

Economic Analysis – Water Supply and Water Quality Benefits

The projects described in this Proposal provide a broad variety of water resource related benefits. Although the projects are presented individually, they should be considered as components of a broader IRWM Plan that addresses the regional water resources objectives identified during development of the IRWM Plan. These objectives are described in Chapter 3 of the Draft IRWM Plan (Attachment 3).

Some of the projects presented in this Proposal are components of larger sub-regional projects, such as the Las Virgenes Creek Restoration Project (which includes the first ½ acre of what will ultimately be seven river miles of riparian habitat restoration). Other projects are related because the benefits affect the same water body, such as the JWPCP Marshland Enhancement Project and the Wilmington Drain Restoration Project. The benefits of project integration, which are likely to be greater than the benefits of individually assessed projects, are not included in this Proposal, but are being assessed for the Final IRWM Plan.

This attachment presents the Water Supply and Water Quality benefits of the 13 projects submitted in this Proposal. Project benefits other than water supply and water quality benefits are presented in Attachment 11. **Table 10-1** summarizes the water supply and water quality benefits as well as the total discounted present value of all the economically quantifiable benefits. Despite the importance of presenting quantifiable economic benefits, each project generates benefits that are not readily quantified as a dollar value. These non-economically quantifiable benefits should be considered in addition to the benefits with monetary values.

Table 10-1: Summary of Water Supply and Water Quality Benefits

Benefits	# of Projects	Quantity	Present Value ¹
Water Supply Benefits ²			
Conservation	2	1,975 afy	\$575,924,918
Recycled Water Use	1	16,000 afy	
Groundwater Recharge	3	12,790 afy	
Total	6	30,800 afy	
Water Quality Benefits			
Runoff Reduction	2	490 afy	\$43,699,166
Runoff Treatment	5	5,610 afy	
Native Habitat Restoration ³	3	54.5 acres	-
Total	10	6,100 afy; 54.5 acres	
<ol style="list-style-type: none"> 1. See Tables C-4 and C-5 (Appendix 10-A). 2. Calculated based on estimated reduction in imported water needs. 3. Native habitat restoration can provide water quality benefits in multiple ways, including algae growth reduction (e.g., Las Virgenes Creek Restoration Project) 			

Tables C-3, C-4, and C-5 from the PSP are included in **Appendix 10-A**.

The individual project sections provided hereafter discuss:

- Water Supply Benefits
- Water Quality Benefits
- Most Likely Alternative, which provided the basis to develop avoided costs.
- Monetary Costs (capital costs and operation and maintenance costs) and Benefits (avoided costs and willingness-to-pay)

Primary water supply and water quality benefits were quantified and supported by existing documentation. Secondary benefits (e.g., groundwater recharge benefit of a wetland project) were generally only described qualitatively at this time due to the significant effort that would have been required to quantify them, just for the purpose of this Proposal.

Monetary values for water supply, water quality, and other project benefits calculated for this Proposal have been developed in the IRWM Plan Benefits Assessment Framework (Appendix 10-B). Following is a summary of key assumptions used in the Benefits Assessment Framework:

- The purpose of the Benefits Assessment Framework is to quantify, in monetary terms, improvements to the “beneficial uses” of water as identified by the SWRCB and any other improvements that may result from projects contained within the IRWM Plan and this Proposal.
- Benefit values used in this framework are largely based on value estimates established in the Environmental and Natural Resource Economics Literature, avoided costs, or value estimates provided by project sponsors.
- **Table 10-2** summarizes the major benefit types used in IRWM Plan development and in the Proposal, the benefit estimate source, the monetary value used, and the associated section in the Benefits Assessment Framework.

Table 10-2: Benefits Assessment Framework Summary

Section	Benefit Type	Benefit Estimate Source	Monetary Value Used
Section 3: Water Supply			
Sec. 3.3.1	Avoided cost	MWD Full Service Tier 1 Rate	Combined water supply avoided cost in \$ per afy that varies for selected years (See Table 10-3)
Sec. 3.3.2	Increased Reliability	MWD Shortage Surcharge Rate	
Section 4: Water Quality			
Sec. 4.3.1	Indirect Effects	Health, Recreation, others	-
Sec. 4.3.2	Water Quality Improvement	Willingness to pay	\$564 per afy

- **Table 10-3** shows the combined water supply avoided cost per acre foot for selected years that was used to quantify the water supply benefits.

Table 10-3: Water Supply Avoided Costs (\$/af)

	2006	2010	2020	2030	2040
MWD Full Service Tier 1 High Estimate ¹	\$453	\$601	\$808	\$1,085	\$1,459
MWD Full Service Tier 1 Low Estimate ¹	\$453	\$555	\$677	\$866	\$1,164
Average of Tier 1 Estimates ¹	\$453	\$578	\$742	\$976	\$1,311
MWD Shortage Surcharge Rate or Dry Year Rate (probability 30%) ²	\$1,359	\$1,734	\$2,226	\$2,928	\$3,933
Combined Avoided Cost of Water Supply Benefit ²	\$861	\$1,098	\$1,410	\$1,854	\$2,491

Notes: All values in 2005 dollars

1. See Table MWD-1 in Appendix 10-A
2. Equal to three times the average MWD Full Service Tier 1 rate. The shortage surcharge is applied to reflect the dry year probability (30%), which indicates that the shortage surcharge may be applicable 3 out of every 10 years
3. Calculated by [Average Tier 1 Rate * 70% + Dry Year Rate * 30%]

All projects in the Proposal receive their imported water from MWD. MWD imports 55 percent from the State Water Project, 36 percent from the Colorado River Aqueduct, and 9 percent from the Los Angeles Aqueduct. It was therefore assumed in the water supply benefits calculations that, for every 100 af reduction in imported water need, 55 af come from the Bay Delta via the State Water Project.

1. Central Basin Southeast Water Reliability Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will provide the capacity to deliver 20,000 afy of recycled water from two LACSD facilities: San Jose Creek WRP and Los Coyotes Creek WRP. Of the 20,000 afy of capacity, 4,000 afy is currently used by existing customers so the proposed project will contribute to 16,000 afy of new recycled water use. Of this 16,000 afy, 13,500 afy is designated for the City of Vernon (see Appendix 5-1; CBMWD and City of Vernon MOU). CBMWD anticipate that 3 years will be required to identify and bring on-line the remaining 2,500 afy of customers (Attachment 8, Reference 1-1).

This project will also create a looped pipe network that will result in increase flow and pressure in areas of the current distribution system that are not adequately served today. Increased pressure and flow will benefit the existing customers (4,000 afy). This ability to provide better customer service will allow CBMWD to maintain its customer-base, avoid users to convert back to potable water, and facilitate the connections of new users, thereby increasing the ability of CBMWD to deliver the full 20,000 afy of recycled water.

These water supply benefits will be realized upon completion of the pipeline, pump station, and user connections. As previously mentioned, 13,500 afy of recycled water delivery will occur upon project completion in 2008 while delivery of 2,500 afy will occur 3 years later in 2011. Metered water use by CBMWD customers will confirm recycled water use.

Water Quality Benefits

The project will decrease the potential for algae growth in the San Gabriel River below Firestone Blvd. When the flow in the lined portion of the San Gabriel River is greater than the capacity of the low flow channel, the flow spreads out along the entire width of the channel, creating slow moving shallow areas. When these shallow areas are exposed to sunlight, algae growth occurs. This project will prevent up to 16,000 afy of recycled water from the San Jose Creek WRP from being discharged into the San Gabriel River and overwhelming the low flow channel. Using LACSD recycled water for recycling purposes will allow the LACSD and LACFCD to better manage and control the algae growth by taking advantage of the reduced flow in the San Gabriel River.

The benefit would be received immediately upon completion of the pipeline, pump station and user connections in January 2008; however, this benefit cannot be quantified.

Most Likely Alternative

The only alternative to the proposed project would be a no-project alternative because the proposed project has identified a single, large (13,500 afy) user of recycled water. The alternative to this project would be attempting to other users of 13,500 afy of recycled water and, based on CBMWD recycled water experience, this is not feasible in the same timeframe as the proposed project.

The no-project alternative entails use of 16,000 afy of imported water supplies. Of the imported water supplies, 8,800 afy (55 percent) are imported from the Bay Delta.

A benefit of the most likely alternative (no-project alternative) is avoidance of environmental impacts (primarily traffic and noise) during construction of the pipeline and the pump station. However, these impacts can be mitigated as show in the environmental documentation (see Attachment 5).

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$54,676,000. The annual O&M costs are estimated to be \$1,750,000 (2005\$) based on O&M costs for current operations. The estimate includes administration, water purchase, energy, labor, parts, materials, and maintenance of the facilities. The project design life is approximately 40 years, which is standard for a recycled water distribution system project. The total present value of discounted costs for this project is \$72,863,978 (see Table C-3).

Avoided cost of water supply for 13,500 afy starting in 2008 and an additional 2,500 starting in 2011 are included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

2. JWPCP Marshland Enhancement Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefits are claimed for this project.

Regional Benefit

Addresses TMDL Constituents
Upstream of 303(d) Stream

Water Quality Benefits

The project will reduce pollutant loading into the Wilmington Drain. TMDL constituents for the Wilmington Drain include ammonia, copper, lead, and coliform. Other constituents likely present in the Wilmington Drain that will be reduced include arsenic, cadmium, chromium, nickel, selenium, zinc, BOD, total nitrogen, total phosphorus, suspended solids, and volatile organic compounds.

The approximate flow rate expected through the marshland is 2 mgd (approximately 1,700 afy) (Attachment 8, Reference 2-5). A removal rate of 20 percent removal rate is expected for the constituents listed above based on the results published in the Assessment of BMP Effectiveness (Attachment 8, Reference 2-6). The percent decrease in samples from the marshland inlet and outlet will be calculated for those constituents that are consistently detected above the detection limits to confirm removal rates achieved.

This reduction of pollutant loading into Wilmington Drain will benefit all downstream users of the water. Any contaminants removed from Wilmington Drain by the project before the water enters Machado Lake will help improve the water quality in the lake. This pollutant reduction improves lake beneficial uses for people and wildlife.

Additionally, a vegetated swale in the parking lot of the education and viewing area will act as a demonstration project to exhibit storm water runoff capture and treatment benefits. The demonstration is hoped to promote expanded use of vegetated swale and the benefits of more natural systems to handle storm water.

Most Likely Alternative

If the project is not implemented, one of several alternatives may occur. These alternatives include:

1. Marshland site left untouched (no-project alternative)
2. Construction of industrial facilities on-site such as wastewater treatment or commercial facilities
3. Construction of stormwater treatment facilities on-site [Most Likely]

The first alternative, no-project, would result in eventual inability of the marshland to perform due to the invasion by non-native plants as well as the die-off of native vegetation. For example, on-site willows are already in senescence (i.e., not producing new shoots). In addition, continuation of water infiltration under the adjacent JWPCP could damage neighboring digester tanks and result in high cost impacts.

The second alternative, construction of industrial facilities, would result in the loss of water quality benefits to Wilmington Drain and Machado Lake due lack of marshland enhancement. In addition, water quality downstream of the marshland would likely decline due to the removal of the current marshland.

The third alternative, construction of stormwater treatment facilities, would have the same negative impacts as the second alternative. This alternative is most likely because the site is owned by LACSD, adjacent to existing wastewater treatment facilities (JWPCP), and zoned for heavy industry. This alternative would result in the loss of all water quality benefits from the proposed project and, as a result, would not address TMDL and non-TMDL constituents in Wilmington Drain and Machado Lake.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$2,637,065. The annual O&M costs are estimated to be \$150,000 (2005\$). The estimate includes: pump electricity; cleaning out the sediment basin once a year; administration of the visitor summary; trash collection; fence and appurtenance (benches, trash receptacles, educational placards, etc.) maintenance and replacement; non-native plant removal; and monitoring. Plant replacement is not included because the vegetation on site will become self-sustaining.

O&M Cost Item	O&M Cost (2005\$)
Administration	\$3,000
Operation	\$90,000
Maintenance	\$49,500
Replacement	\$4,500
Other	\$3,000
Total	\$150,000

The project design life is hard to quantify. For the marshland, vegetation should be established within 5 years and self-sustaining for 50 years. For the education and viewing area facilities, a design life of 20 years is commonly used by LACSD. The total present value of discounted costs for this project is \$4,510,140 (see Table C-3).

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will provide a 20 percent reduction in water quality constituents for 1,700 afy so 340 afy [$1,700 * 20\%$] is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

The water quality benefits from the marshland will begin as soon as the project is complete in 2008 but the total benefits will take up to five years to realize as the marshland and other habitat vegetation matures. So, project benefits are assumed to be realized in annual 20 percent increments starting in 2008 and reaching 100% in 2012.

3. Large Landscape Water Conservation, Runoff Reduction and Educational Program

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will install weather-based irrigation controllers that will reduce typical landscape water use of 2 af per acre by 20 to 50 percent, based on Hydroearth's experience at other similar sites. The total water use reduction is estimated to range between 1,250 and 2,000 afy (20 to 50 percent reduction) over the 2,000 acres of the project (Attachment 8, References 3-1 & 3-2).

This benefit will be realized immediately upon installation of the controllers, which is planned over a 4 year period. For the economic analysis, 25 percent of the project (500 acres) is assumed to be completed each year and a 37.5 percent reduction (average of 20 to 50 percent) in water use is assumed. This is equivalent to 406 afy reduction each year of implementation, with partial benefits realized starting in 2009 and full benefits realized starting in 2012.

Also, by providing landscape educational outreach for residential controllers, this project will motivate the public to install weather-based irrigation controllers and drip irrigation, in addition to planting native plants. This benefit cannot be quantified at this time.

Water Quality Benefits

The project will also improve water quality of local waterways and ocean by reducing the pollutant carrier (i.e., runoff).

The reduction in landscape applied water will result in a potential 70 percent reduction in runoff volume based on Residential Runoff Reduction Study (see Attachment 8, Reference 1-1). This percent reduction in runoff volume translates into approximately 400 afy (300 to 500 afy) over the 2,000 acres of the project. The waterways affected include almost all waterways in the Malibu Creek watershed, Ballona Creek watershed, Dominguez watershed, Santa Monica Bay watershed and the San Gabriel River and Lower Los Angeles River watershed due to the spatial range of project implementation. However, quantities affecting each water body, particularly TMDLs, cannot be quantified until final project locations are selected. One of the project sites targeted includes an Area of Special Biological Significance (ASBS) in the Point Dume area within the City of Malibu.

Similarly to water supply benefits, water quality benefits will be realized over 4 years starting in 2009.

Most Likely Alternative

The most likely alternative to this project is the no-project alternative because funding is required to implement the project and no alternative water conservation project has been identified. Under the no-project alternative, none of the water supply or water quality benefits would be achieved. From a water supply perspective, the no-project alternative entails use of 1,625 afy (average of 1,250 and 2,000 afy) of imported water supplies. Of the imported water supplies, 894 afy (55 percent) are imported from the Bay Delta.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$5,291,360. As part of the project, customers will have the option to manage the controllers themselves or have the vendor, HydroEarth, manage their irrigation controllers with servers and weather-based irrigation software. The HydroEarth annual fee for the management services is \$360. Based on a conservative assumption that all 1,950 customers pay the

3. Large Landscape Water Conservation, Runoff Reduction and Educational Program

O&M fee, this would cost \$702,000 per year. The project design life is 20 years based on irrigation equipment life. The total present value of discounted costs for this project is \$11,165,118 (see Table C-3).

Avoided cost of water supply for 400 afy starting in 2008 and increasing by 400 afy every year until 1,625 afy in 2012 are included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will treat 400 afy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

4. Las Virgenes Creek Restoration Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefit is claimed.

Regional Benefit

First concrete channel removal project in Las Virgenes Creek

Water Quality Benefits

This reach of Las Virgenes Creek affected by the project is 303(d) listed for algae. The project will reduce algae blooms and related impacts to this reach and downstream reaches of the creek by removing the concrete channel and constructing ½ acre and 400 linear feet of vegetated habitat with canopy to deflect the sunlight and reduce dissolved oxygen in the daytime. The project will also improve general creek water quality by returning the creek to its natural state.

The water quality benefits will be realized upon completion of project construction in November 2007. Reduction in concentration or load of algae cannot be quantified based on the data currently available.

Most Likely Alternative

If the project is not implemented, the most likely alternative is no-project because other grant funding supporting the project will be lost unless the project is implemented promptly. Under the no-project alternative, funding from the DWR Urban Stream Restoration Grant and the Santa Monica Bay Restoration Commission Prop 13 Grant will lapse and contracts will expire since all available extensions have been requested. Loss of grant funding will ensure the project’s demise. Therefore, the no-project alternative is the only and most likely alternative.

Under the most likely alternative, water quality benefits for Las Virgenes Creek realized by project implementation would be lost.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$1,063,090. The annual O&M costs are estimated to be \$43,500 per year (2005\$). As shown in the O&M table, the greatest annual cost will be generated from maintenance/restoring vegetation at an estimate of \$40,000, which will be implemented by the City of Calabasas. The total present value of discounted costs for this project is \$1,556,133 (see Table C-3).

O&M Cost Item	Annual Cost (2005\$)
Administration	\$500
Operation	\$250
Maintenance	\$40,000
Replacement	\$2,000
Other	\$750
Total	\$43,500

Monetized water quality benefits are \$564 per af of urban storm water treatment. However, the quantity of water treated has not been quantified so monetary values cannot be calculated.

5. Malibu Creek Watershed Water Conservation, Runoff Reduction, and Native Flow Restoration Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will result in an estimated 90 percent reduction in dry-weather runoff, or approximately 350 afy based on an analysis performed by LVMWD staff, as follows:

- For the outdoor irrigation improvement portion of the project, irrigation water meter records were accessed for each site within the project area and water use data compiled and compared against optimal budgeted use using plant ET data from a nearby weather station (<http://www.lvmwd.dst.ca.us/cons/con3et.html#chart0>). The difference between optimal and actual use was then summed to estimate potential water savings.
- For the indoor component of the project, standard water savings per retrofitted indoor appliance were summed for the budgeted number of retrofits. This savings was then added to the outdoor estimated water savings to arrive at an overall project water savings.

This project will provide the impetus for a broader application of weather sensitive irrigation controllers and efficient indoor water using devices throughout the watershed, yielding additional benefits that could go well-beyond those quantified.

Water Quality Benefits

The project will reduce runoff to adjacent lakes and streams, such as Westlake Lake, Malibu Creek's tributary streams, and Malibu Lagoon by an estimated 90 afy. These water-bodies are 303(d) listed for bacteria and nutrients.

This project will provide an impetus for other agencies identified in the bacteria and nutrient TMDLs to adopt this approach – control of nutrient and bacteria runoff at the source, and more generally throughout the watershed.

Most Likely Alternative

If the project is not implemented, there are two potential alternatives:

1. Adopt local ordinance prohibiting runoff
2. Install stormwater treatment devices [Most Likely]

The first alternative has been implemented in the City of Santa Monica; however, the political will to pass a similar ordinance does not currently exist in any of the cities within the watershed, including the City of Calabasas (which has a reputation for adopting environmentally progressive ordinances). Furthermore, neither the Westlake Village nor the LVMWD has the staff necessary to police such an ordinance nor is there any guarantee such an ordinance would not be challenged in court. Finally, there are many locations where it is not technically possible to apply necessary irrigation water without some degree of runoff, due to site characteristics. Specifically, road medians in Westlake Village are typically crowned, such that water runs off before plant demand is met.

The second alternative is to install stormwater collection and treatment devices to address water quality concerns, particularly the TMDL constituents: bacteria and nutrients. Installation of treatment devices is the most likely project alternative though it is far less cost-effective than the proposed project. For

5. Malibu Creek Watershed Water Conservation, Runoff Reduction, and Native Flow Restoration Project

example, just one storm drain filter recently installed in the City of Calabasas cost nearly \$500,000 to install and has annual O&M costs of \$10,000. At least 12 such devices would be needed to achieve the same water quality treatment levels and would not yield any water supply benefits.

The second alternative is the most likely alternative since the first alternative cannot be implemented and water quality goals are addressed. This project alternative would have no contribution to the goal of restoring native flows in Malibu Creek, a priority action item for the watershed, and would increase dependency on imported water

Project Costs Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$967,360. The project annual O&M costs are estimated to be an increase in \$117,000 for irrigation controllers but no increase associated with toilets and washers. The water conservation and water quality benefits will be realized starting in 2009. The project design life ranges from 10 to 30 years based on the useful life of the water efficient devices (irrigation equipment to toilets) so 20 years is used as project life since it is the average of the range. The total present value of discounted costs for this project is \$1,624,139 (see Table C-3).

The only potential negative impact of the proposed project is the reduction of aquatic habitat due to reduced urban runoff. However, the creek has in place an existing minimum flow requirement of 2.5 cfs, and it is highly unlikely that this project will result in creek flows below this minimum threshold.

Avoided cost of water supply for 350 afy starting in 2009 is included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will treat 80 afy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

6. Morris Dam Water Supply Enhancement Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will improve conjunctive use of 5,720 afy of local (San Gabriel River watershed upstream of Morris Dam) runoff by capturing storm water and then releasing it for downstream recharge (Attachment 8, Reference 6-2). Consequently, potable groundwater supply within the Main San Gabriel Groundwater Basin will increase by 5,720 afy, which would alternatively be supplied by imported water.

This benefit will be realized upon completion of project construction in November 2009.

The Main San Gabriel Basin Watermaster is responsible for managing the water within the groundwater aquifer. They are committed to basin-wide groundwater elevation monitoring through a network of wells and preservation of the quality of groundwater. They monitor local water agency production levels and water quality data, and in turn, allocate production quotas based on groundwater availability. As demand increases, the Watermaster must locate replacement water from imported water suppliers. The Watermaster prefers the proposed project because of the higher quality of the water and lower costs.

Water Quality Benefits

The project will improve water quality because the dam allows water to be temporarily stored thereby slowing the velocity of sediment-laden flows from the San Gabriel River. During periods of high flow, the storage of water allows sediments to settle and remain behind the dam as water passes through the valves of the dam. This process also re-aerates the flow as water tumbles out the valves into the plunge pool, and travels down the river providing improved water quality downstream. This is especially important after a fire when an increased amount of sediment and burned debris is collected in the reservoir. The effect of a burned watershed lasts for approximately five years after the fire occurs. For that reason, allowing sediments to drop out before the water continues down the river is especially important in preserving water quality.

This benefit will be realized upon completion of project construction in November 2009. The level of improvement in water quality cannot be quantified based on the data currently available.

Most Likely Alternative

There are two potential alternatives if the project is not implemented:

1. Increased Groundwater Pumping – This alternative is not feasible because additional groundwater pumping would not be allowed by the Main San Gabriel Basin Watermaster since the groundwater basin is in overdraft.
2. Increased Imported Water [most likely]

The first alternative is not feasible so the most likely alternative would be the increased use of 5,720 afy of imported water from MWD. Of the imported water supplies 3,146 afy (55 percent) are imported from the Bay Delta.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$13,247,875. The annual O&M costs are estimated to be \$243,600 per year (2005\$). The project is anticipated to slightly increase the normal operation and maintenance cost of the spreading grounds due to the increased monitoring for conjunctive management

6. Morris Dam Conjunctive Use Enhancement Project

of the control system at Morris Dam and the additional flows that are anticipated downstream at our spreading operations. The Project design life is 50 years, which is standard for a LACFCD project. The total present value of discounted costs for this project is \$15,382,807 (see Table C-3).

Avoided cost of water supply for 5,720 afy starting in 2010 is included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

The water quality benefit could not be quantified so it is not included in the monetary benefits.

7. North Atwater Creek Restoration Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefit is claimed.

Water Quality Benefits

The project will provide treatment of an estimated 44 afy of stormwater, thereby reducing pollutant loading in waterways located downstream of the project (Attachment 8, Reference 7-1). Key pollutants that will be reduced or removed include trash, floatable debris, sediments, and heavy metals. This project will therefore help address the existing trash and metals TMDL for the LA River.

The benefits will be realized upon completion of the project in 2009.

Most Likely Alternative

The most likely alternative to the proposed project is no project because if this project is not implemented the area will remain as underused and inadequate public park.

Under the most likely alternative, water quality benefits will not be realized. Consequently, the opportunity to provide one of the first steps in revitalization of the LA River would be lost.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$5,893,000. Project annual O&M costs are estimated to be \$42,000 (2005\$). The O&M estimate includes landscape maintenance, energy, labor, parts and materials for component replacement and landscaping maintenance. The pumping costs are based on the energy required to divert the LA River water to the newly created creek. These costs are summarized in the adjacent table.

The project's design life is 50 years, based on the standard design life for wetlands. The total present value of discounted costs for this project is \$5,618,138 (see Table C-3).

O&M Cost Item	Annual Cost (2005\$)
Administration	\$5,000
Operation	\$10,000
Maintenance	\$20,000
Replacement	\$5,000
Other	\$2,000
Total	\$42,000

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will treat 44 afy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

8. Pacoima Wash Greenway Project: 8th Street Park

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Water Supply Benefits

No water supply benefits are claimed for this project.

Water Quality Benefits

The project will treat an estimated 10 afy of storm water and urban runoff annually, thereby reducing pollutant loading in the groundwater and waterways located downstream of the project including the Los Angeles River and the Pacific Ocean (Attachment 8, Reference 8-2).

Key pollutants that will be reduced include trash, sediments, and a substantial portion of grease, oils, and heavy metals. The project will therefore help address the existing trash TMDL for the Los Angeles River, as well as the bacteria and metals TMDLs, which are currently under development.

The water quality benefits will be realized upon completion of project construction in October 2007.

The reduction in concentration or load of constituents cannot be quantified based on the data currently available for the project.

Most Likely Alternative

The project site has been derelict and vacant for almost thirty years. If the project is not implemented, the potential alternative projects include:

1. No-project (site remains same)
2. Development of single-use park [Most Likely]
3. Stormwater treatment facility

The most likely alternative is development of a single-use park because there is community and political support to enhance the site but funding is limited. As a result, no-project is unlikely due to support for open space enhancement and a treatment facility is unlikely because of high costs without multiple benefits of the proposed project

Under the most likely alternative, water quality benefits will not be realized due to a focus development of open space over a multiple benefit project.

Consequently, the opportunity to provide a high-visibility demonstration of best management practices for stormwater management would be lost. In addition, by not developing this key component of a regional greenbelt and river parkway, the regional plan will be less viable, and possibly unrealized.

8. Pacoima Wash Greenway Project: 8th Street Park

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$1,328,650. The annual O&M at the 8th Street Park is estimated at \$80,000 and includes the following activities:

- Facilities Maintenance and Repair - Trash pickup, vegetation trimming and replacement as necessary, irrigation system maintenance and repair, water treatment system repair and maintenance such as cleaning and replacement of sand filter beds, cleaning and eventual repair and/or replacement of bioswale; maintenance and repair of hardscape such as pervious pavement, planters, walkways, etc.
- Park Patrol - This park will be regularly patrolled by our Park Officers
- Water Quality Monitoring - Collection and analysis of water samples to determine the effectiveness of treatment.

O&M Cost Item	Annual Cost (2005\$)
Administration	\$2,500
Operation	\$15,000
Maintenance	\$45,000
Replacement	\$15,000
Other	\$2,500
Total	\$80,000

The project life is 50 years since most project facilities are natural and self-sustaining. The total present value of discounted costs for this project is \$2,315,782 (see Table C-3).

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will treat 10 afy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

9. San Gabriel Valley Riparian Habitat Invasive Species Control

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will increase percolation to the groundwater basin at Rio Hondo spreading grounds and in the river channels within Whittier Narrows flood control basin by about 90 afy as a result of decreased water evapotranspiration by native vegetation replacing *Arundo*. The estimate is based on removal of 24 net acres of *Arundo* with a water intake decrease of 3.7 afy per acre of cleared *Arundo* (Attachment 8, Reference 9-2, p. 69).

Regional Benefit

Complete *Arundo* Removal in San Gabriel Valley

Water Quality Benefits

Removing *Arundo* along the San Gabriel River at Whittier Narrows will restore the dense foliage canopy of the riparian woodland, which will in turn limit algae growth in near-shore stream areas and improve water quality (Attachment 8, Reference 9-2, p. 69). Whittier Narrows is within Reach 3 of the San Gabriel River. Reach 3 is currently listed under section 303(d) for toxicity. It is unknown what affect removing *Arundo* would have on toxicity. The reduction in concentration or load of constituents cannot be quantified based on the data currently available for the project.

Desirable native riparian species such as mulefat, elderberry and narrow-leaf willow, will become established in about 5 years. For larger willow trees, establishment takes about 10 years. Based on this information, water supply benefits will be realized over 5 years, starting upon implementation completion in 2008 and reaching full benefits by 2013 due to establishment of native species and water quality benefits will be realized over 10 years, starting upon implementation completion in 2008 and reaching full benefits by 2018 due to establishment of willow trees.

Most Likely Alternative

The most likely alternative to this project is no-project because the primary objective of the project is *Arundo* removal and no alternative project would accomplish this task. Under a no-project scenario, the water supply and water quality benefits will not be realized. This alternative entails use of 90 afy of imported water supplies. Of the imported water supplies, 50 afy 8,800 afy (55 percent) are imported from the Bay Delta.

In addition, water supply and water quality would decline from their current status as existing *Arundo* populations at Whittier Narrows expand and spread to infest about 120 acres of *Arundo*-free riparian habitat along the San Gabriel River.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$198,000. After project completion and *Arundo* is eradicated from the area, no substantial O&M costs are anticipated, although new invasions of other wildland weeds may warrant control work. No O&M costs are included for the project because capital costs include herbicide treatment of *Arundo* resprouts, mostly during the first six months but continuing as needed for up to three years after clearance.

A 50-year project design life is used because of natural mechanisms that will maintain native vegetation following project implementation. Nevertheless, the project site will be periodically monitored through

9. San Gabriel Valley Riparian Habitat Arundo Removal Project

other programs at the LASGRWC to check for re-establishment of *Arundo* plants. The total present value of discounted costs for this project is \$173,189 (see Table C-3).

Avoided cost of water supply for 90 afy starting in 2009 is included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

The water quality benefit could not be quantified so it is not included in the monetary benefits.

10. Solstice Creek Southern Steelhead Habitat Restoration

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefit is claimed.

Regional Benefit

Complete Solstice Creek Steelhead Restoration Plan

Water Quality Benefits

Sediment inputs into Solstice Creek will be reduced due to the replacement of non-native plant species with native plant species. Native plants in general, and the specific shrub species to be planted, have more complex root structure and greater soil holding capacity than the non-native species to be removed. Decreased water turbidity will benefit aquatic organisms in the creek, improve steelhead habitat due to more open rocky areas without sediment build-up, and benefit the water quality of Santa Monica Bay since Solstice Creek flows into the Bay.

The sediment input reduction cannot be quantified based on data available as of application submission. This benefit will most likely be observed during high flow events when the majority of soil movement occurs.

Project benefits are assumed to be realized in annual 20 percent increments starting after Year 1 and reaching 100% in Year 5. These benefits will realized indefinitely (50 years) after Year 5 (2012).

Most Likely Alternative

If the project is not implemented, the most likely alternative is a no-project scenario. In this scenario, water quality benefits would be lost and may even worsen due to the expansion of non-native species would in the Solstice Creek watershed.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$235,733. The ecological restoration work described in this proposal is intended to be self-sustaining with minimal maintenance on a yearly basis. The use of native plants to suppress non-native species and improve habitat quality means that very little maintenance and no yearly administration, operation, or replacement costs are needed. The project area will need to be surveyed and have any small incipient non-native species populations removed on an every other year basis after the project is completed. This operation is anticipated to take one month of work every two years by a NPS biological technician. This works out to 7 percent of a year for a biological technician ($\$40,000 \times .07 \sim \$3,100$ every two years or \$1,550 per year).

A 50-year project design life is used because of natural mechanisms that will maintain native vegetation following project implementation. The total present value of discounted costs for this project is \$292,632 (see Table C-3).

The water quality benefit could not be quantified so it is not included in the monetary benefits.

11. South Los Angeles Wetlands Park

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefit is claimed.

Water Quality Benefits

There are several project water quality benefits, including both dry weather and wet weather runoff management. The site has a drainage area of 520 acres and all dry weather runoff (estimated to be 110 afy) will be diverted from the storm drain system to the project site. 85% of the wet weather flows will be also rerouted to the project site and will also undergo treatment. This amount is estimated to be 310 afy (Attachment 8, Reference 11-1).

Pretreatment of the flow will consist of a hydrodynamic system such as a CDS unit that will provide trash and sediment removal. The wetland will provide additional removal through settling, and plant uptake. The supporting feasibility study report presents additional pollution removal information. The overall project will provide significant removal for key pollutants such as trash and heavy metals. TMDLs for these pollutants have been developed by the Los Angeles RWQCB. The drainage area to this project accounts for 0.1% of the overall LA River watershed but the proposed project will provide a disproportionate removal since this is a heavily urbanized area.

The benefits will be realized upon completion of the project in 2009.

Most Likely Alternative

If the project is not implemented, three main alternatives could be considered:

1. No-project (site remains untouched) [Most likely] – No project would result in critical impacts. The project would contribute to the non-attainment of TMDL targets for the Los Angeles River and Santa Monica Bay. The project location will deteriorate and the groundwater level in the proximity of the project will continue to drop.
2. Construction of water treatment facility to meet TMDL – A larger water treatment facility could be built at higher costs; however more land would have to be acquired. It would not be acceptable to the community as there already is a lack of green space in the area.
3. Single-use park – A green park could be built to create open green space for the disadvantaged community. This would create much needed recreation area but would not help in TMDL compliance or improvement of water quality. There would not be any reuse of water for irrigation uses, thus limiting potable water usage.

The most likely alternative is the no project alternative. The community, which has widely supported this project, would continue to suffer environmental injustices. No project will result in the non-attainment of TMDL requirements.

The City of LA has implemented a distributed strategy to improve water quality to meet TMDLs. This project is the type of distributed projects that the City of LA will look to implement. If this project is not implemented, the City of LA will be short of meeting TMDL compliance targets for the LA River watershed. In addition, if this project is not implemented the site will likely continue to deteriorate.

11. South Los Angeles Wetlands Park

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$6,920,000. The project annual O&M is estimated at \$210,000, which includes administration, operation of the facility (including energy costs), maintenance of the wetlands, irrigation, treatment systems, and pumps, and replacement of equipment and parts.

The project design life is estimated to be 50 years for the wetlands park area; however project components such as the treatment devices will need to be replaced based on manufacturer recommendation every 30 years. So, water quality benefits have project life of 30 years. The total present value of discounted costs for this project is \$8,378,717 (see Table C-3).

O&M Cost Item	Annual Cost (2005\$)
Administration	\$30,000
Operation	\$30,000
Maintenance	\$100,000
Replacement	\$40,000
Other (pumping)	\$10,000
Total	\$210,000

Monetized water quality benefits are \$564 per afy of urban storm water treatment. The project will treat 420 afy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

12. Whittier Narrows Water Reclamation Plant UV Disinfection Facilities Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

The project will preserve the use of an average of 7,000 afy of effluent for groundwater replenishment [based on a range of 5 mgd (5,600 afy) to 9 mgd (10,080 afy), depending on the timing and implementation of other projects] by increasing the water quality of the tertiary treated water (Attachment 8, Reference 12-11).

The benefits will be realized as soon as the project is completed and consist mainly of preserving the existing groundwater recharge volume that is supplied by the WN WRP.

Currently, WN WRP is treating approximately 7.5 mgd of flow, with 6.4 mgd of it being directed to the spreading grounds. It is anticipated that the plant will increase treated flow and reuse up to 9 mgd when the Upper San Gabriel Valley Municipal Water District's San Gabriel Valley Water Recycling Project (SGVWRP) is complete. The project started in June 2006 and initial irrigation demand is expected to be approximately 4 mgd, leaving up to 5 mgd for recharge of the spreading grounds.

Additionally, LACSD is implementing a project at the WN WRP to regain lost treatment capacity (caused by the conversion to the NDN process) to be completed around October 2007. At that time, the WN WRP should be able to operate at or near its design capacity of 15 mgd, with approximately 5 mgd directed to the landscape irrigation project by the SGVWRP and up to 9 mgd directed to the Montebello Forebay Groundwater Recharge Project.

Water Quality Benefits

The project provides two water quality benefits: 1) reduction of NDMA in recycled water used for groundwater recharge; 2) reduction of ammonia in receiving waters between discharge point and spreading grounds.

It was determined that a return to pre-NDN levels of NDMA (from maximum levels near 1000 ng/L, down 1 to 2 orders of magnitude, to levels of 10-100 ng/L, on average) at the WN WRP would be adequate. Consequently, LACSD and the Los Angeles RWQCB agreed that LACSD should implement UV disinfection only, while conducting further studies on the attenuation and dilution of NDMA concurrently. The attenuation and dilution studies will be used to determine the final limits for NDMA that will be applied to the Whittier Narrows, San Jose Creek, and Pomona WRPs, and to provide better information to assure the protection of water supplies in the groundwater basin.

In conjunction with the natural attenuation (biodegradation and destruction by sunlight) and dilution of the effluent with other water sources, the blended water will continue to be below the drinking water notification level for NDMA, and continue to be safe for human consumption. The threat of EPA wells in the immediate vicinity of the receiving water channels being negatively affected by NDMA should no longer be apparent. Any benefit to the groundwater wells is dependent on the migration of the groundwater, but some wells should see benefits within a few months.

The NDN process at WN WRP currently removes ammonia to non-detectable levels. However, in order to provide disinfection by chloramination, approximately 1.3 mg/L of ammonia is added back to the process before the addition of sodium hypochlorite. After the chlorine is used up, the amine portion of the chloramine reverts back to ammonia (approximately 0.8 mg/L). Since the effluent going to the receiving water will not be chloraminated with the dual project barrier (free chlorine and UV), there should be a net

12. Whittier Narrows Water Reclamation Plant UV Disinfection Project Facilities

decrease of ammonia of 0.8 mg/L. Therefore, the discharge to the receiving water should have basically a trace ammonia level, which should benefit any aquatic life.

Most Likely Alternatives

The following is a list of project alternatives that would be considered if the project were not constructed:

1. No-project alternative – The no-project alternative would entail continued chloramination of effluent. This would not be acceptable to the EPA, LARWQCB, or the public and may trigger public notification. LACSD could be subjected to fines and citizen suits, making this option untenable.
2. New pipeline construction – A new pipeline would be constructed to the concrete-lined portion of the San Gabriel River so that effluent does not affect groundwater supply. This alternative would be very expensive due to the cost of the pipeline. Furthermore, this alternative would be acceptable if the WN WRP were a smaller stand-alone plant, but the NDMA issue is a regional dilemma that needs to be solved for three plants discharging to the local spreading grounds (Whittier Narrows WRP, San Jose Creek WRP, and Pomona WRP).
3. Zero discharge at full capacity or discontinuation of effluent discharge to receiving water and expansion of reuse – This alternative is viable but costly (to build distribution systems for reuse of the reclaimed water), and would require years to implement (educating and locating willing reuse partners), which would not be acceptable to the Regional Board. The Upper San Gabriel Municipal Water District recently constructed a reuse pump station at WN WRP along with a reuse pipeline, mainly to irrigate the Whittier Narrows Dam Recreation Area and golf course, but this is designed to take only 4.8 mgd, and only during night time hours. Additional reuse infrastructure and reservoir storage is costly, and while more direct reuse may be in the future, there is currently more tertiary effluent available than can be handled by direct reuse. (See item 1 above for discussion of regional NDMA issue)
4. Shut down the WN WRP entirely and divert flow to the Joint Water Pollution Control Plant (JWPCP), treat to secondary treatment standards, and discharge to the ocean [Most likely] – Under this alternative, 7,000 afy would be lost as a water resource to the region. Additionally, the capital invested in the WN WRP would then no longer be providing a benefit, so would represent a lost resource. It would also preclude using the WN WRP for hydraulic relief during storm conditions. While there may be downstream capacity at present, the JWPCP would need to expand its capacity sooner than anticipated. (See item 1 above for discussion of regional NDMA issue)
5. Combine the previous two alternatives, or trim the flow into the plant for reuse only and zero discharge to the receiving water – Although this is technically feasible at first glance, it really does not address the NDMA, trihalomethanes (THM) and Title 22 requirements for reuse water. This scenario would also require some very creative diurnal flow into the plant. Since the new reuse station was designed to run at 11.55 mgd for 10 hours during night time hours, the alternative scenario would have the WN WRP operate up to that flow for the duration of most of those hours, and then essentially shut down the rest of the day. (See item 1 above for discussion of regional NDMA issue).
6. Research and implement another alternative disinfection strategy – Although alternate disinfection is always an option, such as chlorine dioxide, ozone and peracetic acid, alternate disinfectants seem to be associated with alternate disinfection byproducts. In the case of peracetic acid, this disinfectant is not a proven technology on a large scale and subject to high cost and availability problems. Additionally, none of these options have the demonstrated ability to destroy NDMA while also disinfecting.

12. Whittier Narrows Water Reclamation Plant UV Disinfection Project Facilities

The most likely alternative is alternative 4, which is to shut down the WN WRP entirely and divert flow to the JWPCP, treat to secondary treatment standards, and discharge to the ocean. Since the WN WRP has a smaller design capacity (15 mgd) compared to the JWPCP (400 mgd), the WN WRP flow could be absorbed by the larger plant without much impact. The WN WRP is situated on a trunk sewer that currently diverts flow away from the JWPCP on a flow-trimmed basis.

In turn, this alternative entails use of 7,000 afy of imported water supplies. Of the imported water supplies, 3,850 afy (55 percent) are imported from the Bay Delta. The project would also result in increased water supply reliability since recycled water is produced and used locally, and drought-proof.

Positive benefits of the diverting flow from the WN WRP to the JWPCP include increased treatment efficiency at the JWPCP because of economy of scale and lower degree of treatment (secondary versus tertiary).

Potential negative impacts of the diverting flow from the WN WRP to the JWPCP include:

- Does not address the (regional and universal) dilemma of disinfection byproducts (NDMA, THM's, etc.)
- Costs associated with UV and disinfection research and engineering work to date would have no associated benefit
- Reduced beneficial use of water (direct reuse and reclaimed water) in an area where the need for this beneficial use is expanding
- Increased reliance on imported water
- Contradicts LARWQCB directive to implement UV at WN WRP, which could lead to fines and litigation
- Earlier expansion of JWPCP

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$7,741,960. The annual O&M costs are estimated to be \$445,000 per year (2005\$) and include operation costs of energy to power the UV lamps, chemicals and operator labor; maintenance costs of labor; and replacement costs of parts and materials.

The Project design life is 30 years, because the system design life is inherently affected by the life of the electrical components. Most UV equipment has a modular design and components can easily be replaced. Appurtenant facilities, like the concrete channels and gates, have longer life spans. However, changes in the regulatory environment and improvements in UV technology will probably be the most significant factors determining UV design life. Lamps are replaced every 9,000 operating hours.

O&M Cost Item	Annual Cost (2005 \$)
Administration	\$4,000
Operation	\$280,000
Maintenance	\$80,000
Replacement	\$75,000
Other	\$6,000
Total	\$445,000

The total present value of discounted costs for this project is \$12,099,742 (see Table C-3).

Avoided cost of water supply for 7,000 afy starting in 2009 are included in Table C-5, which calculates the total present value of discounted avoided costs for the Proposal.

13. Wilmington Drain Restoration Multiuse Project

Economic Analysis – Water Supply and Water Quality Benefits

Water Supply Benefits

No water supply benefit is claimed.

Water Quality Benefits

This project will reduce the pollutant load to the Machado Lake and the Los Angeles Harbor. An estimated 4,800 acy of captured stormwater runoff will be treated. An estimated amount of 50,000 pounds of anthropogenic trash will be captured and removed by the proposed trash capture system (Attachment 8, Reference 13-1).

The benefits will be realized upon completion of the project in 2009.

Most Likely Alternative

The most likely alternative to the proposed project is no project because if this project is not implemented the area will remain the same. Under the most likely alternative, water quality benefits will not be realized. Consequently, the opportunity to provide one of the first steps in revitalization of the LA River would be lost.

Monetary Costs and Benefits

As detailed in Attachment 6, the project capital cost is \$12,940,000. The annual O& M costs are estimated to be \$260,000, of which \$109,000 will be expended towards maintaining the wetlands in optimum condition and also the adjacent Machado Lake. Labor and material will be the major contributory factors in the maintenance budget. Replacement of plants and enhancing the eco system and signage will be 10 percent of the O & M budget and is summarized in the following table.

The project design life is 50 years, which is standard for a wetlands restoration project. The total present value of discounted costs for this project is \$14,532,438 (see Table C-3).

Monetized water quality benefits are \$564 per acy of urban storm water treatment. The project will treat 4,800 acy more than the most likely alternative and this value is included in Table C-4, which calculates the total present value of discounted benefits costs for the Proposal.

O&M Cost Item	Annual Cost (2005 \$)
Administration	\$1,000
Operation	\$10,000
Maintenance	\$169,000
Replacement	\$20,000
Other	\$60,000
Total	\$260,000

Appendix 10-A:
Tables C-3 to C-5; Table MWD-1

Proposal for Greater Los Angeles County Region

Table C-3 – Annual Cost of Greater Los Angeles County Region (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Capital and Other Initial Costs from Table B-1	Capital and Other Initial Costs Not Included in Table B-1	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a+b+...g)	Discount Factor	Discounted Costs (h÷i)
2005	\$ 3,229,948	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,229,948	1.00	\$ 3,229,948
2006	\$ 20,773,432	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,773,432	1.06	\$ 19,597,577
2007	\$ 64,235,997	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 64,235,997	1.12	\$ 57,169,808
2008	\$ 21,911,836	\$ -	\$ 271,600	\$ 845,250	\$ 774,500	\$ 339,000	\$ 430,250	\$ 24,572,436	1.19	\$ 20,631,491
2009	\$ 1,286,590	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 676,251	\$ 4,972,791	1.26	\$ 3,938,916
2010	\$ 1,286,590	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 847,252	\$ 5,140,692	1.34	\$ 3,841,424
2011	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	1.42	\$ 2,852,411
2012	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	1.50	\$ 2,688,892
2013	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	1.59	\$ 2,538,636
2014	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	1.69	\$ 2,393,105
2015	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	1.79	\$ 2,259,377
2016	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	1.90	\$ 2,129,855
2017	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	2.01	\$ 2,010,837
2018	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	2.13	\$ 1,895,563
2019	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	2.26	\$ 1,789,638
2020	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	2.40	\$ 1,687,044
2021	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	2.54	\$ 1,592,772
2022	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	2.69	\$ 1,501,463
2023	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	2.85	\$ 1,417,561
2024	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	3.03	\$ 1,336,297
2025	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	3.21	\$ 1,261,624
2026	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	3.40	\$ 1,189,300
2027	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 4,046,200	3.60	\$ 1,122,841
2028	\$ -	\$ -	\$ 309,600	\$ 1,152,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 4,043,100	3.82	\$ 1,058,473
2029	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,106,600	\$ 441,500	\$ 1,036,250	\$ 3,929,200	4.05	\$ 970,428
2030	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,103,500	\$ 441,500	\$ 1,036,250	\$ 3,926,100	4.29	\$ 914,776
2031	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,106,600	\$ 441,500	\$ 334,250	\$ 3,227,200	4.55	\$ 709,371
2032	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,103,500	\$ 441,500	\$ 334,250	\$ 3,224,100	4.82	\$ 668,575
2033	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,106,600	\$ 441,500	\$ 334,250	\$ 3,227,200	5.11	\$ 631,338
2034	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,103,500	\$ 441,500	\$ 334,250	\$ 3,224,100	5.42	\$ 595,029
2035	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,106,600	\$ 441,500	\$ 334,250	\$ 3,227,200	5.74	\$ 561,888
2036	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,103,500	\$ 441,500	\$ 334,250	\$ 3,224,100	6.09	\$ 529,574
2037	\$ -	\$ -	\$ 309,600	\$ 1,035,250	\$ 1,106,600	\$ 441,500	\$ 334,250	\$ 3,227,200	6.45	\$ 500,079
2038	\$ -	\$ -	\$ 305,600	\$ 755,250	\$ 1,023,500	\$ 366,500	\$ 328,250	\$ 2,779,100	6.84	\$ 406,266
2039	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 926,600	\$ 326,500	\$ 318,250	\$ 2,572,200	7.25	\$ 354,736
2040	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 923,500	\$ 326,500	\$ 318,250	\$ 2,569,100	7.69	\$ 334,253
2041	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 926,600	\$ 326,500	\$ 318,250	\$ 2,572,200	8.15	\$ 315,714
2042	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 923,500	\$ 326,500	\$ 318,250	\$ 2,569,100	8.64	\$ 297,484
2043	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 926,600	\$ 326,500	\$ 318,250	\$ 2,572,200	9.15	\$ 280,984
2044	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 923,500	\$ 326,500	\$ 318,250	\$ 2,569,100	9.70	\$ 264,760
2045	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 926,600	\$ 326,500	\$ 318,250	\$ 2,572,200	10.29	\$ 250,075
2046	\$ -	\$ -	\$ 275,600	\$ 725,250	\$ 923,500	\$ 326,500	\$ 318,250	\$ 2,569,100	10.90	\$ 235,635
2047	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 426,600	\$ 76,500	\$ 68,250	\$ 822,200	11.56	\$ 71,143
2048	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 423,500	\$ 76,500	\$ 68,250	\$ 819,100	12.25	\$ 66,863
2049	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 426,600	\$ 76,500	\$ 68,250	\$ 822,200	12.99	\$ 63,317
2050	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 423,500	\$ 76,500	\$ 68,250	\$ 819,100	13.76	\$ 59,508
2051	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 426,600	\$ 76,500	\$ 68,250	\$ 822,200	14.59	\$ 56,352
2052	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 423,500	\$ 76,500	\$ 68,250	\$ 819,100	15.47	\$ 52,962
2053	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 426,600	\$ 76,500	\$ 68,250	\$ 822,200	16.39	\$ 50,153
2054	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 423,500	\$ 76,500	\$ 68,250	\$ 819,100	17.38	\$ 47,136
2055	\$ -	\$ -	\$ 25,600	\$ 225,250	\$ 426,600	\$ 76,500	\$ 68,250	\$ 822,200	18.42	\$ 44,636
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 150,467,888
Comment Box: See Individual Project Comments										

1. Central Basin Water Supply Reliability Project

Table C-3 – Annual Cost of 1. Central Basin Southeast Water Reliability Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h-i)
2005	\$ 983,095							\$ 983,095	1.00	\$ 983,095
2006	\$ 15,192,905							\$ 15,192,905	1.06	\$ 14,332,929
2007	\$ 38,500,000							\$ 38,500,000	1.12	\$ 34,264,863
2008			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.19	\$ 1,469,334
2009			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.26	\$ 1,386,164
2010			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.34	\$ 1,307,702
2011			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.42	\$ 1,233,681
2012			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.50	\$ 1,163,850
2013			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.59	\$ 1,097,972
2014			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.69	\$ 1,035,822
2015			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.79	\$ 977,191
2016			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	1.90	\$ 921,878
2017			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.01	\$ 869,696
2018			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.13	\$ 820,468
2019			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.26	\$ 774,027
2020			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.40	\$ 730,214
2021			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.54	\$ 688,881
2022			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.69	\$ 649,888
2023			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	2.85	\$ 613,102
2024			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	3.03	\$ 578,398
2025			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	3.21	\$ 545,658
2026			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	3.40	\$ 514,772
2027			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	3.60	\$ 485,634
2028			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	3.82	\$ 458,145
2029			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	4.05	\$ 432,212
2030			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	4.29	\$ 407,748
2031			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	4.55	\$ 384,668
2032			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	4.82	\$ 362,894
2033			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	5.11	\$ 342,353
2034			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	5.42	\$ 322,974
2035			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	5.74	\$ 304,693
2036			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	6.09	\$ 287,446
2037			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	6.45	\$ 271,175
2038			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	6.84	\$ 255,826
2039			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	7.25	\$ 241,345
2040			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	7.69	\$ 227,684
2041			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	8.15	\$ 214,796
2042			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	8.64	\$ 202,638
2043			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	9.15	\$ 191,168
2044			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	9.70	\$ 180,347
2045			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	10.29	\$ 170,139
2046			\$ 250,000	\$ 500,000	\$ 500,000	\$ 250,000	\$ 250,000	\$ 1,750,000	10.90	\$ 160,508
2047								\$ -	11.56	\$ -
2048								\$ -	12.25	\$ -
2049								\$ -	12.99	\$ -
2050								\$ -	13.76	\$ -
2051								\$ -	14.59	\$ -
2052								\$ -	15.47	\$ -
2053								\$ -	16.39	\$ -
2054								\$ -	17.38	\$ -
2055								\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 72,863,978
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

2. JWPCP Marshland Restoration Project

Table C-3 – Annual Cost of 2. JWPCP Marshland Restoration Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Capital and Other Initial Costs from Table B-1	Capital and Other Initial Costs Not Included in Table B-1	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a+b+...g)	Discount Factor	Discounted Costs (h-i)
2005	\$ 429,000							\$ 429,000	1.00	\$ 429,000
2006	\$ 500,000							\$ 500,000	1.06	\$ 471,698
2007	\$ 1,708,065							\$ 1,708,065	1.12	\$ 1,520,172
2008			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.19	\$ 125,943
2009			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.26	\$ 118,814
2010			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.34	\$ 112,089
2011			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.42	\$ 105,744
2012			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.50	\$ 99,759
2013			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.59	\$ 94,112
2014			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.69	\$ 88,785
2015			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.79	\$ 83,759
2016			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	1.90	\$ 79,018
2017			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.01	\$ 74,545
2018			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.13	\$ 70,326
2019			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.26	\$ 66,345
2020			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.40	\$ 62,590
2021			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.54	\$ 59,047
2022			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.69	\$ 55,705
2023			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	2.85	\$ 52,552
2024			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	3.03	\$ 49,577
2025			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	3.21	\$ 46,771
2026			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	3.40	\$ 44,123
2027			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	3.60	\$ 41,626
2028			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	3.82	\$ 39,270
2029			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	4.05	\$ 37,047
2030			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	4.29	\$ 34,950
2031			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	4.55	\$ 32,972
2032			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	4.82	\$ 31,105
2033			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	5.11	\$ 29,345
2034			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	5.42	\$ 27,684
2035			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	5.74	\$ 26,117
2036			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	6.09	\$ 24,638
2037			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	6.45	\$ 23,244
2038			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	6.84	\$ 21,928
2039			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	7.25	\$ 20,687
2040			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	7.69	\$ 19,516
2041			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	8.15	\$ 18,411
2042			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	8.64	\$ 17,369
2043			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	9.15	\$ 16,386
2044			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	9.70	\$ 15,458
2045			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	10.29	\$ 14,583
2046			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	10.90	\$ 13,758
2047			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	11.56	\$ 12,979
2048			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	12.25	\$ 12,244
2049			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	12.99	\$ 11,551
2050			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	13.76	\$ 10,898
2051			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	14.59	\$ 10,281
2052			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	15.47	\$ 9,699
2053			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	16.39	\$ 9,150
2054			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	17.38	\$ 8,632
2055			\$ 3,000	\$ 90,000	\$ 49,500	\$ 4,500	\$ 3,000	\$ 150,000	18.42	\$ 8,143
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 4,510,140
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

3. Large Landscape Water Conservation Project

Table C-3 – Annual Cost of 3. Large Landscape Conservation Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005	\$ 5,000							\$ 5,000	1.00	\$ 5,000
2006	\$ 200,000							\$ 200,000	1.06	\$ 188,679
2007	\$ 1,271,590							\$ 1,271,590	1.12	\$ 1,131,711
2008	\$ 1,271,590						\$ 171,000	\$ 1,442,590	1.19	\$ 1,211,226
2009	\$ 1,271,590						\$ 342,001	\$ 1,613,591	1.26	\$ 1,278,115
2010	\$ 1,271,590						\$ 513,002	\$ 1,784,592	1.34	\$ 1,333,551
2011							\$ 702,000	\$ 702,000	1.42	\$ 494,882
2012							\$ 702,000	\$ 702,000	1.50	\$ 466,870
2013							\$ 702,000	\$ 702,000	1.59	\$ 440,443
2014							\$ 702,000	\$ 702,000	1.69	\$ 415,513
2015							\$ 702,000	\$ 702,000	1.79	\$ 391,993
2016							\$ 702,000	\$ 702,000	1.90	\$ 369,805
2017							\$ 702,000	\$ 702,000	2.01	\$ 348,872
2018							\$ 702,000	\$ 702,000	2.13	\$ 329,125
2019							\$ 702,000	\$ 702,000	2.26	\$ 310,495
2020							\$ 702,000	\$ 702,000	2.40	\$ 292,920
2021							\$ 702,000	\$ 702,000	2.54	\$ 276,340
2022							\$ 702,000	\$ 702,000	2.69	\$ 260,698
2023							\$ 702,000	\$ 702,000	2.85	\$ 245,941
2024							\$ 702,000	\$ 702,000	3.03	\$ 232,020
2025							\$ 702,000	\$ 702,000	3.21	\$ 218,887
2026							\$ 702,000	\$ 702,000	3.40	\$ 206,497
2027							\$ 702,000	\$ 702,000	3.60	\$ 194,809
2028							\$ 702,000	\$ 702,000	3.82	\$ 183,782
2029							\$ 702,000	\$ 702,000	4.05	\$ 173,379
2030							\$ 702,000	\$ 702,000	4.29	\$ 163,565
2031							\$ -	\$ -	4.55	\$ -
2032							\$ -	\$ -	4.82	\$ -
2033							\$ -	\$ -	5.11	\$ -
2034							\$ -	\$ -	5.42	\$ -
2035							\$ -	\$ -	5.74	\$ -
2036							\$ -	\$ -	6.09	\$ -
2037							\$ -	\$ -	6.45	\$ -
2038							\$ -	\$ -	6.84	\$ -
2039							\$ -	\$ -	7.25	\$ -
2040							\$ -	\$ -	7.69	\$ -
2041							\$ -	\$ -	8.15	\$ -
2042							\$ -	\$ -	8.64	\$ -
2043							\$ -	\$ -	9.15	\$ -
2044							\$ -	\$ -	9.70	\$ -
2045							\$ -	\$ -	10.29	\$ -
2046							\$ -	\$ -	10.90	\$ -
2047							\$ -	\$ -	11.56	\$ -
2048							\$ -	\$ -	12.25	\$ -
2049							\$ -	\$ -	12.99	\$ -
2050							\$ -	\$ -	13.76	\$ -
2051							\$ -	\$ -	14.59	\$ -
2052							\$ -	\$ -	15.47	\$ -
2053							\$ -	\$ -	16.39	\$ -
2054							\$ -	\$ -	17.38	\$ -
2055							\$ -	\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 11,165,118
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

4. Las Virgenes Creek Restoration Project

Table C-3 – Annual Cost of 4. Las Virgenes Creek Restoration Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Capital and Other Initial Costs from Table B-1	Capital and Other Initial Costs Not Included in Table B-1	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a+b+...g)	Discount Factor	Discounted Costs (h÷i)
2005	\$ 32,400							\$ 32,400	1.00	\$ 32,400
2006	\$ 10,000							\$ 10,000	1.06	\$ 9,434
2007	\$ 1,020,690							\$ 1,020,690	1.12	\$ 908,410
2008			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.19	\$ 36,523
2009			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.26	\$ 34,456
2010			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.34	\$ 32,506
2011			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.42	\$ 30,666
2012			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.50	\$ 28,930
2013			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.59	\$ 27,292
2014			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.69	\$ 25,748
2015			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.79	\$ 24,290
2016			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	1.90	\$ 22,915
2017			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.01	\$ 21,618
2018			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.13	\$ 20,394
2019			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.26	\$ 19,240
2020			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.40	\$ 18,151
2021			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.54	\$ 17,124
2022			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.69	\$ 16,154
2023			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	2.85	\$ 15,240
2024			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	3.03	\$ 14,377
2025			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	3.21	\$ 13,564
2026			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	3.40	\$ 12,796
2027			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	3.60	\$ 12,071
2028			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	3.82	\$ 11,388
2029			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	4.05	\$ 10,744
2030			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	4.29	\$ 10,135
2031			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	4.55	\$ 9,562
2032			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	4.82	\$ 9,021
2033			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	5.11	\$ 8,510
2034			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	5.42	\$ 8,028
2035			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	5.74	\$ 7,574
2036			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	6.09	\$ 7,145
2037			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	6.45	\$ 6,741
2038			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	6.84	\$ 6,359
2039			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	7.25	\$ 5,999
2040			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	7.69	\$ 5,660
2041			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	8.15	\$ 5,339
2042			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	8.64	\$ 5,037
2043			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	9.15	\$ 4,752
2044			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	9.70	\$ 4,483
2045			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	10.29	\$ 4,229
2046			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	10.90	\$ 3,990
2047			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	11.56	\$ 3,764
2048			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	12.25	\$ 3,551
2049			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	12.99	\$ 3,350
2050			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	13.76	\$ 3,160
2051			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	14.59	\$ 2,981
2052			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	15.47	\$ 2,813
2053			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	16.39	\$ 2,653
2054			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	17.38	\$ 2,503
2055			\$ 500	\$ 250	\$ 40,000	\$ 2,000	\$ 750	\$ 43,500	18.42	\$ 2,362
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 1,556,133
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

5. Malibu Creek Watershed Water Conservation Project

Table C-3 – Annual Cost of 5. Malibu Creek Watershed Watershed Conservation Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h=i)
2005	\$ 180,453							\$ 180,453	1.00	\$ 180,453
2006	\$ 90,227							\$ 90,227	1.06	\$ 85,119
2007	\$ 90,227							\$ 90,227	1.12	\$ 80,301
2008	\$ 180,453							\$ 180,453	1.19	\$ 151,512
2009				\$ 117,000				\$ 117,000	1.26	\$ 92,675
2010				\$ 117,000				\$ 117,000	1.34	\$ 87,429
2011				\$ 117,000				\$ 117,000	1.42	\$ 82,480
2012				\$ 117,000				\$ 117,000	1.50	\$ 77,812
2013				\$ 117,000				\$ 117,000	1.59	\$ 73,407
2014				\$ 117,000				\$ 117,000	1.69	\$ 69,252
2015				\$ 117,000				\$ 117,000	1.79	\$ 65,332
2016				\$ 117,000				\$ 117,000	1.90	\$ 61,634
2017				\$ 117,000				\$ 117,000	2.01	\$ 58,145
2018				\$ 117,000				\$ 117,000	2.13	\$ 54,854
2019				\$ 117,000				\$ 117,000	2.26	\$ 51,749
2020				\$ 117,000				\$ 117,000	2.40	\$ 48,820
2021				\$ 117,000				\$ 117,000	2.54	\$ 46,057
2022				\$ 117,000				\$ 117,000	2.69	\$ 43,450
2023				\$ 117,000				\$ 117,000	2.85	\$ 40,990
2024				\$ 117,000				\$ 117,000	3.03	\$ 38,670
2025				\$ 117,000				\$ 117,000	3.21	\$ 36,481
2026				\$ 117,000				\$ 117,000	3.40	\$ 34,416
2027				\$ 117,000				\$ 117,000	3.60	\$ 32,468
2028				\$ 117,000				\$ 117,000	3.82	\$ 30,630
2029								\$ -	4.05	\$ -
2030								\$ -	4.29	\$ -
2031								\$ -	4.55	\$ -
2032								\$ -	4.82	\$ -
2033								\$ -	5.11	\$ -
2034								\$ -	5.42	\$ -
2035								\$ -	5.74	\$ -
2036								\$ -	6.09	\$ -
2037								\$ -	6.45	\$ -
2038								\$ -	6.84	\$ -
2039								\$ -	7.25	\$ -
2040								\$ -	7.69	\$ -
2041								\$ -	8.15	\$ -
2042								\$ -	8.64	\$ -
2043								\$ -	9.15	\$ -
2044								\$ -	9.70	\$ -
2045								\$ -	10.29	\$ -
2046								\$ -	10.90	\$ -
2047								\$ -	11.56	\$ -
2048								\$ -	12.25	\$ -
2049								\$ -	12.99	\$ -
2050								\$ -	13.76	\$ -
2051								\$ -	14.59	\$ -
2052								\$ -	15.47	\$ -
2053								\$ -	16.39	\$ -
2054								\$ -	17.38	\$ -
2055								\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 1,624,139
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

6. Morris Dam Water Supply Enhancement Project

Table C-3 – Annual Cost of 6. Morris Dam Water Supply Enhancement Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Capital and Other Initial Costs from Table B-1	Capital and Other Initial Costs Not Included in Table B-1	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a+b+...g)	Discount Factor	Discounted Costs (h÷i)
2005	\$ 1,000,000							\$ 1,000,000	1.00	\$ 1,000,000
2006	\$ 1,500,000							\$ 1,500,000	1.06	\$ 1,415,094
2007	\$ 10,758,175							\$ 10,758,175	1.12	\$ 9,574,737
2008			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.19	\$ 204,531
2009			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.26	\$ 192,954
2010			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.34	\$ 182,032
2011			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.42	\$ 171,728
2012			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.50	\$ 162,008
2013			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.59	\$ 152,838
2014			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.69	\$ 144,186
2015			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.79	\$ 136,025
2016			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	1.90	\$ 128,325
2017			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.01	\$ 121,062
2018			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.13	\$ 114,209
2019			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.26	\$ 107,745
2020			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.40	\$ 101,646
2021			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.54	\$ 95,892
2022			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.69	\$ 90,464
2023			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	2.85	\$ 85,344
2024			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	3.03	\$ 80,513
2025			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	3.21	\$ 75,956
2026			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	3.40	\$ 71,656
2027			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	3.60	\$ 67,600
2028			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	3.82	\$ 63,774
2029			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	4.05	\$ 60,164
2030			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	4.29	\$ 56,758
2031			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	4.55	\$ 53,546
2032			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	4.82	\$ 50,515
2033			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	5.11	\$ 47,656
2034			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	5.42	\$ 44,958
2035			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	5.74	\$ 42,413
2036			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	6.09	\$ 40,012
2037			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	6.45	\$ 37,748
2038			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	6.84	\$ 35,611
2039			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	7.25	\$ 33,595
2040			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	7.69	\$ 31,694
2041			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	8.15	\$ 29,900
2042			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	8.64	\$ 28,207
2043			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	9.15	\$ 26,611
2044			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	9.70	\$ 25,104
2045			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	10.29	\$ 23,683
2046			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	10.90	\$ 22,343
2047			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	11.56	\$ 21,078
2048			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	12.25	\$ 19,885
2049			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	12.99	\$ 18,759
2050			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	13.76	\$ 17,698
2051			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	14.59	\$ 16,696
2052			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	15.47	\$ 15,751
2053			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	16.39	\$ 14,859
2054			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	17.38	\$ 14,018
2055			\$ 13,600	\$ 100,000	\$ 100,000	\$ 30,000		\$ 243,600	18.42	\$ 13,225
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 15,382,807
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

7. North Atwater Creek Restoration Project

Table C-3 – Annual Cost of 7. North Atwater Creek Restoration Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h=i)
2005								\$ -	1.00	\$ -
2006	\$ 589,300							\$ 589,300	1.06	\$ 555,943
2007	\$ 1,178,600							\$ 1,178,600	1.12	\$ 1,048,950
2008	\$ 4,125,100							\$ 4,125,100	1.19	\$ 3,463,514
2009			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.26	\$ 33,268
2010			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.34	\$ 31,385
2011			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.42	\$ 29,608
2012			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.50	\$ 27,932
2013			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.59	\$ 26,351
2014			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.69	\$ 24,860
2015			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.79	\$ 23,453
2016			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	1.90	\$ 22,125
2017			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.01	\$ 20,873
2018			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.13	\$ 19,691
2019			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.26	\$ 18,577
2020			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.40	\$ 17,525
2021			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.54	\$ 16,533
2022			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.69	\$ 15,597
2023			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	2.85	\$ 14,714
2024			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	3.03	\$ 13,882
2025			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	3.21	\$ 13,096
2026			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	3.40	\$ 12,355
2027			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	3.60	\$ 11,655
2028			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	3.82	\$ 10,995
2029			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	4.05	\$ 10,373
2030			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	4.29	\$ 9,786
2031			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	4.55	\$ 9,232
2032			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	4.82	\$ 8,709
2033			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	5.11	\$ 8,216
2034			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	5.42	\$ 7,751
2035			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	5.74	\$ 7,313
2036			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	6.09	\$ 6,899
2037			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	6.45	\$ 6,508
2038			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	6.84	\$ 6,140
2039			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	7.25	\$ 5,792
2040			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	7.69	\$ 5,464
2041			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	8.15	\$ 5,155
2042			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	8.64	\$ 4,863
2043			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	9.15	\$ 4,588
2044			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	9.70	\$ 4,328
2045			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	10.29	\$ 4,083
2046			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	10.90	\$ 3,852
2047			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	11.56	\$ 3,634
2048			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	12.25	\$ 3,428
2049			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	12.99	\$ 3,234
2050			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	13.76	\$ 3,051
2051			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	14.59	\$ 2,879
2052			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	15.47	\$ 2,716
2053			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	16.39	\$ 2,562
2054			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	17.38	\$ 2,417
2055			\$ 5,000	\$ 10,000	\$ 20,000	\$ 5,000	\$ 2,000	\$ 42,000	18.42	\$ 2,280
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 5,618,138
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

8. Pacoima Wash Greenway: 8th Street Park

Table C-3 – Annual Cost of 8. Pacoima Wash Greenway: 8th Street Park (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005	\$ 100,000							\$ 100,000	1.00	\$ 100,000
2006	\$ 150,000							\$ 150,000	1.06	\$ 141,509
2007	\$ 1,078,650							\$ 1,078,650	1.12	\$ 959,995
2008			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.19	\$ 67,170
2009			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.26	\$ 63,367
2010			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.34	\$ 59,781
2011			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.42	\$ 56,397
2012			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.50	\$ 53,205
2013			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.59	\$ 50,193
2014			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.69	\$ 47,352
2015			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.79	\$ 44,672
2016			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	1.90	\$ 42,143
2017			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.01	\$ 39,758
2018			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.13	\$ 37,507
2019			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.26	\$ 35,384
2020			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.40	\$ 33,381
2021			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.54	\$ 31,492
2022			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.69	\$ 29,709
2023			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	2.85	\$ 28,028
2024			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	3.03	\$ 26,441
2025			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	3.21	\$ 24,944
2026			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	3.40	\$ 23,532
2027			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	3.60	\$ 22,200
2028			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	3.82	\$ 20,944
2029			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	4.05	\$ 19,758
2030			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	4.29	\$ 18,640
2031			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	4.55	\$ 17,585
2032			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	4.82	\$ 16,589
2033			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	5.11	\$ 15,650
2034			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	5.42	\$ 14,765
2035			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	5.74	\$ 13,929
2036			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	6.09	\$ 13,140
2037			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	6.45	\$ 12,397
2038			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	6.84	\$ 11,695
2039			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	7.25	\$ 11,033
2040			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	7.69	\$ 10,408
2041			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	8.15	\$ 9,819
2042			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	8.64	\$ 9,263
2043			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	9.15	\$ 8,739
2044			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	9.70	\$ 8,244
2045			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	10.29	\$ 7,778
2046			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	10.90	\$ 7,338
2047			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	11.56	\$ 6,922
2048			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	12.25	\$ 6,530
2049			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	12.99	\$ 6,161
2050			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	13.76	\$ 5,812
2051			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	14.59	\$ 5,483
2052			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	15.47	\$ 5,173
2053			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	16.39	\$ 4,880
2054			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	17.38	\$ 4,604
2055			\$ 2,500	\$ 15,000	\$ 45,000	\$ 15,000	\$ 2,500	\$ 80,000	18.42	\$ 4,343
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 2,315,782
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

9. San Gabriel Valley Riparian Habitat Arundo Removal Project

Table C-3 – Annual Cost of 9. San Gabriel Valley Riparian Habitat Arundo Removal (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005								\$ -	1.00	\$ -
2006	\$ 25,000							\$ 25,000	1.06	\$ 23,585
2007	\$ 128,000							\$ 128,000	1.12	\$ 113,920
2008	\$ 15,000							\$ 15,000	1.19	\$ 12,594
2009	\$ 15,000							\$ 15,000	1.26	\$ 11,881
2010	\$ 15,000							\$ 15,000	1.34	\$ 11,209
2011								\$ -	1.42	\$ -
2012								\$ -	1.50	\$ -
2013								\$ -	1.59	\$ -
2014								\$ -	1.69	\$ -
2015								\$ -	1.79	\$ -
2016								\$ -	1.90	\$ -
2017								\$ -	2.01	\$ -
2018								\$ -	2.13	\$ -
2019								\$ -	2.26	\$ -
2020								\$ -	2.40	\$ -
2021								\$ -	2.54	\$ -
2022								\$ -	2.69	\$ -
2023								\$ -	2.85	\$ -
2024								\$ -	3.03	\$ -
2025								\$ -	3.21	\$ -
2026								\$ -	3.40	\$ -
2027								\$ -	3.60	\$ -
2028								\$ -	3.82	\$ -
2029								\$ -	4.05	\$ -
2030								\$ -	4.29	\$ -
2031								\$ -	4.55	\$ -
2032								\$ -	4.82	\$ -
2033								\$ -	5.11	\$ -
2034								\$ -	5.42	\$ -
2035								\$ -	5.74	\$ -
2036								\$ -	6.09	\$ -
2037								\$ -	6.45	\$ -
2038								\$ -	6.84	\$ -
2039								\$ -	7.25	\$ -
2040								\$ -	7.69	\$ -
2041								\$ -	8.15	\$ -
2042								\$ -	8.64	\$ -
2043								\$ -	9.15	\$ -
2044								\$ -	9.70	\$ -
2045								\$ -	10.29	\$ -
2046								\$ -	10.90	\$ -
2047								\$ -	11.56	\$ -
2048								\$ -	12.25	\$ -
2049								\$ -	12.99	\$ -
2050								\$ -	13.76	\$ -
2051								\$ -	14.59	\$ -
2052								\$ -	15.47	\$ -
2053								\$ -	16.39	\$ -
2054								\$ -	17.38	\$ -
2055								\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 173,189
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

10. Solstice Creek Southern Steelhead Habitat Restoration

Table C-3 – Annual Cost of 10. Solstice Creek Southern Steelhead Habitat Restoration (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005	\$ 150,000							\$ 150,000	1.00	\$ 150,000
2006	\$ 30,000							\$ 30,000	1.06	\$ 28,302
2007	\$ 30,000							\$ 30,000	1.12	\$ 26,700
2008	\$ 25,733							\$ 25,733	1.19	\$ 21,606
2009					\$ 3,100			\$ 3,100	1.26	\$ 2,455
2010					\$ -			\$ -	1.34	\$ -
2011					\$ 3,100			\$ 3,100	1.42	\$ 2,185
2012					\$ -			\$ -	1.50	\$ -
2013					\$ 3,100			\$ 3,100	1.59	\$ 1,945
2014					\$ -			\$ -	1.69	\$ -
2015					\$ 3,100			\$ 3,100	1.79	\$ 1,731
2016					\$ -			\$ -	1.90	\$ -
2017					\$ 3,100			\$ 3,100	2.01	\$ 1,541
2018					\$ -			\$ -	2.13	\$ -
2019					\$ 3,100			\$ 3,100	2.26	\$ 1,371
2020					\$ -			\$ -	2.40	\$ -
2021					\$ 3,100			\$ 3,100	2.54	\$ 1,220
2022					\$ -			\$ -	2.69	\$ -
2023					\$ 3,100			\$ 3,100	2.85	\$ 1,086
2024					\$ -			\$ -	3.03	\$ -
2025					\$ 3,100			\$ 3,100	3.21	\$ 967
2026					\$ -			\$ -	3.40	\$ -
2027					\$ 3,100			\$ 3,100	3.60	\$ 860
2028					\$ -			\$ -	3.82	\$ -
2029					\$ 3,100			\$ 3,100	4.05	\$ 766
2030					\$ -			\$ -	4.29	\$ -
2031					\$ 3,100			\$ 3,100	4.55	\$ 681
2032					\$ -			\$ -	4.82	\$ -
2033					\$ 3,100			\$ 3,100	5.11	\$ 606
2034					\$ -			\$ -	5.42	\$ -
2035					\$ 3,100			\$ 3,100	5.74	\$ 540
2036					\$ -			\$ -	6.09	\$ -
2037					\$ 3,100			\$ 3,100	6.45	\$ 480
2038					\$ -			\$ -	6.84	\$ -
2039					\$ 3,100			\$ 3,100	7.25	\$ 428
2040					\$ -			\$ -	7.69	\$ -
2041					\$ 3,100			\$ 3,100	8.15	\$ 380
2042					\$ -			\$ -	8.64	\$ -
2043					\$ 3,100			\$ 3,100	9.15	\$ 339
2044					\$ -			\$ -	9.70	\$ -
2045					\$ 3,100			\$ 3,100	10.29	\$ 301
2046					\$ -			\$ -	10.90	\$ -
2047					\$ 3,100			\$ 3,100	11.56	\$ 268
2048					\$ -			\$ -	12.25	\$ -
2049					\$ 3,100			\$ 3,100	12.99	\$ 239
2050					\$ -			\$ -	13.76	\$ -
2051					\$ 3,100			\$ 3,100	14.59	\$ 212
2052					\$ -			\$ -	15.47	\$ -
2053					\$ 3,100			\$ 3,100	16.39	\$ 189
2054					\$ -			\$ -	17.38	\$ -
2055					\$ 3,100			\$ 3,100	18.42	\$ 168
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 247,568
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

11. South Los Angeles Wetlands Park

Table C-3 – Annual Cost of 11. South Los Angeles Wetlands Park (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005								\$ -	1.00	\$ -
2006	\$ 692,000							\$ 692,000	1.06	\$ 652,830
2007	\$ 1,384,000							\$ 1,384,000	1.12	\$ 1,231,755
2008	\$ 4,844,000							\$ 4,844,000	1.19	\$ 4,067,116
2009			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.26	\$ 166,340
2010			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.34	\$ 156,924
2011			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.42	\$ 148,042
2012			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.50	\$ 139,662
2013			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.59	\$ 131,757
2014			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.69	\$ 124,299
2015			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.79	\$ 117,263
2016			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	1.90	\$ 110,625
2017			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.01	\$ 104,364
2018			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.13	\$ 98,456
2019			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.26	\$ 92,883
2020			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.40	\$ 87,626
2021			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.54	\$ 82,666
2022			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.69	\$ 77,987
2023			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	2.85	\$ 73,572
2024			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	3.03	\$ 69,408
2025			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	3.21	\$ 65,479
2026			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	3.40	\$ 61,773
2027			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	3.60	\$ 58,276
2028			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	3.82	\$ 54,977
2029			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	4.05	\$ 51,865
2030			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	4.29	\$ 48,930
2031			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	4.55	\$ 46,160
2032			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	4.82	\$ 43,547
2033			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	5.11	\$ 41,082
2034			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	5.42	\$ 38,757
2035			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	5.74	\$ 36,563
2036			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	6.09	\$ 34,494
2037			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	6.45	\$ 32,541
2038			\$ 30,000	\$ 30,000	\$ 100,000	\$ 40,000	\$ 10,000	\$ 210,000	6.84	\$ 30,699
2039								\$ -	7.25	\$ -
2040								\$ -	7.69	\$ -
2041								\$ -	8.15	\$ -
2042								\$ -	8.64	\$ -
2043								\$ -	9.15	\$ -
2044								\$ -	9.70	\$ -
2045								\$ -	10.29	\$ -
2046								\$ -	10.90	\$ -
2047								\$ -	11.56	\$ -
2048								\$ -	12.25	\$ -
2049								\$ -	12.99	\$ -
2050								\$ -	13.76	\$ -
2051								\$ -	14.59	\$ -
2052								\$ -	15.47	\$ -
2053								\$ -	16.39	\$ -
2054								\$ -	17.38	\$ -
2055								\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 8,378,717
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

12. Whittier Narrow WRP UV Disinfection Facilities Project

Table C-3 – Annual Cost of 12. Whittier Narrow WRP UV Disinfection Facilities Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
	Capital and Other Initial Costs from Table B-1	Capital and Other Initial Costs Not Included in Table B-1	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a+b+...g)	Discount Factor	Discounted Costs (h=i)
2005	\$ 350,000							\$ 350,000	1.00	\$ 350,000
2006	\$ 500,000							\$ 500,000	1.06	\$ 471,698
2007	\$ 4,500,000							\$ 4,500,000	1.12	\$ 4,004,984
2008	\$ 2,391,960		\$ 2,000	\$ 140,000	\$ 40,000	\$ 37,500	\$ 3,000	\$ 2,614,460	1.19	\$ 2,195,151
2009			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.26	\$ 352,482
2010			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.34	\$ 332,530
2011			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.42	\$ 313,707
2012			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.50	\$ 295,950
2013			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.59	\$ 279,199
2014			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.69	\$ 263,395
2015			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.79	\$ 248,486
2016			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	1.90	\$ 234,420
2017			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.01	\$ 221,151
2018			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.13	\$ 208,633
2019			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.26	\$ 196,824
2020			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.40	\$ 185,683
2021			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.54	\$ 175,173
2022			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.69	\$ 165,257
2023			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	2.85	\$ 155,903
2024			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	3.03	\$ 147,078
2025			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	3.21	\$ 138,753
2026			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	3.40	\$ 130,899
2027			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	3.60	\$ 123,490
2028			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	3.82	\$ 116,500
2029			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	4.05	\$ 109,905
2030			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	4.29	\$ 103,684
2031			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	4.55	\$ 97,815
2032			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	4.82	\$ 92,279
2033			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	5.11	\$ 87,055
2034			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	5.42	\$ 82,128
2035			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	5.74	\$ 77,479
2036			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	6.09	\$ 73,093
2037			\$ 4,000	\$ 280,000	\$ 80,000	\$ 75,000	\$ 6,000	\$ 445,000	6.45	\$ 68,956
2038								\$ -	6.84	\$ -
2039								\$ -	7.25	\$ -
2040								\$ -	7.69	\$ -
2041								\$ -	8.15	\$ -
2042								\$ -	8.64	\$ -
2043								\$ -	9.15	\$ -
2044								\$ -	9.70	\$ -
2045								\$ -	10.29	\$ -
2046								\$ -	10.90	\$ -
2047								\$ -	11.56	\$ -
2048								\$ -	12.25	\$ -
2049								\$ -	12.99	\$ -
2050								\$ -	13.76	\$ -
2051								\$ -	14.59	\$ -
2052								\$ -	15.47	\$ -
2053								\$ -	16.39	\$ -
2054								\$ -	17.38	\$ -
2055								\$ -	18.42	\$ -
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 12,099,742
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

13. Wilmington Drain Restoration Project

Table C-3 – Annual Cost of 13. Wilmington Drain Restoration Project (All costs in 2005 Dollars)										
YEAR	Initial Costs		Operations and Maintenance Costs					Discounting Calculations		
	(a) Capital and Other Initial Costs from Table B-1	(b) Capital and Other Initial Costs Not Included in Table B-1	(c) Admin	(d) Operation	(e) Maintenance	(f) Replacement	(g) Other	(h) Total Costs (a+b+...g)	(i) Discount Factor	(j) Discounted Costs (h÷i)
2005								\$ -	1.00	\$ -
2006	\$ 1,294,000							\$ 1,294,000	1.06	\$ 1,220,755
2007	\$ 2,588,000							\$ 2,588,000	1.12	\$ 2,303,311
2008	\$ 9,058,000							\$ 9,058,000	1.19	\$ 7,605,271
2009			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.26	\$ 205,944
2010			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.34	\$ 194,287
2011			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.42	\$ 183,290
2012			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.50	\$ 172,915
2013			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.59	\$ 163,127
2014			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.69	\$ 153,894
2015			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.79	\$ 145,183
2016			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	1.90	\$ 136,965
2017			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.01	\$ 129,212
2018			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.13	\$ 121,898
2019			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.26	\$ 114,998
2020			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.40	\$ 108,489
2021			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.54	\$ 102,348
2022			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.69	\$ 96,555
2023			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	2.85	\$ 91,089
2024			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	3.03	\$ 85,933
2025			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	3.21	\$ 81,069
2026			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	3.40	\$ 76,480
2027			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	3.60	\$ 72,151
2028			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	3.82	\$ 68,067
2029			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	4.05	\$ 64,214
2030			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	4.29	\$ 60,580
2031			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	4.55	\$ 57,151
2032			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	4.82	\$ 53,916
2033			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	5.11	\$ 50,864
2034			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	5.42	\$ 47,985
2035			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	5.74	\$ 45,269
2036			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	6.09	\$ 42,706
2037			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	6.45	\$ 40,289
2038			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	6.84	\$ 38,008
2039			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	7.25	\$ 35,857
2040			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	7.69	\$ 33,827
2041			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	8.15	\$ 31,913
2042			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	8.64	\$ 30,106
2043			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	9.15	\$ 28,402
2044			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	9.70	\$ 26,794
2045			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	10.29	\$ 25,278
2046			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	10.90	\$ 23,847
2047			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	11.56	\$ 22,497
2048			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	12.25	\$ 21,224
2049			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	12.99	\$ 20,022
2050			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	13.76	\$ 18,889
2051			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	14.59	\$ 17,820
2052			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	15.47	\$ 16,811
2053			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	16.39	\$ 15,860
2054			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	17.38	\$ 14,962
2055			\$ 1,000	\$ 10,000	\$ 169,000	\$ 20,000	\$ 60,000	\$ 260,000	18.42	\$ 14,115
Total Present Value of Discounted Costs (Sum of Column (j))										\$ 14,532,438
Comment Box: Capital Costs: Attachment 6 O&M Costs: Attachment 10										

Proposal for Greater Los Angeles County Region

Table C-4- Annual Benefits of Water Supply and Water Quality Benefits
(All benefits should be in 2005 dollars)

(a)	(b)	(c)	(d)	(e)	(f)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Benefit: _Runoff Water Quality Improvement Treatment_					Benefit: Increase in <u>Riparian Habitat</u> Restoration; Benefit to Water Quality_					<i>Complete these columns if claiming economic benefits based on dollar value.</i>		
	Measure of Benefit: <u>Acre-Feet</u>			Complete these 2 columns if claiming \$ Value for the Benefit		Measure of Benefit: <u>Acres</u>			Complete these 2 columns if claiming \$ Value for the Benefit		Discounting Calculations for Economic Benefits (If claiming \$ Value for the Benefit)		
	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	Unit \$ Value	Annual \$ Value (d x e)	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	Unit \$ Value	Annual \$ Value (d x e)	Total Benefits (Sum of Annual \$ Value for each Benefit)	Discount Factor	Discounted Benefits (g ÷ h)
2006	0	0	0		\$ -	0	0	0	\$ -	\$ -	\$ -	1.06	\$ -
2007	0	0	0		\$ -	0	0	0	\$ -	\$ -	\$ -	1.12	\$ -
2008	0	195	195	\$ 564	\$ 109,980	0	1	1	\$ -	\$ -	\$ 109,980	1.19	\$ 92,341
2009	0	5,734	5,734	\$ 564	\$ 3,233,976	0	1	1	\$ -	\$ -	\$ 3,233,976	1.26	\$ 2,561,612
2010	0	5,919	5,919	\$ 564	\$ 3,338,316	0	1	1	\$ -	\$ -	\$ 3,338,316	1.34	\$ 2,494,584
2011	0	6,104	6,104	\$ 564	\$ 3,442,656	0	1	1	\$ -	\$ -	\$ 3,442,656	1.42	\$ 2,426,937
2012	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	1.50	\$ 2,289,563
2013	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	1.59	\$ 2,159,965
2014	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	1.69	\$ 2,037,703
2015	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	1.79	\$ 1,922,361
2016	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	1.90	\$ 1,813,548
2017	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.01	\$ 1,710,895
2018	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.13	\$ 1,614,051
2019	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.26	\$ 1,522,690
2020	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.40	\$ 1,436,500
2021	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.54	\$ 1,355,189
2022	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.69	\$ 1,278,480
2023	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	2.85	\$ 1,206,113
2024	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	3.03	\$ 1,137,843
2025	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	3.21	\$ 1,073,436
2026	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	3.40	\$ 1,012,676
2027	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	3.60	\$ 955,355
2028	0	6,104	6,104	\$ 564	\$ 3,442,656	0	55	55	\$ -	\$ -	\$ 3,442,656	3.82	\$ 901,278
2029	0	6,014	6,014	\$ 564	\$ 3,391,896	0	55	55	\$ -	\$ -	\$ 3,391,896	4.05	\$ 837,726
2030	0	6,014	6,014	\$ 564	\$ 3,391,896	0	55	55	\$ -	\$ -	\$ 3,391,896	4.29	\$ 790,307
2031	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	4.55	\$ 695,984
2032	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	4.82	\$ 656,588
2033	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	5.11	\$ 619,423
2034	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	5.42	\$ 584,361
2035	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	5.74	\$ 551,284
2036	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	6.09	\$ 520,079
2037	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	6.45	\$ 490,641
2038	0	5,614	5,614	\$ 564	\$ 3,166,296	0	55	55	\$ -	\$ -	\$ 3,166,296	6.84	\$ 462,869
2039	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	7.25	\$ 404,000
2040	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	7.69	\$ 381,132
2041	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	8.15	\$ 359,559
2042	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	8.64	\$ 339,206
2043	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	9.15	\$ 320,006
2044	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	9.70	\$ 301,892
2045	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	10.29	\$ 284,804
2046	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	10.90	\$ 268,683
2047	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	11.56	\$ 253,475
2048	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	12.25	\$ 239,127
2049	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	12.99	\$ 225,592
2050	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	13.76	\$ 212,822
2051	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	14.59	\$ 200,776
2052	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	15.47	\$ 189,411
2053	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	16.39	\$ 178,690
2054	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	17.38	\$ 168,575
2055	0	5,194	5,194	\$ 564	\$ 2,929,416	0	55	55	\$ -	\$ -	\$ 2,929,416	18.42	\$ 159,033
											Total Present Value of Discounted Benefits Based on (Sum of the values in	\$ 43,699,166	
Comment Box:	6,100 afy from: 2. JWPCP Marshland Project: 2008-2012: 68 to 340 afy [1,700 afy * 20%]; 2012-2061: 340 afy 3. Large Landscape Project: 2008-20011: 100 to 400 afy; 2011-2030: 400 afy 5. Malibu Creek Watershed Conservation Project: 90 afy; 2009-2028 7. North Atwater Creek Project: 2009 - 2058: 44 afy 8. Pacoima Wash Greenway: 2008-2057: 10 afy 11. South LA Wetlands Park: 2009-2038: 420 afy 13. Wilmington Drain Project: 2009 - 2058: 4,800 afy \$564/afy from Benefits Assessment (Attachment 10-A: Section 4.3.2)					54.5 afy from: 4. Las Virgenes Creek Project: 2008-2057: 1/2 acre; 9. San Gabriel Valley Arundo Project: 2012-2061: 36 acres; 10. Solstice Creek Restoration Project: 2012-2061: 18 acres; Monetary value has not been identified for this benefit.							

Proposal for Greater Los Angeles County Region

Table C-5 Annual Costs of Avoided Projects
(All avoided costs should be in 2005 dollars)

(a)	Costs					Discounting Calculations			
	(b)	(c)	(d)	(e)	(f)	(g)	(h)		
YEAR	Alternative (Avoided Project Name): _Imported Water from MWD_						Total Cost Avoided for All Alternatives (Sum of Total Cost Avoided for Individual Alternatives)	Discount Factor	Discounted Costs (f) ÷ (g)
	Imported Water (AF)	Adjusted MWD Imported Water Rate (\$/AF)	Avoided Capital Costs	Avoided Replacement Costs	Avoided Operations and Maintenance Costs	Total Cost Avoided for Individual Alternatives (b) + (c) + (d)			
2006		\$ 861	\$ -			\$ -	1.06	\$ -	
2007		\$ 908	\$ -			\$ -	1.12	\$ -	
2008	20,906	\$ 976	\$ 20,397,183			\$ 20,397,183	1.19	\$ 17,125,868	
2009	21,663	\$ 1,044	\$ 22,616,733			\$ 22,616,733	1.26	\$ 17,914,571	
2010	27,789	\$ 1,098	\$ 30,517,605			\$ 30,517,605	1.34	\$ 22,804,530	
2011	30,695	\$ 1,126	\$ 34,558,687			\$ 34,558,687	1.42	\$ 24,362,511	
2012	30,695	\$ 1,154	\$ 35,430,372			\$ 35,430,372	1.50	\$ 23,563,221	
2013	30,785	\$ 1,183	\$ 36,431,412			\$ 36,431,412	1.59	\$ 22,857,519	
2014	30,785	\$ 1,213	\$ 37,352,106			\$ 37,352,106	1.69	\$ 22,108,654	
2015	30,785	\$ 1,244	\$ 38,296,975			\$ 38,296,975	1.79	\$ 21,384,831	
2016	30,785	\$ 1,276	\$ 39,266,677			\$ 39,266,677	1.90	\$ 20,685,195	
2017	30,785	\$ 1,308	\$ 40,261,885			\$ 40,261,885	2.01	\$ 20,008,923	
2018	30,785	\$ 1,341	\$ 41,283,294			\$ 41,283,294	2.13	\$ 19,355,219	
2019	30,785	\$ 1,375	\$ 42,331,616			\$ 42,331,616	2.26	\$ 18,723,315	
2020	30,785	\$ 1,410	\$ 43,407,585			\$ 43,407,585	2.40	\$ 18,112,468	
2021	30,785	\$ 1,446	\$ 44,511,952			\$ 44,511,952	2.54	\$ 17,521,965	
2022	30,785	\$ 1,483	\$ 45,645,494			\$ 45,645,494	2.69	\$ 16,951,112	
2023	30,785	\$ 1,521	\$ 46,809,006			\$ 46,809,006	2.85	\$ 16,399,244	
2024	30,785	\$ 1,559	\$ 48,003,305			\$ 48,003,305	3.03	\$ 15,865,717	
2025	30,785	\$ 1,599	\$ 49,229,235			\$ 49,229,235	3.21	\$ 15,349,908	
2026	30,785	\$ 1,647	\$ 50,706,112			\$ 50,706,112	3.40	\$ 14,915,477	
2027	30,785	\$ 1,697	\$ 52,227,295			\$ 52,227,295	3.60	\$ 14,493,341	
2028	30,785	\$ 1,747	\$ 53,794,114			\$ 53,794,114	3.82	\$ 14,083,152	
2029	30,435	\$ 1,800	\$ 54,777,995			\$ 54,777,995	4.05	\$ 13,528,990	
2030	30,435	\$ 1,854	\$ 56,421,335			\$ 56,421,335	4.29	\$ 13,146,094	
2031	28,810	\$ 1,909	\$ 55,011,126			\$ 55,011,126	4.55	\$ 12,091,997	
2032	28,810	\$ 1,967	\$ 56,661,460			\$ 56,661,460	4.82	\$ 11,749,771	
2033	28,810	\$ 2,026	\$ 58,361,304			\$ 58,361,304	5.11	\$ 11,417,230	
2034	28,810	\$ 2,087	\$ 60,112,143			\$ 60,112,143	5.42	\$ 11,094,101	
2035	28,810	\$ 2,149	\$ 61,915,507			\$ 61,915,507	5.74	\$ 10,780,117	
2036	28,810	\$ 2,214	\$ 63,772,972			\$ 63,772,972	6.09	\$ 10,475,019	
2037	28,810	\$ 2,280	\$ 65,686,161			\$ 65,686,161	6.45	\$ 10,178,557	
2038	21,810	\$ 2,348	\$ 51,218,106			\$ 51,218,106	6.84	\$ 7,487,381	
2039	21,810	\$ 2,419	\$ 52,754,649			\$ 52,754,649	7.25	\$ 7,275,474	
2040	21,810	\$ 2,491	\$ 54,337,289			\$ 54,337,289	7.69	\$ 7,069,565	
2041	21,810	\$ 2,566	\$ 55,967,407			\$ 55,967,407	8.15	\$ 6,869,483	
2042	21,810	\$ 2,643	\$ 57,646,430			\$ 57,646,430	8.64	\$ 6,675,063	
2043	21,810	\$ 2,722	\$ 59,375,822			\$ 59,375,822	9.15	\$ 6,486,147	
2044	21,810	\$ 2,804	\$ 61,157,097			\$ 61,157,097	9.70	\$ 6,302,576	
2045	21,810	\$ 2,888	\$ 62,991,810			\$ 62,991,810	10.29	\$ 6,124,202	
2046	21,810	\$ 2,975	\$ 64,881,564			\$ 64,881,564	10.90	\$ 5,950,875	
2047	21,810	\$ 3,064	\$ 66,828,011			\$ 66,828,011	11.56	\$ 5,782,454	
2048	5,810	\$ 3,156	\$ 18,336,491			\$ 18,336,491	12.25	\$ 1,496,801	
2049	5,810	\$ 3,251	\$ 18,886,586			\$ 18,886,586	12.99	\$ 1,454,439	
2050	5,810	\$ 3,348	\$ 19,453,183			\$ 19,453,183	13.76	\$ 1,413,275	
2051	5,810	\$ 3,449	\$ 20,036,779			\$ 20,036,779	14.59	\$ 1,373,277	
2052	5,810	\$ 3,552	\$ 20,637,882			\$ 20,637,882	15.47	\$ 1,334,411	
2053	5,810	\$ 3,659	\$ 21,257,019			\$ 21,257,019	16.39	\$ 1,296,644	
2054	5,810	\$ 3,768	\$ 21,894,729			\$ 21,894,729	17.38	\$ 1,259,947	
2055	5,810	\$ 3,882	\$ 22,551,571			\$ 22,551,571	18.42	\$ 1,224,288	
Proposal Life									
Total Present Value of Discounted (Sum of Column (h))								\$ 575,924,918	
% Avoided Cost Claimed by								100%	
Total Present Value of Discounted Costs x % Avoided Cost Claimed by Proposal)								\$ 575,924,918	
Comment Box	<p>30,800 afy from:</p> <ol style="list-style-type: none"> 1. Central Basin SWRP: 2008-2010: 13,500 afy; 2011- 2047: 16,000 afy 3. Large Landscape Water Conservation Project: 2008 - 2011: 400afy to 1,625 afy; 2011- 2030: 1,625 afy 5. Malibu Creek Watershed Conservation Project: 2009-2028: 350afy 6. Morris Dam Water Supply Project: 2010 - 2059: 5,720 afy 9. San Gabriel Valley Arundo Removal Project: 2013 - 2062: 90 afy 12. Whittier Narrow WRP UV Project: 2008 - 2037: 7,000 afy <p>For avoided cost of water rate derivation, see Table MWD-1.</p>								

**TABLE MWD-1: Avoided Costs of Imported Water Supply
Full Service Treated Volumetric Cost - MWD (2005\$ per AF)**

Year (all values in 2005\$):		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015			
Tier 1 High Estimate		\$453	\$478	\$537	\$572	\$601	\$619	\$638	\$657	\$676	\$697			
Tier 1 Low Estimate		\$453	\$478	\$490	\$527	\$555	\$566	\$577	\$589	\$601	\$613			
Average of Tier 1 Estimates (70% Probability)		\$453	\$478	\$514	\$550	\$578	\$593	\$608	\$623	\$639	\$655			
Dry Year Rate (30% Probability)		\$1,359	\$1,434	\$1,541	\$1,649	\$1,734	\$1,778	\$1,823	\$1,869	\$1,916	\$1,964			
Average Cost of Water Supply		\$725	\$765	\$822	\$879	\$925	\$948	\$972	\$997	\$1,022	\$1,048			
2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
\$718	\$739	\$761	\$784	\$808	\$832	\$857	\$883	\$909	\$936	\$964	\$993	\$1,023	\$1,054	\$1,085
\$625	\$638	\$650	\$663	\$677	\$690	\$704	\$718	\$732	\$747	\$769	\$792	\$816	\$841	\$866
\$671	\$688	\$706	\$724	\$742	\$761	\$780	\$800	\$821	\$842	\$867	\$893	\$920	\$947	\$976
\$2,014	\$2,065	\$2,117	\$2,171	\$2,226	\$2,283	\$2,341	\$2,401	\$2,462	\$2,525	\$2,601	\$2,679	\$2,759	\$2,842	\$2,927
\$1,074	\$1,101	\$1,129	\$1,158	\$1,187	\$1,218	\$1,249	\$1,280	\$1,313	\$1,347	\$1,387	\$1,429	\$1,472	\$1,516	\$1,561
2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045
\$1,118	\$1,152	\$1,186	\$1,222	\$1,258	\$1,296	\$1,335	\$1,375	\$1,416	\$1,459	\$1,503	\$1,548	\$1,594	\$1,642	\$1,691
\$892	\$919	\$946	\$975	\$1,004	\$1,034	\$1,065	\$1,097	\$1,130	\$1,164	\$1,199	\$1,235	\$1,272	\$1,310	\$1,349
\$1,005	\$1,035	\$1,066	\$1,098	\$1,131	\$1,165	\$1,200	\$1,236	\$1,273	\$1,311	\$1,351	\$1,391	\$1,433	\$1,476	\$1,520
\$3,015	\$3,105	\$3,199	\$3,294	\$3,393	\$3,495	\$3,600	\$3,708	\$3,819	\$3,934	\$4,052	\$4,173	\$4,299	\$4,428	\$4,560
\$1,608	\$1,656	\$1,706	\$1,757	\$1,810	\$1,864	\$1,920	\$1,978	\$2,037	\$2,098	\$2,161	\$2,226	\$2,293	\$2,361	\$2,432
2046	2047	2048	2049	2050	2051	2052	2053	2054	2055					
\$1,742	\$1,794	\$1,848	\$1,903	\$1,960	\$2,019	\$2,080	\$2,142	\$2,207	\$2,273					
\$1,390	\$1,431	\$1,474	\$1,518	\$1,564	\$1,611	\$1,659	\$1,709	\$1,760	\$1,813					
\$1,566	\$1,613	\$1,661	\$1,711	\$1,762	\$1,815	\$1,870	\$1,926	\$1,983	\$2,043					
\$4,697	\$4,838	\$4,983	\$5,133	\$5,287	\$5,445	\$5,609	\$5,777	\$5,950	\$6,129					
\$2,505	\$2,580	\$2,658	\$2,737	\$2,820	\$2,904	\$2,991	\$3,081	\$3,173	\$3,269					

Appendix 10-B:
IRWMP Benefits Assessment Framework

[Included on CD Only]