVERSION STRUCTURE		LS		\$53,000	Equipment costs obtained from manufacturers.
GRIT CHAMBER CONCRETE/EARTHWORK		LS		\$26,000	
FLOW CHANNEL		LS		\$42,000	
YARD PIPING					
24-INCH INFLUENT FORCEMAIN	400	LF	\$253	\$101,200	
18-INCH OVERFLOW/GRIT TO METRO	260	LF	\$190	\$49,400	
18-INCH PLANT INFLUENT	480	LF	\$190	\$91,200	
SUBTOTAL				\$1,484,000	
FLOW EQ BASINS (FBO - (2) 490,000 GAL TANKS)					
SITWORK					
CLEAR & GRUB		LS		\$1,300	
EARTHWORK					
SITE EXCAVATION	1775	CY	\$6	\$10,700	
FINISH GRADING	355	CY	\$5	\$1,800	
CONCRETE	273	CY	\$634	\$173,100	Based on experience with similar projects.
YARD PIPING		LS		\$53,000	Equipment costs obtained from manufacturers.
FLOW CONTROL/DISTRIBUTION STRUCTURE		LS		\$79,000	
VALVES, FLOW METER, & APPURTENANCES		LS		\$53,000	
TANK ASSEMBLY & COATING		LS		\$148,000	
TANK COVER	2	EA	\$140,000	\$280,000	
MIXERS	4	EA	\$26,000	\$104,000	
ODOR CONTROL (SIZED FOR FLOW EQ AND PC)		LS		\$264,000	
SUBTOTAL				\$1,168,000	

Description	Qty	Units	Unit Cost	Total Cost	Basis of Costs
FERMENTATION TANK					
BRING FERMENTATION TANK BACK ONLINE		LS		\$11,000	Based on experience with similar projects.
SUBTOTAL				\$11,000	
AERATION BASIN MODIFICATION					
MODIFICATION TO TRANSITION ZONES EQUIPMENT		LS		\$27,000	Based on experience with similar projects.
AERATION HEADER MODIFICATION		LS		\$32,000	
MIXERS	17	EA	\$13,000	\$221,000	
PANELS	96	EA	\$4,160	\$399,360	
MLSS PUMPS	3	EA	\$32,000	\$96,000	
MISCELLANEOUS PIPING & APPURTENANCES		LS		\$22,000	
SUBTOTAL				\$798,000	
BLOWER BUILDING					
Blower Building		LS		\$600,000	Based on experience with similar projects.
SUBTOTAL				\$600,000	
MEMBRANE BIOREACTOR					
2 MGD MEMBRANE BIOREACTOR		LS		\$5,375,000	Based on experience with similar projects. Equipment costs obtained from manufacturers.
SUBTOTAL				\$5,375,000	
CHLORINE CONTACT BASIN					
ADD (1) CHLORINE CONTACT TANK AND COVER					Based on experience with similar projects and from information from the District's Integrated Facilities Plan.
SITWORK		LS		\$16,000	
EARTHWORK		LS		\$22,000	
CONCRETE	680	CY	\$634	\$431,120	
METALS		LS		\$16,000	
PIPING		LS		\$6,000	
COVER		LS		\$32,000	
MISCELLANEOUS PIPING & APPURTENANCES		LS		\$9,000	
SUBTOTAL				\$532,000	
CHEMICAL FACILITIES					
CHLORINE BUILDING WITH SCRUBBER (4.0 MGD Capacity)		LS		\$507,000	Based on experience with similar projects.
MISC FACILITIES IMPROVEMENTS		LS		\$43,000	
SUBTOTAL				\$550,000	
TOTAL COST				\$11,180,000	

CCI INDEX: LA

Black & Veatch, October 2005 8266.63

Average 2006 ENR 8723

Present Value Factor 1.0552

Cell name = PV

4-5-1: Retrofit Cost Information for Potential Recycled Water Retrofit Customers in the Water Authority Service Area

List of Potential Public Retrofit Sites in the Water Authority Service Area Ready for Immediate Hookup to Recycled Water

Public Agency (The owner of the public site to be retrofitted)								Public sites to be retrofitted (must use recycled water immediately after retrofit)																	
Public Agency Name	Annual Water use (AF) *	Street No.	Street Name	Unit No. (If Any)	City	State	Zip Code	Site Name	Street No.	Street Name	Unit No. (If Any)	City	State	Zip Code	Annual Water Use (AF) **				Irrigated Acreage	Start of construction Date	Start of operation Date	Estimated Retrofit Project Costs (\$)	Brief Description of Project		
															FY 2005	FY 2006	FY 2007	Dedicated or Mixed-Use Meter							
Caltrans District 11	NA	4050	Taylor Street	MS-220	San Diego	CA	92110																		
Caltrans District 11	24	4050	Taylor Street	MS-220	San Diego	CA	92110	905 Picador	Hwy 905	Picador		San Diego	CA	92154	17	20	24	Dedicated	14	Dec-07	Mar-08	\$241,000	Hwy 905 at Picador (remove 1 potable meter) - SDWD		
Caltrans District 11	49	4050	Taylor Street	MS-220	San Diego	CA	92110	76 Oceanside	Hwy 76	Oceanside		Oceanside	CA	92057	51	62	49	Dedicated	40	Nov-07	Feb-08	\$243,000	Hwy 76 from Airport to Academy (remove 5 potable meters) - FPUD		
Caltrans District 11	33	4050	Taylor Street	MS-220	San Diego	CA	92110	52 Genesee	Hwy 52	Genesee		San Diego	CA	92122	15	22	33	Dedicated	32	Jan-08	Apr-08	\$131,000	Hwy 52 from Rte 5 to Genesee (remove 1 potable meter) - SDWD		
Caltrans District 11	9	4050	Taylor Street	MS-220	San Diego	CA	92110	52 Santo	Hwy 52	Santo		San Diego	CA	92124	2	2	9	Dedicated	30	Sep-08	Dec-08	\$425,000	Hwy 52 at Convoy & 805 Interchange & Hwy 805 at Greenwich (remove 2 potable meters) - SDWD		
Caltrans District 11	18	4050	Taylor Street	MS-220	San Diego	CA	92110	52 Kearny Villa	Hwy 52	Kearny Villa		Escondido	CA	92029	29	30	18	Dedicated	28	Sep-08	Dec-08	\$280,000	Hwy 52 at Kearny Villa (remove 1 potable meter) - SDWD		
Caltrans District 11	228	4050	Taylor Street	MS-220	San Diego	CA	92110	56 Carmel Valley	Hwy 56	Carmel Valley		San Diego	CA	92130	0	108	228	Dedicated	97	Oct-08	Jan-09	\$400,000	Hwy 56 from Carmel Valley Rd to Camino Del Sur (remove 6 potable meters) - SDWD		
Carlsbad MWD		1635	Faraday Ave		Carlsbad	CA	92008																		
City of Carlsbad	29	1635	Faraday Ave		Carlsbad	CA	92008	Stagecoach Park	3420	Camion de Los Coches		Carlsbad	CA	92009		29	29	Dedicated	17	January 2008	Mar-08	35,000	Retrofit existing park irrigation system to use recycled water		
City of Carlsbad	26	1635	Faraday Ave		Carlsbad	CA	92008	Calavera Park	2997	Glasgow Drive		Carlsbad	CA	92008		26	26	Dedicated	10	May-08	Jul-08	40,000	Retrofit existing park irrigation system to use recycled water		
City of Carlsbad	5	1635	Faraday Ave		Carlsbad	CA	92008	Farmers Bldg	5815	El Camino Real		Carlsbad	CA	92008		5	5	Dedicated	3	May-08	Jul-08	10,000	Retrofit existing City Office Building site irrigation System to use recycled water.		
Padre Dam MWD		9880	Riverwalk Dr.		Santee	CA	92071																		
Santee School District	11	9880	Riverwalk Dr.		Santee	CA	92071	Carlton Hills	9353	Pike Road		Santee	CA	92071	6.5	7	11	Mixed meters	4.09	Sep-08	Dec-08	\$72,000	This site recently put in a large turf field that is currently being watered with potable water.		
Santee School District	9	9881	Riverwalk Dr.		Santee	CA	92072	Sycamore Canyon	10201	Settle Road		Santee	CA	92071	9	10	9	Mixed meters	5.4	Oct-08	Jan-09	\$207,000			
Santee School District	10	9882	Riverwalk Dr.		Santee	CA	92073	Prospect Ave.	9303	Prospect Ave.		Santee	CA	92071	8	9	10	Dedicated Irrigation	5.65	Nov-08	Feb-09	\$55,000	This site recently put in a large turf field that is currently being watered with potable water.		
Santee School District		9883	Riverwalk Dr.		Santee	CA	92074	Cajon Park	10300	Magnolia Ave.		Santee	CA	92071				Mixed meters	8.73					This site has two recycled meters.	
Santee School District		9884	Riverwalk Dr.		Santee	CA	92075	Chet Harritt	8120	Arllette Street		Santee	CA	92071				Mixed meters	3.76					This site already has a recycled meter.	
Santee School District	12.5	9885	Riverwalk Dr.		Santee	CA	92076	Carlton Oaks	9353	Wethersfield		Santee	CA	92071	10	11	12.5	Mixed meters	4.61	Dec-08	Mar-09	\$270,000			
Santee School District		9886	Riverwalk Dr.		Santee	CA	92077	Rio Seco	9545	Cuyamaca Street		Santee	CA	92071				Mixed meters	5.44					This site has a recycled meter already.	
Santee School District	13	9887	Riverwalk Dr.		Santee	CA	92078	Hill Creek	9665	Jeremy Street		Santee	CA	92071	10	11	13	Mixed meters	5.26	Jan-09	Apr-09	\$356,000			
Santee School District	3.5	9888	Riverwalk Dr.		Santee	CA	92079	ERC & DO	9625	Cuyamaca Street		Santee	CA	92071	2	3	3.5	Mixed meters	2.64	Feb-09	May-09	\$87,000			
Santee School District		9889	Riverwalk Dr.		Santee	CA	92080	Support Services	9619	Cuyamaca Street		Santee	CA	92071				Mixed meters	see DO						
Santee School District	2	9890	Riverwalk Dr.		Santee	CA	92081	Operations Center	9880	Riverwalk Drive		Santee	CA	92071	2	2	2	Mixed meters							
Santee School District	0.34	9891	Riverwalk Dr.		Santee	CA	92082	Alternative School	10280	Magnolia Ave.		Santee	CA	92071	0.24	0.32	0.34	Mixed meters							
Santee School District		9892	Riverwalk Dr.		Santee	CA	92083	3 New Turf Athletic Fields				Santee	CA	92071				Mixed meters							
City of San Diego		600	B Street	Suite 600	San Diego	CA	92101																material and installation		
City of San Diego	64.8	600	B Street	Suite 601	San Diego	CA	92101	Hickman Field	6610	Convoy Ct.		San Diego	CA	92111	53.8	57	64.8	Dedicated	44	May-08	Jun-09	250,000	Retrofit city parkland, playing fields and maintenance assessment district irrigation systems to accept recycled water.		
City of San Diego	7.2	600	B Street	Suite 601	San Diego	CA	92101	Westview Park	11248	Westview Pkwy		San Diego	CA	92129	7.2	7.9	7.2	Dedicated	5.7	May-08	Jun-09	\$50,000			
City of San Diego	16.1	1250	6th Ave	4th floor	San Deigo	CA	92101	Maintenance Assessment	10623	Scripps Poway pkwy		San Diego	CA	92131	15.4	18.3	16.1	Dedicated	0.5	Jan-08	Jan-09	\$25,000			
City of San Diego	19.9	1250	6th Ave	4th floor	San Deigo	CA	92101	Landscape Maintenance	11554	Scripps Ranch Blvd		San Diego	CA	92128	13.8	21.4	19.9	Dedicated	0.5	May-08	May-09	\$25,000			
City of San Diego	8	1250	6th Ave	4th floor	San Deigo	CA	92101	Landscape Maintenance	7849	Calle Cristobal		San Diego	CA	92126	5.9	8.2	8	Dedicated	0.5	Jun-08	Jun-09	\$25,000			
City of San Diego	40.1	1250	6th Ave	4th floor	San Deigo	CA	92101	Canyonside Community	12350	Black Mountain Road		San Diego	CA	92129	37.2	38.6	40.1	Dedicated	31	Feb-08	Jun-09	\$50,000			
City of San Diego	5.4	1250	6th Ave	4th floor	San Deigo	CA	92101	Maintenance Assessment	9503	Chabola Road		San Diego	CA	92129	4.9	6.1	5.4	Dedicated	0.25	May-08	Jun-09	\$20,000			
City of San Diego	5.8	1250	6th Ave	4th floor	San Deigo	CA	92101	Maintenance Assessment	9302	Mercy Road		San Diego	CA	92129	5.3	8	5.8	Dedicated	0.25	May-08	Jun-09	\$50,000	retrofit of maintenance assessment areas, 5 meters.		

List of Potential Public Retrofit Sites in the Water Authority Service Area Ready for Immediate Hookup to Recycled Water

Public Agency (The owner of the public site to be retrofitted)								Public sites to be retrofitted (must use recycled water immediately after retrofit)																	
Public Agency Name	Annual Water use (AF) *	Street No.	Street Name	Unit No. (If Any)	City	State	Zip Code	Site Name	Street No.	Street Name	Unit No. (If Any)	City	State	Zip Code	Annual Water Use (AF) **				Irrigated Acreage	Start of construction Date	Start of operation Date	Estimated Retrofit Project Costs (\$)	Brief Description of Project		
															FY 2005	FY 2006	FY 2007	Dedicated or Mixed-Use Meter							
								MCAS Miramar	Station_w ide	MCAS Miramar		San Diego	CA	92145											The City of San Diego's reclaimed water distribution pipelines run adjacent to the property line of MCAS
San Elijo JPA		2695	Manchester Ave		Cardiff by the Sea	CA	92007																		
Oak Crest Park	10	1140	Oak Crest Park Dr		Encinitas	CA	92024	Oak Crest Park	1140	Oak Crest Park Dr		Encinitas	CA	92024	10	10	10	Mixed	4	Based on fundir	Based on fundir	\$ 50,000		Park retrofit; will require booster pump on irrigation system. DEH currently reviewing plans.	
San Dieguito High School	15	800	Santa Fe Dr		Encinitas	CA	92024	San Dieguito High School	800	Santa Fe Dr		Encinitas	CA	92024	15	15	15	Mixed	5	Spring/Summer	Spring/Summer	\$ 18,000		Ball field retrofit; DEH has approved site plan.	
Ocean Knoll Elementary S	15	910	Melba Rd		Encinitas	CA	92024	Ocean Knoll Elementary School	910	Melba Rd		Encinitas	CA	92024	15	15	15	Both	5	Summer 08	Summer 08	\$ 45,000		Retrofit of large grass play area; will require booster pump on irrigation system.	
Quail Botanical Gardens	20	230	Quail Gardens Dr		Encinitas	CA	92024	Quail Botanical Gardens	230	Quail Gardens Dr		Encinitas	CA	92024	20	20	20	Both	8	Based on fundir	Based on fundir	\$ 22,000		Retrofit of the second phase of this site to recycled water	
San Elijo Nature Center	5	2690	Manchester Ave		Encinitas	CA	92007	San Elijo Nature Center	2690	Manchester Ave		Encinitas	CA	92024	5	5	5	Dedicated	2	Winter 07	Winter 07	\$ 10,000		Retrofit of irrigation system and restroom toilets to recycled water. DEH currently reviewing plans and engineering report.	
UCSD		9500	Gilman Dr.		La Jolla	CA	92093-0925	UCSD	9500	Gilman Drive		La Jolla	Ca	92093											
UCSD	146	9501	Gilman Dr.		La Jolla	CA	92093-0926	Central Utility Plant		Scholars Dr. South		La Jolla	CA	92093	142	144	146	Dedicated	A Cooling Tow	1-Jul	1/1/2009	\$ 750,000		Extend the recycled water distribution system to the Central Utilities Plant so it can serve the cooling towers.	
UCSD	50	9502	Gilman Dr.		La Jolla	CA	92093-0927	East Campus Cooling Towers		Campus Point and Voight		La Jolla	CA	92093	40	45	50	Dedicated	W/A Cooling Towe	7/1/2008	1/1/2009	\$ 100,000		Extend the recycled water distribution system to the east campus cooling towers so it can serve the cooling towers.	
Valley Center MWD		29300	Valley Center Rd.		Valley Cent	CA	92082																		
Privately Owned Golf Course	66	27393	Ynez Road		Temecula	CA	92591	Woods Valley Golf Club	14616	Woods Valley Road		Escondido	CA	92026	N/A	3	66	Mixed	109	2009	2010	Complete		Currently recieves recycled water. South Village Wastewater project in planning stage, will increase recycled water capacity.	
Privately Owned Golf Course	69	8860	Lawrence Welk Drive		Escondido	CA	92026	Welks Golf Course	8860	Lawrence Welk Blvd		Escondido	CA	92026	44	23	69	Mixed	80	2010	2011	\$50,000		upgrade of the District's Lower Moosa Canyon Water Reclamation Facility.	
Privately Owned Golf Course	32	10333	Meadow Glen Way East		Escondido	CA	92026	Meadow Lake Country Club Golf Course	10333	Meadow Glen Way East					50	25	32	Mixed	60			\$50,000			
Santa Fe Irrigation District		P.O. Box 409			Rancho Santa Fe	CA	92067																		
San Diego County Parks	68.45		Lomas Santa Fe		Solana Bea	CA	92075	San Dieguito Park		Lomas Santa Fe		Solana Beach	CA	92067	47.3	52.5	68.45	Mixed Use	60	Design 2008	2009	\$480,000		Retrofit of second phase of this site to recycled water	
Solana Beach School Dist.	14.35							Solana Beach School District	6570	El Apajo		Rancho Santa Fe	CA	92067	10.31	11.15	14.35	Mixed Use	9	Based on funding	Based on funding	\$200,000		Retrofit school play field irrigation system to accept recycled water. *(acre feet of use was listed as 28.7 by error and should be 14.35)	
Solana Beach School Dist.	18.37							Solana Beach School District	780	Santa Victoria		Solana Beach	CA	92075	14.16	16	18.37	Mixed Use	8	Based on funding	Based on funding	\$284,000		Retrofit school play field irrigation system to accept recycled water.	
Solana Beach School Dist.	15.63							Solana Beach School District	606	Lomas Santa Fe Dr		Solana Beach	CA	92075	11.012	12.7	15.63	Mixed Use	9	Based on funding	Based on funding	\$200,000		Retrofit school play field irrigation system to accept recycled water.	
San Dieguito Union School District	8.52							San Dieguito H S District	155	Stevens Ave		Solana Beach	CA	92075	6.754	7.9	8.52	Mixed Use	9	Based on funding	Based on funding	\$140,000		Retrofit of second phase of this site to recycled water. *(acre feet of use was listed as 26.3 by error and should be 8.5)	
Solana Beach School Dist.	8.25							Solana Beach School District	358	N Cedros Ave		Solana Beach	CA	92075	6.582	7.5	8.25	Mixed Use	4	Based on funding	Based on funding	\$750,000		Retrofit school play field irrigation system to accept recycled water.	
Rancho Santa Fe School District	16.7							Rancho Santa Fe School District	5927	La Granada		Rancho Santa Fe	CA	92067	17.4	16.9	16.7	Mixed Use	9	Based on funding	Based on funding	\$4,000,000		Retrofit school play field irrigation system to accept recycled water.	
City of Solana Beach	15.48							City of Solana Beach	655	Hwy 101, Solana		Solana Beach	CA	92075	8.63	16.4	15.48	dedicated	5.5	Based on funding	Based on funding	\$760,000		Connect to existing irrigation system Coastal Rail Trail that runs along hwy 101 between Via de la Valle and the north end of Solana Beach.	
	1243.39														768.388	968.87	1243.39		785.78			\$19,256,000			
Notes:																									
** Public agencies that use more than 50 AFY combined at all their facilities get the first priority for funding																									

4-6-1: Opinion of Probable Cost for Construction of Los Penasquitos Reclaimed Water Pipeline

LOS PENASQUITOS RECLAIMED WATER PIPELINE

**ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST
(100% SUBMITTAL)**

ITEM	COST
GENERAL	\$394,000
MISCELLANEOUS SITEWORK	\$544,000
PIPELINE & ACCESSORIES	\$1,947,000

CONSTRUCTION SUBTOTAL: \$2,885,000
Payment/Performance Bonds: \$216,375

CONSTRUCTION TOTAL: \$3,101,375

¹Assume bonding fees are 7.5% of construction costs.

ABBREVIATIONS

AC: Acres
CY: Cubic Yards
EA: Each
FT: Feet
LF: Linear Feet
LS: Lump Sum
MO: Month
MSF: Thousand Square Feet
SF: Square Feet
SY: Square Yards
WK: Week

Adjustment Factors for Division 2: Materials/Equip: 1.1895
 Labor: 1.563
 Adjustment Factors for Division 3: Materials/Equip: 1.3065
 Labor: 1.6350

Project: Los Penasquitos Recycled Water Pipeline 1-880-011
 Phase: 100% Submittal 1/27/2006
 Estimated By: MAP/SJR
 Checked By: SJR

ITEM DESCRIPTION	QTY	UNITS	LABOR HOURS PER UNIT	TOTAL LABOR HOURS	ADJUSTED MATERIAL UNIT COST	ADJUSTED LABOR UNIT COST	ADJUSTED EQUIPMENT UNIT COST	TOTAL MATERIAL COST	TOTAL LABOR COST	TOTAL EQUIPMENT COST	FRONT-END UNIT PRICE	TOTAL COST
General												
Mobilization/Demobilization	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
Purchase construction water	1	LS	--	--	--	--	--	--	--	--	\$5,000.00	\$5,000
Purchase temporary power	1	LS	--	--	--	--	--	--	--	--	\$2,500.00	\$2,500
Jobsite trailer rental (20' x 8', w/AC, delivered)	1	LS	--	--	\$0.00	--	--	--	--	--	\$2,500.00	\$2,500
Jobsite trailer expenses (Supplies, equip rental, lights)	6	MO	--	--	\$172.48	0.00	\$0.00	\$1,034.87	\$0.00	\$0.00	\$172.48	\$1,035
Temporary sanitation	6	MO	--	--	\$808.86	0.00	\$0.00	\$4,853.16	\$0.00	\$0.00	\$808.86	\$4,853
Dumpster rental (20 CY capacity)	24	WK	--	--	\$499.59	0.00	\$0.00	\$11,990.16	\$0.00	\$0.00	\$499.59	\$11,990
Miscellaneous equipment rental	180	DAY	--	--	--	--	--	--	--	--	\$100.00	\$18,000
Hazardous waste disposal	1	LS	--	--	--	--	--	--	--	--	\$2,500.00	\$2,500
Project Safety	1	LS	--	--	--	--	--	--	--	--	\$36,000.00	\$36,000
Dust Control	24	WK	2	48.00	\$0.00	66.66	\$0.00	\$0.00	\$1,599.89	\$0.00	\$66.66	\$1,500
Street Sweeping	24	WK	2	48.00	\$0.00	66.66	\$0.00	\$0.00	\$1,599.89	\$0.00	\$66.66	\$1,500
Storm Water Pollution Prevention Monitoring	1	LS	--	--	--	--	--	--	--	--	\$30,000.00	\$30,000
Site cleanup/garbage removal	1	LS	--	--	--	--	--	--	--	--	\$8,600.00	\$8,600
Field Orders	1	LS	--	--	--	--	--	--	--	--	\$72,500.00	\$72,500
Construction Videotapes & Photographs	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Project Meetings	39	EA	--	--	--	--	--	--	--	--	\$500.00	\$19,500
Work Stoppage	5	DAY	--	--	--	--	--	--	--	--	\$23,000.00	\$115,000
Noise Mitigation	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Phase Funding	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
SUBTOTALS : General												\$393,178
Miscellaneous Sitework												
Demolition (Pavement) (Assume 3" AC)	4,711	SY	0.058	273.24	\$0.00	\$2.83	\$1.44	\$0.00	\$13,327.56	\$6,780.52	\$4.27	\$20,108
Demolition (Concrete Pavement, Walks, Ramps)	239	SY	--	--	--	--	--	--	--	--	\$43.75	\$10,456
Demolition (Curb)	300	LF	0.087	26.10	\$0.00	\$4.10	\$0.98	\$0.00	\$1,228.52	\$292.82	\$5.07	\$1,521
Sawcut/conform grinding	12,000	LF	0.015	180.00	\$0.33	\$0.75	\$0.33	\$3,996.72	\$9,002.88	\$3,996.72	\$1.42	\$16,996
Construction debris disposal	400	CY	1.56	624.00	\$0.00	\$66.66	\$9.75	\$0.00	\$26,664.78	\$3,901.56	\$76.42	\$30,566
Clearing and Grubbing	2.7	AC	--	--	--	--	--	--	--	--	\$2,600.00	\$7,020
Excavation/Stockpiling for path	650	CY	0.007	4.55	\$0.00	\$0.73	\$1.26	\$0.00	\$477.50	\$819.57	\$2.00	\$1,297
Scarify/Recompaction for path	1,300	CY	0.052	67.60	\$0.00	\$2.72	\$1.69	\$0.00	\$3,535.51	\$2,195.82	\$4.41	\$5,731
Decomposed Granite Path	35,010	SF	0.006	210.06	\$0.29	\$0.25	\$0.01	\$9,994.65	\$8,765.30	\$418.44	\$0.55	\$19,166
Sitework export soil (From Path Only)	650	CY	--	0.00	\$0.00	\$5.78	\$4.47	\$0.00	\$3,759.02	\$2,907.14	\$10.26	\$6,666
Trench Pavement Cap (Asphalt: Assume 4" thick). Includes tack coat and fog seal. Type B, G-24	5,230	SY	0.705	3687.15	\$11.61	\$32.09	\$2.43	\$60,717.79	\$187,822.28	\$12,691.01	\$46.12	\$241,231
Trench Pavement Cap (Concrete: Assume 9" patch thickness) Type C, G-25	127	SY	0.168	21.34	\$49.36	\$1.70	\$1.28	\$6,269.26	\$216.37	\$163.15	\$52.35	\$6,649
Sturry Seal	12,250	SY	0.008	98.00	\$2.14	\$0.38	\$0.29	\$26,228.48	\$4,595.22	\$3,497.13	\$2.80	\$34,321
Minor sidewalk/curb & gutter repairs	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
Minor striping repairs	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Erosion Control	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Hydroseed	78,435	SF	--	--	--	--	--	--	--	--	\$0.09	\$6,275
Polishing	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
Additional Borings	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
Bridge Crossing (Dowels w/epoxy anchoring. Assume #4 bars) Assume 18" c-c at 5' longitudinal spacing	110	EA	0.626	68.86	\$7.42	\$33.14	\$5.59	\$816.30	\$3,645.56	\$615.10	\$48.15	\$5,077
Bridge Crossing (Formwork)	150	SF	0.16	24.00	\$0.36	\$8.99	\$0.00	\$354.71	\$1,348.88	\$0.30	\$11.35	\$1,704
Bridge Crossing (Concrete Curb)	120	LF	0.069	8.28	\$4.52	\$3.67	\$0.00	\$542.41	\$440.77	\$0.00	\$8.19	\$983
Bridge Crossing (Concrete)	94	SY	0.059	5.55	\$52.93	\$5.69	\$2.14	\$4,975.68	\$534.80	\$291.26	\$60.76	\$5,712
Bridge Crossing (Broom Finish, Curing)	94	SY	0.144	13.54	\$0.59	\$7.63	\$0.00	\$55.91	\$718.98	\$0.00	\$8.22	\$773

NOTES

ALLOWANCE
 Purchase city water
 Temporary connection and purchase from power company
 Changed per City's 90% Comments
 01520-550-0010,
 2 porta jons: 01590-400-6450
 02220-350-0725
 ALLOWANCE
 Allowance for fuel spills
 1.25% of project cost per comment
 Laborer rate from back of Means
 Laborer rate from back of Means
 ESTIMATE
 Assume 0.30% of job total: 01740-500-0010
 Approximately 2.5% of total budget
 ESTIMATE
 ESTIMATE: 1 preconstruction, 4 community. City wants weekly meetings at 2 hours per meeting. Assume 1 additional/month. 2 Water Shutdown
 ESTIMATE: Approximately \$3,000,000 divided approximately 130 total work days.
 ESTIMATE
 ESTIMATE
 ESTIMATE
 6' trench cul for 24" pipe. 3' trench cutBOV's & AVV's: 02220-250-5010
 Changed per City's 90% Comments
 02220-250-6100:
 02220-360-0015
 Assume 3" AC removal 4,244 sy AC removed. 02220-350-2040, 2080, 5000.
 Assume 200' haul with 20 mile round trip per truck load. Unit cost bumped up significantly for small quantity.
 Changed per City's 90% Comments
 02230-500-1420: Assume excavation depth 6"
 02315-432-2040, 02315-310-5000: Assume 12" scarify depth
 10' wide, 6" thick, approximately 3,600' long. Use cost for gravel fill. 02315-520-0600
 Assume 4 mile round trip w/four 16 CY dump trucks. G1030-140-1600 (P.445)
 See detail G-24. Assume original asphalt 3" deep. New cap 4" thick to width shown on detail. Cut width is 6' per detail. Patch is 8' wide per detail. 02740-310-1050, 02785-250-1901, 02785-600-3270
 Assume original concrete 8" thick. New concrete 9" thick per detail notes. Cut width is 6" per detail. 02750-300-0200, 0700, 03310-220-3400.
 Approximately 0.25 cys/sy of color added.
 02785-500-0250
 ALLOWANCE
 Per landscape architect
 Changed per City's 90% Comments
 ALLOWANCE
 03210-600-2410, 05090-300-1530
 03110-455-4600
 02770-300-0410
 02750-300-0500, 0510
 02750-300-0700, 1000

Adjustment Factors for Division 2: Materials/Equip: 1.1895
 Labor: 1.563
 Adjustment Factors for Division 3: Materials/Equip: 1.3065
 Labor: 1.6350

Project: Los Penasquitos Recycled Water Pipeline 1-880-011
 Phase: 100% Submittal 1/27/2006
 Estimated By: MAP/SJR
 Checked By: SJR

ITEM DESCRIPTION	QTY	UNITS	LABOR HOURS PER UNIT	TOTAL LABOR HOURS	ADJUSTED MATERIAL UNIT COST	ADJUSTED LABOR UNIT COST	ADJUSTED EQUIPMENT UNIT COST	TOTAL MATERIAL COST	TOTAL LABOR COST	TOTAL EQUIPMENT COST	FRONT-END UNIT PRICE	TOTAL COST
Bridge Crossing (RCP Culverts)	45	LF	0.184	8.28	\$23.73	\$9.22	\$1.19	\$1,067.87	\$414.98	\$53.53	\$34.14	\$1,536
Divert existing creek	1	LS	--	--	--	--	--	--	--	--	\$10,000.00	\$10,000
Traffic Control	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
New ADA Ramps	3	EA	--	--	--	--	--	--	--	--	\$5,000.00	\$15,000
Bollards (Pipe Markers)	5	EA	--	--	--	--	--	--	--	--	\$1,000.00	\$5,000
SUBTOTALS : Miscellaneous Sitework												\$543,789
Pipeline & Accessories												
Trench Excavation for 24" and 8" pipe only (Includes Manholes: Assume average depth of 11')	15,200	CY	0.044	668.80	\$0.00	\$2.28	\$1.86	\$0.00	\$34,686.10	\$29,205.42	\$4.14	\$62,892
Trench Shoring	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Pipe Bedding (Includes Manholes)	3,760	CY	0.249	936.24	\$32.71	\$11.32	\$2.14	\$122,994.30	\$42,548.61	\$8,050.54	\$46.17	\$173,583
Trench Backfill & Compaction (Includes Manholes)	10,150	CY	0.061	619.15	\$0.00	\$2.89	\$0.75	\$0.00	\$29,349.23	\$7,606.26	\$3.64	\$36,955
Overexcavate/Recompact	150	CY	0.067	10.05	\$0.00	\$3.08	\$1.26	\$0.00	\$461.87	\$189.13	\$4.34	\$651
Utilities export soil	5,050	CY	0.00	0.00	\$0.00	\$5.78	\$4.47	\$0.00	\$29,204.66	\$22,586.23	\$10.26	\$51,791
Dewatering (Minor Nuisance Water)	45	DAY	3	135.00	\$0.00	\$157.86	\$17.25	\$0.00	\$7,103.84	\$776.15	\$175.11	\$7,880
Cutoff Walls	3	EA	--	--	--	--	--	--	--	--	\$750.00	\$2,250
Connect to existing reclaimed water line	1	LS	--	--	--	--	--	--	--	--	\$2,000.00	\$2,000
24" PVC C905: (No excav., bedding, backfill or fittings)	9,175	LF	0.299	2743.33	\$77.32	\$15.63	\$0.00	\$709,386.06	\$143,405.25	\$0.00	\$92.95	\$852,793
8" PVC C900: (No excav., bedding, backfill or fittings)	75	LF	0.092	6.90	\$13.39	\$4.49	\$0.00	\$1,004.63	\$336.44	\$0.00	\$17.88	\$1,341
24" Butterfly Valve with bypass, stem extension and valve box (CL 250)	10	EA	56	560.00	\$14,646.69	\$2,813.40	\$362.80	\$146,486.93	\$26,134.00	\$3,627.98	\$17,824.89	\$178,249
90° Bend: 24" DIP CI 350, MJ	1	EA	8.511	8.51	\$4,282.20	\$456.40	\$135.60	\$4,282.20	\$456.40	\$135.60	\$4,874.20	\$4,874
45° Bend: 24" DIP CI 350, MJ	3	EA	8.511	25.53	\$3,330.60	\$456.40	\$135.60	\$9,991.80	\$1,369.19	\$406.81	\$3,922.60	\$11,768
22.5° Bend: 24" DIP CI 350, MJ	6	EA	8.511	51.07	\$3,449.55	\$456.40	\$135.60	\$20,697.30	\$2,738.38	\$813.62	\$4,041.55	\$24,249
11.25° Bend: 24" DIP CI 350, MJ	20	EA	8.511	170.22	\$3,129.39	\$456.40	\$135.60	\$62,567.70	\$9,127.92	\$2,712.66	\$3,720.36	\$74,408
24" Tee: DIP CI 350, MJ	1	EA	12.739	12.74	\$5,947.50	\$687.72	\$203.40	\$5,947.50	\$687.72	\$203.40	\$6,838.62	\$6,839
24"x8" Tee: DIP CI 350, MJ	1	EA	12.739	12.74	\$4,177.52	\$687.72	\$203.40	\$4,177.52	\$687.72	\$203.40	\$5,068.65	\$5,069
24" Blind Flange	0	EA	1.9	0.00	\$1,947.21	\$203.19	\$60.66	\$0.00	\$0.00	\$0.00	\$2,211.07	\$0
24" End Cap	2	EA	1.9	3.80	\$1,308.45	\$203.19	\$60.66	\$2,616.90	\$406.38	\$121.33	\$1,572.30	\$3,145
24" Restraint Glands for PVC at DIP Fittings	85	EA	1.9	161.50	\$525.76	\$203.19	\$60.66	\$44,589.52	\$17,271.15	\$5,156.48	\$789.61	\$67,117
24" Restraint Harness for PVC at Pipe Bells	110	EA	1.9	209.00	\$995.01	\$203.19	\$60.66	\$109,517.27	\$22,350.90	\$6,673.10	\$1,259.47	\$138,541
24" - Access Manways (Tee w/Blind Flange): doesn't include restraints	8	EA	16.54	132.32	\$7,894.71	\$890.91	\$264.07	\$63,157.69	\$7,127.28	\$2,112.55	\$9,049.69	\$72,398
2" Irrigation Stubs w/valve, Pipe Segment	10	EA	0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000.00	\$30,000
4" Blowoff valve assembly	11	EA	0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000.00	\$33,000
2" Air Release and Vacuum Valve Assembly	11	EA	0.00	0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,000.00	\$33,000
Testing and Disinfection	1	LS	--	--	--	--	--	--	--	--	\$20,000.00	\$20,000
Manhole concrete bases (2.1 CY each)	8	EA	2.896	23.17	\$491.24	\$336.81	\$1.52	\$3,929.95	\$2,694.48	\$12.12	\$829.57	\$6,637
Manhole Frame	8	EA	3.077	24.62	\$318.79	\$144.58	\$34.50	\$2,550.29	\$1,156.62	\$275.96	\$497.86	\$3,983
Precast concrete manholes: SDS-106 (4'-8" depth)	3	EA	12	36.00	\$1,219.24	\$582.68	\$134.41	\$3,657.71	\$1,688.04	\$403.24	\$1,516.33	\$5,749
Precast concrete manholes: SDS-106 (8'-12" depth)	5	EA	20	100.00	\$1,913.91	\$937.80	\$224.82	\$9,569.53	\$4,689.00	\$1,124.08	\$3,076.52	\$15,383
SUBTOTALS : Pipeline & Accessories												\$1,946,553
CONSTRUCTION SUBTOTAL:												\$2,883,521

NOTES

02630-530-2514
 ESTIMATE
 Per City

Excavation: 02315-610-0910.

02315-640-0100, 0500
 Backfill: 02315-610-3020. Compaction: 02315-310-8200.
 Assume approximately 500 linear feet of low lying areas needing recompaction at 2' below pipe invert per geotech report. 02315-424-0200, 02315-310-7000.

Assume 4 mile round trip w/four 16 CY dump trucks. G1030-140-1600 (P.445)

Assume half time in dirt area needs dewatering. 02240-500-0600

Material/Shipping cost average from Pacific Pipeline: Labor/Equip per 02510-750-3070.

Material/Shipping cost average from Pacific Pipeline: Labor/Equip per 02510-750-2210.

Material/Shipping per Pacific Pipeline: Per Spec section 15104.2.1.c.2, worm gears required in valves > 30". Will assume city wants worm gear anyway. Labor/Equip per 02080-500-3500.

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8180

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8440

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8440

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8440

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8380

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8380

Material/Shipping per Pacific Pipeline: Labor/Equip per 02510-730-8380

Material/Shipping per Pacific Pipeline: Labor/Equip for 12" 90 deg bend: 02510-730-8080

Material/Shipping per Pacific Pipeline: Labor/Equip for 12" 90 deg bend: 02510-730-8080

Material/Shipping per Pacific Pipeline: Labor/Equip for 12" 90 deg bend: 02510-730-8080

Material/Shipping per Pacific Pipeline: Labor/Equip: 02510-730-8380, 02510-730-8080

Use cost for foundation mat. Does not include excavation, compaction or backfill: 03310-240-4000.

02630-110-1600
 02630-400-1160
 02630-400-1170, 1180

Adjustment Factors for Division 2: Materials/Equip: 1.1895 Labor: 1.563				Project: Los Penasquitos Recycled Water Pipeline Phase: 100% Submittal Estimated By: MAP/SJR Checked By: SJR				1-880-011 1/27/2006				
Adjustment Factors for Division 3: Materials/Equip: 1.3065 Labor: 1.6350												
					ADJUSTED	ADJUSTED	ADJUSTED	TOTAL	TOTAL	TOTAL	FRONT-END	
			LABOR HOURS	TOTAL LABOR	MATERIAL	LABOR	EQUIPMENT	MATERIAL	LABOR	EQUIPMENT	UNIT	TOTAL
			PER UNIT	HOURS	UNIT COST	UNIT COST	UNIT COST	COST	COST	COST	PRICE	COST
ITEM DESCRIPTION	QTY	UNITS										

NOTES

4-6-2: Primavera Schedule for Los Penasquitos Reclaimed Water Pipeline

4-9-1: Documented Actual Costs for Arundo Removal in the Upper San Luis Rey Watershed

Task Deliverable 10.2

**Upper San Luis Rey Watershed *Arundo* Control
and Riparian Habitat Restoration**

Draft Final Report

SWRCB Agreement No. 02-185-559-0

February 2006

San Luis Rey Watershed

Project type: Implementation

***Funding sources: SWRCB, Mission Resource Conservation District,
California Invasive Plant Council, Fallbrook Public
Utility District, RECON Environmental***

Cost of Project: \$939,500

***Grantee: Mission Resource Conservation District
P.O. Box 1777, Fallbrook CA 92008-1777***

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1.0 EXECUTIVE SUMMARY

Arundo donax (giant reed) severely degrades riparian ecosystems, impacting the habitat, degrading water quality, and consuming water resources. In addition to these severe ecological impacts, *Arundo* also causes catastrophic fire and flood damage which further impacts the ecosystem as well as human resources and infrastructure. This project was initiated to control a minimum of 40 acres of *Arundo* and to re-vegetation with natives to restore the natural ecological processes (habitat and hydrology) that shape the watershed.

This project treated and restored 78.2 acres of *Arundo donax* on the San Luis Rey watershed in northern San Diego County (Fig. 1). The project is part of a comprehensive *Arundo* eradication program started by Mission RCD in 2000. To date over 200 acres of the 590 acres of *Arundo* in the watershed have been treated. This Proposition 13 project treated four tributaries (Stewart, Double, Keys, and Rice) and portions of the main stem of the San Luis Rey river. The project treated 78.2 acres of *Arundo* occurring in a length of 20.1 miles of stream and river, and distributed in 537 acres of riparian habitat.

Specific functions that have been restored include: flood and flow regimes that control sedimentation, habitat structure and flood resources, water quality (temperature regimes, NPS contamination reduction from illegal housing and nutrients), water quantity. All these improvements enhance the watershed for wildlife and its inhabitants. Although the project focused on treatment of *Arundo* and restoration of riparian habitat, the project also educated landowners on a one-on-one basis as permission was required from each landowners. Wide-based watershed education also occurred through public talks, meetings, and web based information. Public participation through not planting invasive non-native plants in gardening and landscaping was the main focus of the 'Don't Plant a Pest' program.

Arundo treatment and native re-vegetation was accomplished following a methodology developed over the past eight years through implementation on five past projects and the active involvement of regulators. Stands are 'prepped' and treated in the fall, biomass is reduced in later winter, and native planting immediately follows. In a six month period all work is completed, avoiding most sensitive species. First year control of *Arundo* is >95% successful, and planting survival is >90%.

The *Arundo* control and restoration project has been highly successful. Nearly twice the specified minimum 40 acres of *Arundo* was treated (78.2 acres), and efficacy of *Arundo* control and native planting survival was high (both >90%). The project treated the entire upper watershed allowing future treatment projects to continue on the main stem of the San Luis Rey River. The program will have long-term benefits as *Arundo* propagules will not spread into cleared sites or to any downstream areas.

2.0 PROBLEM STATEMENT AND RELATED ISSUES

Treatment of *Arundo* and re-vegetation has numerous benefits to a watershed. These benefits are highlighted in the following sections: habitat, flood and fire risk reduction, water quality, and water conservation.

2.1 Habitat

Arundo significantly degrades riparian habitat by forming dense monotypic stands of vegetation. *Arundo* spreads laterally 1-2 feet per year and it can grow up to 4" per day. It shades out herbaceous growth and shrub vegetation, and fills open spaces, eventually leading to

monotypic stands with a few older gallery trees protruding above the 30 ft tall *Arundo* canopy. These dense stands have high cane density (average of 30 canes/sq m, but up to 200/sq m have been observed) and impede wildlife movement, inhibit native vegetation establishment and growth, and provide few resources for insects or wildlife. Insect diversity and abundance in dense stands are low, with the exception of some spiders, flies, and non-native ants. No insects feed on *Arundo* and no wildlife consume it directly. The poor quality of forage and lack of insects within *Arundo* stands creates regions of low food resources for wildlife.

Stands of *Arundo* also have poor structure for nesting, as the appropriate secondary branching structure is usually lacking, and the canes move during windstorms. The two endangered avian birds, least Bell's vireo and southwestern willow flycatcher, rarely use *Arundo* stands for nest sites. In the rare situations where this has been observed, the nest is usually in an area with *Arundo* intermixed with native woody vegetation. *Arundo* stands fill in areas used by arroyo toads, directly displacing them and impeding toad movement between natal pools, sand banks and upland areas (used by juveniles and adults).

The most impacted habitat is the vegetation community as a whole – it is replaced by *Arundo* cover over time. This 'type conversion' occurs because *Arundo* changes the abiotic ecosystem processes to favor its survival and reproduction. *Arundo* brings fire and increases flood damage, both quickly driving the system toward *Arundo* domination.

2.2 Fire and Flood Processes

Mature *Arundo* stands have about 45kg of biomass per square meter. The high fuel load, the tall somewhat open structure, and the large amount of dead biomass of *Arundo* stands create optimal conditions for fire any time of year. *Arundo* fires burn all vegetation, quickly type converting riparian zones into *Arundo* because the native vegetation is not well fire adapted (typically >80% mortality of trees and >90% mortality of shrubs). *Arundo*'s deep rhizomatous root system and large underground energy stores allow nearly 100% resprouting to occur. The fire cycle continues as stands grow back, accumulating more biomass and burning again in as few as five years. Anthropogenic ignition sources are frequent – burning from roadsides, recreational activities, arson, and illegal encampments (cooking, lighting, smoking, etc.).

Arundo stands become so dense that river and stream profiles are reduced. This focuses flows in smaller areas, causing blockages (overbank flows), erosion and bank failure. Reductions of over 50% of stream flow capacity are not uncommon in smaller streams with heavy *Arundo* infestations. *Arundo* stands create more severe flooding and erosion than would typically occur in an unmodified stream. The increased flooding and erosion favor continued *Arundo* succession and spread as plant fragments are broken off and dispersed during these events. Both flood and fire disturbance promote *Arundo* growth and spread, while degrading habitat and water quality.

2.3 Water Quality

Fires severely compromise water quality immediately after a fire. Ash contaminates water flows causing clouding and nutrient spikes. The burning of the vegetation increases water temperature as all shading is removed. Sunlight also increases photosynthesis and algal blooms, affecting DO. Soils in the burn area are highly erodeable, causing increased erosion during high flows and rain events which leads to increased sediment loads.

Arundo's flood impacts on water quality are also severe, but they are complex. In smaller streams and tributaries *Arundo* blocks and diverts flows. In smaller streams and tributaries

Arundo blocks and diverts flows. This usually results in higher rates of erosion through bank sloughing, incising, and channel diversion. A substantial net influx of sediment usually occurs, often exacerbated by human alteration of stream profiles and vegetation removal. Larger river systems may be accumulating too much sediment as the *Arundo* stands block and drop peak flows. This increased vegetation roughness allow sediment to be captured within the river profile. These geomorphological modifications are complex, but along with the hydrology, they dictate the overall structure of the riparian system.

Arundo debris in the watershed also impacts water quality. Some resource managers are now viewing *Arundo* biomass (invasive plant biomass) as a form of NPS pollution. *Arundo* biomass impacts to water quality are less quantified than other impacts, but they may include: elevated organic matter, changes in DO and aquatic organisms. *Arundo* debris also discharges onto beaches, impacting wildlife, shore vegetation communities and human use.

Arundo stands are frequently used as illegal housing. These encampments directly result in fires and NPS pollution. Human waste results in coliform bacterial pollution, a significant health risk (documented high levels of coliform bacteria, SLR WURMP 2003). Food waste and the use of soaps, oils and other compounds result in direct discharge to the river. Removal of *Arundo* stands significantly reduces these illegal and dangerous uses, both for other individuals using the river and beaches, and for the inhabitants who are at risk of fire and flood events.

3.0 PROJECT GOALS

- Control a minimum of 40 acres of *Arundo* and re-vegetate with native plants
- Improve water quality
- Save water resources
- Educate landowners in watershed on threats of invasive non-native plants

4.0 PROJECT DESCRIPTION

4.1 Project Type

This project is on the ground implementation of invasive non-native plant control and native re-vegetation, and public outreach and education on the impacts of invasive non-native plants.

4.2 Project Costs

Grant funds:	\$911,000
<u>Match funds:</u>	<u>\$28,500</u>
Total:	\$939,500

Match funds:	RECON	\$3,750
	MRCB:	\$12,080
	Cal-IPC:	\$10,000
	FPUD:	\$2,670

4.3 Project Methodology

The Santa Margarita and San Luis Rey Watersheds Weed Management Area (WMA), a program of Mission RCD, developed and fine-tuned many of its project protocols in previous

years while implementing other *Arundo* restoration projects. The process developed for this program has been used successfully on five other large-scale *Arundo* eradication and riparian restoration programs by Mission RCD, and is being utilized by other agencies and organizations in California.

4.3.1 Program Planning Process:

Step 1: Map distribution of target non-native invasive plants (completed prior to grant application).

Step 2: Overlay property ownership parcel data on to target non-native plant distribution map.

Step 3: Contact property owners with target non-native plants on their property and obtain permission to treat non-native plants and plant native species.

Step 4: Print maps with parcel information and non-native plant distribution on air photos for field crews to use. Maps explicitly indicate which properties have given permission for treatments to occur.

Step 5: Plan first, second, and third year treatment cycles for entire length of creek.

Step 6: Carry out non-native plant control, biomass reduction and native replanting.

4.3.2 Arundo Control

Two control methods were used to treat *Arundo*: 1) foliar application of herbicide to mature *Arundo* stands in the fall and 2) cut-stump application of herbicide to *Arundo* plants intermixed with native plants where separation was not possible. Prior to spraying the *Arundo* was ‘prepped’ to allow for precise herbicide application to the target plants only. The *Arundo* was pushed onto itself, and light trimming of *Arundo* and/or surrounding non-target vegetation was carried out to create a space between the *Arundo* and non-target plants. All applications used Rodeo[®] herbicide (certified for use in wetlands by the EPA). For the foliar spray method the herbicide was applied to the *Arundo* leaves and stems without any cutting. Herbicide application was carried out by licensed and certified pesticide applicators. Herbicide treatments were carried out from September 15th to early December, depending on weather conditions and dormancy of the *Arundo*.

From late January to March 15th reduction of dead *Arundo* biomass was carried out. Areas with large stands of *Arundo*, or where dead biomass was a concern, were either mowed using a mower (a large grinding/mowing device mounted on a rubber tired tractor, or cut by hand and then mowed or chipped. For small *Arundo* clumps the standing dead *Arundo* biomass was left to degrade naturally. The mowing created an *Arundo* mulch layer that was left on site within the footprint of the treated *Arundo* stand. Any hand cut dead *Arundo* material was stacked and mowed or chipped and spread within the previous footprint of the *Arundo* stand.

Photos of the different phases of the control process are included in the Final Monitoring Report (Appendix I).

4.3.3 Native Plant Restoration

Native re-planting was carried out at most *Arundo* treatment sites in the upper San Luis Rey watershed. Native planting was not carried out in areas with small (typically <5’ diameter) scattered clumps of *Arundo* that were distributed in areas of high native woody cover. Sites were replanted with container plants of trees (cottonwood, black willow, arroyo willow, oak, and sycamore), shrubs (toyon, mulefat, elderberry) and half-shrubs/vines (California rose, mugwort,

and blackberry). In dry areas and roadside locations some coastal sage scrub species (California sage, lemonade berry) and ‘showy’ native plants (monkey flower, California fuschia, bush poppy) were used. Plants were grown at several different nurseries from cuttings taken at the restoration sites or nearby areas.

Due to the proximity to the creek and the *Arundo* mulch layer created from the mowing, most areas do not require watering. Some sites are periodically watered during the summer months, and all sites are checked and maintained (e.g. weeded) when necessary.

Photos of the planting process are included in the Final Monitoring Report (Appendix I).

5.0 PUBLIC OUTREACH

The education and outreach components of the project focused on three core objectives: 1) bringing watershed stakeholders together to tackle the invasive plant threats on the San Luis Rey watershed (WMA and SLR Watershed Council meetings), 2) educating the local and regional public about invasive non-native plants through both small targeted talks (garden clubs) and larger regional meetings (CA RCD, Cal-IPC), and use of a focused web tool for southern California (‘Don’t Plant a Pest’ program), and 3) obtaining permission for on the ground *Arundo* control and re-vegetation with natives from property owners on the watershed, allowing the main restoration grant activities to occur.

High quality Powerpoint presentations and posters were made and presented at meetings. Many are available online at www.smslrwma.org.

6.0 CONCLUSIONS

Restored riparian areas are thriving. The control of *Arundo* has ‘released’ riparian areas from competition for light, nutrients and water. Native vegetation that was present prior to treatment has filled in and rapidly expanded. Native plantings that were installed in areas where *Arundo* biomass reduction (mowing) occurred have had high survival rates (>90%) and have typically doubled in size each year (by height for trees and by width and stems for shrubs). The dead *Arundo* biomass forms a mulch layer that inhibits ruderal weed growth so that sites not only have high cover of natives, but also have low cover of weeds that degrade many riparian areas. Most sites had lower cover of poison hemlock, *Melilotus* spp., weedy chenopods, mustards, *Conyza* spp., castor bean and Italian thistle, all of which can inhibit native vegetation. The trajectory of recovery for the restored riparian acreage is excellent. The *Arundo* is nearly eradicated, and native plantings are established and thriving. Plantings should be large enough to shade out weeds by the time the dead *Arundo* mulch layer begins to break down enough to allow weedy species to establish.

6.1 Project Results: PAEP

- 78.2 acres of *Arundo* were treated in the project area (Tasks 7.1, 8.2, 9.2)
- Approximately 67 acres were re-vegetation with native plants
- Approximately 21,440 native plants were planted (320 per acre)
- 20.1 river miles were restored
- 537 acres of riparian habitat were searched and *Arundo* was treated when found
- 93 stakeholders attended the four annual WMA/SLR watershed meetings that were held (Task 5.3)

- 929 individuals attended public presentations and workshops on invasive non-native plants (Task 5.1)
- 101 property owners gave permission for on the ground work to occur on their land out of 107 that were contacted (137 parcels gave permission, Task 5.4)
- Web resources ('Don't Plant a Pest' content, poster, and Powerpoint presentations) receive a lot of activity.
- Cost Benefit Analysis (CBA) results indicate a benefit ratio of 6.39, showing a strong benefit to cost. The cost benefit analysis is based on the Proposition 50 IRWM process as outlined by DWR and SWRCB (see Appendix II). Benefits are divided into two classes: 1) water supply and water quality which had a benefit of \$4,350,340, and 2) avoided actions which had a benefit of \$1,654,795. Total benefits equaled \$6,005,135. Total costs (Prop 13 funding and match) equaled \$939,500. The following benefits were economically quantifiable. Numerous other benefits, including habitat restoration, recreation, and other aspects of water quality were not quantified in this CBA. As determinations are made as to the economic benefits derived from these enhancements, additional economic benefits can be calculated. Water supply and water quality benefits resulted from annual reduction in water consumption by treating *Arundo*. Water quality benefits resulted from increased sand discharge from the San Luis Rey river. Avoided actions benefits are grouped into three classes: fire damage and suppression, flood damage and repair, and *Arundo* debris cleanup. Additional information on the CBA is contained within Appendix II.

6.2 Summary of Monitoring Results from 12 Field Sites:

- Efficacy of herbicide treatments
The herbicide treatments were very effective. After one treatment all sites had a decrease in *Arundo* stem density of >97.9%, and the cover of *Arundo* decreased from 80% to >2% on all sites. See Table 1 in Appendix I for a summary of *Arundo* stem data.
- Native plant survival
See Tables 2&3 in Appendix I for a complete summary of native planting survival data by species.

For sites 1-7, the average percent survival for all species planted was 80% in January 2006 (two years after planting). For individual species the survival rate in January 2006 was:

<i>Baccharis salicifolia</i> :	98%
<i>Heteromeles arbutifolia</i> :	65%
<i>Platanus racemosa</i> :	68%
<i>Populus fremontii</i> :	78%
<i>Salix</i> spp.	81%
<i>Quercus agrifolia</i> :	90%

For sites 8-12, the average percent survival for all species planted was 93.% in January 2006 (one year after planting). For individual species the survival rate in January 2006 was:

<i>Baccharis salicifolia</i> :	98%
<i>Heteromeles arbutifolia</i> :	100%
<i>Platanus racemosa</i> :	93%
<i>Populus fremontii</i> :	92%
<i>Salix</i> spp.	88%
<i>Quercus agrifolia</i> :	88%

- Native plant condition
All surviving plants thriving
- Overall appearance of sites:
80% excellent, e.g.
15% good, e.g.
5% difficult with some mortality due to low water table, inappropriate substrate (may be fill or disturbed), e.g.

The final monitoring report is included as Appendix I. General site condition and monitoring occurred in January 2006, but since it was winter, the planting condition was difficult to determine for deciduous species and site photos were not comparable to the spring/summer condition.

6.3 Water Quality Benefits

Calculation of water quality benefits is challenging due to a lack of described relationships between riparian restoration and water quality benefit. Some data does exist and several newer monitoring programs have been established in the State to document/describe benefits. As relationships and improvements become clearer, more precise calculations can be made.

6.4 Water Savings (reduced transpiration)

361.8 acre/ft per year saved for project area.

Arundo uses 5.6 ac/ft per acre (Iverson 1994) and riparian woodland uses 1.9 ac/ft per acre.

We have calculated riparian habitat (a mix of woodland, scrub, herbaceous and open substrate) as having a budget of 0.975 ac/ft per acre.

Water savings = $4.625 \times 78.23 = 351.8$ ac/ft per year for project area.

6.5 Biomass Reduction

10,796 tons or 21,663,686 lbs *Arundo* biomass reduced for project area.

One acre of *Arundo* = 45kg biomass and 78.2 acres of *Arundo* were treated.

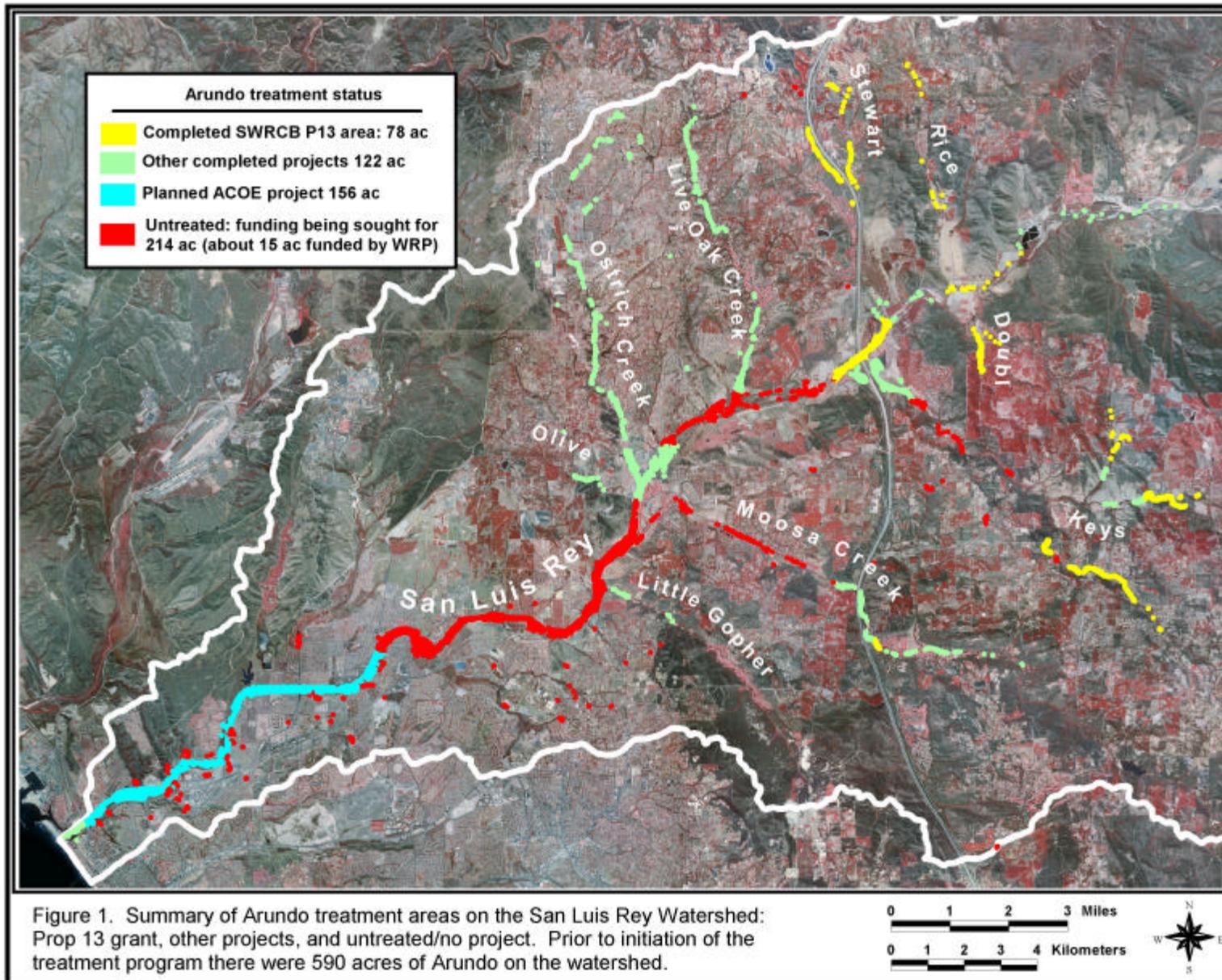
6.6 Education & Outreach

Summary of work carried out for education and outreach for the project:

Task	Date	# of people	Presentation	Availability
Task 5.1: Public education & outreach meetings	8/20/03	36	Invasives & Natives: MRCD/FPUD	-
	9/29/03	38	Invasives: MRCD/FPUD	-
	7/20/04	33	Invasives: CNPS	-
	10/2/04	25	Invasives & native landscaping: MRCD/FPUD	-
	11/04	27	Invasives: FWS in Carlsbad	Powerpoint
	9/14/05	60	Invasives: Santa Barbara WMA	Powerpoint
	10/6/05	10	Invasives & native landscaping: MRCD/FPUD	-
	10/7/05 11/17/05	500 200	Invasives program & DPP: Cal-IPC Talk & poster: CA RCD meeting	- -
Task 5.3: Annual public meetings for WMA/SLR watershed stakeholders	9/8/03	22		-
	9/24/04	16		-
	2/05	45		Poster
	10/6/05	10		Powerpoint
Task 5.4: Landowner outreach	Property owners contacted: 107 Property owners giving permission: 101 Total # of parcels giving permission: 137			-

6.7 Next Steps

The WMA program is seeking funding to treat the remaining acreage between this Proposition 13 grant and College Blvd (start of the ACOE treatment areas, Fig. 1). Three proposals have been submitted: RWQCB 40/50 consolidated grant, Proposition 50 IRWM grant, and River Parkways grant. All three proposals build on this Proposition 13 project and five other projects that have treated the upper watershed and tributaries (two DWR Urban Stream grants, one EEM grant, one NFWF grant and one WRP grant). Figure 1 shows the current status of *Arundo* control and native plant restoration on the watershed.



4-10-1: Contract for EIS/EIR Preparation by The Environmental Company (TEC)

ORDER FOR SUPPLIES OR SERVICES

PAGE 1 OF 7 PAGES

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

1. DATE OF ORDER 09/28/2007	2. CONTRACT NO. (If any) GS-10F-0122J	6. SHIP TO: Leslie Cleveland		
3. ORDER NO. 07PE308101	4. REQUISITION/REFERENCE NO. 0735010036	a. NAME OF CONSIGNEE BUREAU OF RECLAMATION - SOUTHERN CALIFORNIA AREA OFFICE		
5. ISSUING OFFICE (Address correspondence to) Bureau of Reclamation, Lower Colorado Region P.O. Box 61470		b. STREET ADDRESS 27708 JEFFERSON AVE, SUITE 202		
Boulder City NV 89006-1470		c. CITY TEMECULA	d. STATE CA	e. ZIP CODE 92593-0011

7. TO:		f. SHIP VIA		
a. NAME OF CONTRACTOR Mr. Donald E. Nelson		8. TYPE OF ORDER		
b. COMPANY NAME TEC INC.		<input checked="" type="checkbox"/> a. PURCHASE REFERENCE YOUR: Please furnish the following on the terms and conditions specified on both sides of this order and on the attached sheet, if any, including delivery as indicated.		
c. STREET ADDRESS 2496 OLD IVY RD STE 300		<input type="checkbox"/> b. DELIVERY - Except for billing instructions on the reverse, this delivery order is subject to instructions contained on this side only of this form and is issued subject to the terms and conditions of the above-numbered contract.		
d. CITY CHARLOTTESVILLE	e. STATE VA	f. ZIP CODE 22903-4895		
9. ACCOUNTING AND APPROPRIATION DATA - - A10 - 3501000 - - 251A - - 19646000 - - - 1210000 - - - - -		10. REQUISITIONING OFFICE BUREAU OF RECLAMATION - SOUTHERN CALIFORNIA AREA OFFICE		

11. BUSINESS CLASSIFICATION (Check appropriate box(es))			
<input type="checkbox"/> a. SMALL	<input checked="" type="checkbox"/> b. OTHER THAN SMALL	<input type="checkbox"/> c. DISADVANTAGED	<input type="checkbox"/> d. WOMEN-OWNED
12. F.O.B. POINT Destination	13. PLACE OF	14. GOVERNMENT B/L NO.	15. DELIVER TO F.O.B. POINT ON OR BEFORE (Date)
a. INSPECTION	b. ACCEPTANCE		16. DISCOUNT TERMS
			10 days % 20 days % 30 days % days %

17. SCHEDULE (See reverse for Rejections)

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
	SEE LINE ITEM DETAIL					

SEE BILLING INSTRUCTIONS ON REVERSE	18. SHIPPING POINT	19. GROSS SHIPPING WEIGHT	20. INVOICE NO.		17(h) TOT. (Cont. pages)
	21. MAIL INVOICE TO: Ken Miller				
	a. NAME Bureau of Reclamation, Lower Colorado Region				
	b. STREET ADDRESS (or P.O. Box) Contracting Office (LC-3130), P.O. Box 61470				
	c. CITY Boulder City	d. STATE NV	e. ZIP CODE 89006-1470	\$30,226.62	17(i) GRAND TOTAL

22. UNITED STATES OF AMERICA BY (Signature) <i>Beverly K. Nelson</i>	23. NAME (Typed) Beverly K. Nelson TITLE: CONTRACTING/ORDERING OFFICER
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**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

PAGE NO.
3 of 7

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

OF ORDER
09/28/2007

CONTRACT NO.
GS-10F-0122J

ORDER NO.
07PE308101

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
0001	<p>Santa Margarita River EIS/EIR Contract</p> <p>Assistance is required by Reclamation in the investigation of the Santa Margarita River Conjective Use Project to which Permits 15000, 11357, and 8511 could be applied for the benefit of the Marine Corps Base at Camp Pendleton, as well as the community of Fallbrook. The Contractor shall prepare an integrated EIS and EIR for the proposed conjuctive use project in the Santa Margarita Watershed, in the northwest corner of San Diego County, California.</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	1.00	LS	8,110.100	8,110.10	
0002	<p>Reference Requisition: 0735010036</p> <p>Public Scoping</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	1.00	LS	22,116.520	22,116.52	
0003	<p>Cultural Resources</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	0.00	LS	30,781.620	0.00	
OPTION YEAR						
0004	<p>Vegetative Survey/Mapping</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	0.00	LS	69,394.720	0.00	
OPTION YEAR						
0005	<p>Wildlife/Fishery Survey/Mapping</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	0.00	LS	11,086.240	0.00	
OPTION YEAR						
0006	<p>Other Special Status Species</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	0.00	LS	11,763.520	0.00	
OPTION YEAR						
0007	<p>Open Space Management Zone</p> <p style="text-align: center;"><i>Start Date</i> <i>End Date</i> 09/28/2007 07/31/2009</p>	0.00	LS	27,298.120	0.00	
OPTION YEAR						

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17) ➔ \$30,226.62

**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

PAGE NO.
5 of 7

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

OF ORDER 09/28/2007	CONTRACT NO. GS-10F-0122J	ORDER NO. 07PE308101
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ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
0015	Assess Hydrologic Impacts	0.00	LS	51,385.370		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0016	Endangered Species Act Biological Assessment	0.00	LS	23,034.680		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0017	Preliminary Draft EIS/EIR	0.00	LS	95,281.980		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0018	Draft EIS/EIR	0.00	LS	63,661.700		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0019	Preliminary Final EIS/EIR	0.00	LS	44,313.420		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0020	Final EIS/EIR	0.00	LS	28,818.600		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0021	Monthly Meetings	0.00	LS	20,098.810		0.00
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17i) ➔ \$0.00

**ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION**

PAGE NO.
4 of 7

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

DATE OF ORDER 09/28/2007	CONTRACT NO. GS-10F-0122J	ORDER NO. 07PE308101
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ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)
0008	Clean Water Act Permits	0.00	LS	11,455.320	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0009	CA Coastal Commission	0.00	LS	3,910.920	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0010	Air Quality RONA	0.00	LS	8,562.080	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0011	Fish and Wildlife Coordination Act	0.00	LS	14,263.570	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0012	Environmental Justice	0.00	LS	4,603.560	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0013	Assess Traffic Impacts	0.00	LS	9,068.270	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					
0014	Wetland Delineation	0.00	LS	5,958.760	0.00	
OPTION YEAR	<i>Start Date</i> 09/28/2007 <i>End Date</i> 07/31/2009					

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17i) ⇒ \$0.00

ORDER FOR SUPPLIES OR SERVICES
SCHEDULE - CONTINUATION

PAGE NO.
6 of 7

IMPORTANT: Mark all packages and papers with contract and/or order numbers.

LINE OF ORDER

CONTRACT NO.

ORDER NO.

ITEM NO. (a)	SUPPLIES OR SERVICES (b)	QUANTITY ORDERED (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)	QUANTITY ACCEPTED (g)

TOTAL CARRIED FORWARD TO 1ST PAGE (ITEM 17i) ⇒ \$0.00

Contract Level Funding Summary	Document Number	Title	Page
	07PE308101	Santa Margarita EIR/EIS Contract	7 of 7

- - A10 - 3501000 - - 251A - - 19646000 - - - 1210000 - - - - -

\$30,226.62

Reference Requisition: 0735010036

Total Funding: \$30,226.62

4-10-2: Preliminary Cost Estimates for Santa Margarita Conjunctive Use Project Facilities

Santa Margarita River Conjunctive Use

Pre-Feasibility Plan Formulation Study

Appendices—Pre-Feasibility Cost Estimates

Pre-Feasibility Alternatives
Line Item Cost Summaries, Operations, Maintenance Costs, and
Total Cost Analyses

San Diego County, California

prepared by



U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

May 2005

Alternative 1a
Santa Margarita Project - Pre-Feasibility Study
Project Capital Cost Breakdown

With Advanced Water Treatment

20-Jan-05

Alternative 1A		
Feature	Component Details	Capital costs Item Costs \$
Diversion dam -Obermeyer installation	280' long, 7.9' high, Replaces existing sheet pile diversion dam	\$ 2,738,000
Headworks gates - reconstructed with Obermeyer dam	Increased from 60 to 200 cfs	\$ 101,791
O'Neill ditch - widening improvements along with road siphon crossings	Increased from 60 to 200 cfs	\$ 406,219
Recharge ponds	Rehab 1-5 existing ponds: 312 AF;	\$ 1,261,473
	Construct 2 new ponds, 6&7: 242 AF	\$ 2,269,454
Groundwater extraction wells	6 wells, 10 cfs net	\$ 812,685
Groundwater collection pipe system	Based on 750 gpm wells pumped into existing collector	\$ 87,128
Water treatment plant	Haybarn Canyon; brine disposal assumed included, train 1, 29 cfs	\$ 28,740,909
Distribution main pipeline	Bi-directional to Fallbrook: 67,000', 30"-27" dia, 1100' head, 24-19 cfs	\$ 10,050,353
Storage tanks	At water treatment clearwell or existing	
Pumping plants	Base in water treatment; mid-booster included in pipeline	
Lake O'Neill rehab	LC designs	\$ 12,823,400
Open space management zone	Land purchase, included below	
TOTAL		\$ 59,291,411

4-16-1: Preliminary Opinion of Cost for the Amani Point Wetlands by PBS&J



PRELIMINARY OPINION OF COST WORKSHEET						
PROJECT SD Wild Animal Park	PROJECT NO. 620669.01	ENR INDEX	ESTIMATED BY: G. K. Masutani	DATE: 10/20/2005		
CLIENT SD Wild Animal Park	TYPE OF ESTIMATE Amani Point Wetlands & S. and E. African Pond Recirculation		CHECKED BY:	DATE:		
Description/Item	Quantity	Unit	Unit Cost	Total	Comment	
FACILITIES						
Force Main Piping/Fittings	2200	LF	\$40.00	\$88,000		
80 gpm Pump	2	EA	\$10,000	\$20,000		
Pump Station Piping/Appurtenances	2	LS	\$30,000	\$60,000		
Flow Meters	2	EA	\$3,000	\$6,000		
Wetlands	1.5	Acre	\$55,000	\$82,500		
Wetlands Earthwork	1	LS	\$30,000	\$30,000		
Waterfall Treatment	1	LS	\$40,000	\$40,000		
Grouted Channel	5600	SF	\$7	\$39,200		
Channel Treatment	1400	LF	\$15	\$21,000		
Subtotal					\$386,700	
MISCELLANEOUS						
Controls	1	LS	\$15,000	\$15,000		
Subtotal					\$15,000	
Mobilization	1	LS	\$30,000	\$30,000		
Subtotal					\$30,000	
CONSTRUCTION SUBTOTAL					\$431,700	
15% Overhead & Profit					\$64,800	
Subtotal					\$496,500	
30 % Contingency					\$149,000	
Subtotal					\$645,500	
1% bond					\$6,500	
GRAND TOTAL					\$652,000	

This opinion of cost is limited to our best judgement of anticipated construction costs and is not a proposal or guarantee. All costs are subject to change to reflect such items as changes in the cost of labor, contractor's method of determining prices,

4-20-1: Detailed Opinion of Cost Estimates for County of San Diego Chollas Creek Runoff Reduction and Groundwater Recharge Facilities

52nd & University Porous Pavement

Task	Description	Units	Quantity	Unit Cost	Total	Comments
20D.1	Mobilization	LS	1	\$5,000.00	\$5,000.00	
	Survey	LS	1	\$4,500.00	\$4,500.00	
	BMPs	LS	1	\$1,500.00	\$1,500.00	
20D.2	Demolition	SY	1,545	\$12.00	\$18,540.00	
	Excavation	CY	525	\$6.00	\$3,150.00	
	Hauling & Disposal	CY	525	\$36.00	\$18,900.00	
	Grading rough & Finish	SY	1,050	\$0.50	\$525.00	
20D.4	Geo textile	SY	1,545	\$2.50	\$3,862.50	
	Aggregate backfill 12"	TN	1,000	\$31.00	\$31,000.00	
20D.5	Porous Asphalt	TN	350	\$165.00	\$57,750.00	Rubberized Polymer Asphalt
	Concrete Apron w/reinforcing	SF	375	\$9.33	\$3,498.75	
	Asphalt berms	LF	200	\$11.85	\$2,370.00	
	Striping	LF	350	\$0.34	\$119.00	
					\$150,715.25	
Contingency 15%					\$22,607.29	
Total					\$173,322.54	

Comprehensive Health-32nd & Oceanview

Task	Description	Units	Quantity	Unit Cost	Total	Comments
20D.1	Mobilization	LS	1	\$ 3,000.00	\$ 3,000.00	
	Survey	LS	1	\$ 2,500.00	\$ 2,500.00	
	BMPs	LS	1	\$ 750.00	\$ 750.00	
20D.2	Demolition	SY	200	\$ 12.00	\$ 2,400.00	
	Excavation	CY	600	\$ 6.00	\$ 3,600.00	
	Hauling & Disposal	CY	240	\$ 36.00	\$ 8,640.00	
20D.3	Install catch basin & Piping	LS	2	\$ 5,500.00	\$ 11,000.00	
20D.2	Grading Rough & Finish	SY	200	\$ 0.50	\$ 100.00	
20D.3	Concrete Rails	SF	140	\$ 9.33	\$ 1,306.20	
	Stormwater containment Unit	EA	3	\$ 15,000.00	\$ 45,000.00	
20D.4	Aggregate Base 2'	TN	90	\$ 31.00	\$ 2,790.00	
	Asphalt Patching	SY	300	\$ 26.50	\$ 7,950.00	
20D.5	Asphalt berms	LF	150	\$ 11.85	\$ 1,777.50	
	Striping	LF	1,050	\$ 0.34	\$ 357.00	
					\$ 91,170.70	
Contingency 15%					\$ 13,675.61	
Total					\$ 104,846.31	

Work Furlough

Task	Description	Units	Quantity	Unit Cost	Total	Comments
20D.1	Mobilization	LS	1	\$ 1,500.00	\$ 1,500.00	
	Survey	LS	1	\$ 1,500.00	\$ 1,500.00	
	BMPs	LS	1	\$ 750.00	\$ 750.00	
20D.2	Excavation	CY	900	\$ 6.00	\$ 5,400.00	Bioswale 2-@150 x 10 1-@200 x 15
	Hauling & Disposal	CY	900	\$ 36.00	\$ 32,400.00	
20D.3	Rain Garden	LS	1	\$ 10,000.00	\$ 10,000.00	
	Concrete Disipator	LS	1	\$ 5,000.00	\$ 5,000.00	
	Modify Existing Strom Drains	LS	2	\$ 5,000.00	\$ 10,000.00	
	Concrete Swales	SF	750	\$ 12.50	\$ 9,375.00	250' x 3'
	Aggregate infiltration Pits	TN	120	\$ 31.00	\$ 3,720.00	
	Hydro Seed Bio Swale	SF	300	\$ 5.00	\$ 1,500.00	
					\$ 81,145.00	
Contingency 15%					\$ 12,171.75	
Total					\$ 93,316.75	

GRAND TOTAL \$371,485.59