I. Introduction

This attachment provides an overview of the water quality and other expected benefits of the Proposal for the Greater Los Angeles County Region (Region), as well as the benefits associated with each individual project. This attachment provides information regarding benefits that extend beyond the water supply benefits described in Attachment 7. This attachment contains a narrative discussion of expected water quality and other benefits for each project, provides quantitative benefit analyses where feasible, and provides complimentary qualitative analyses where appropriate.

Table 8.1: Costs and Benefits Summary

Project	Agency	Total Present Value Project Costs	Total Present Value Project Benefits				Benefit/ Cost Ratio
			Water Supply	Flood Damage Reduction	Water Quality & Other	Total	
(a)	(b)	(c)	(d)	(e)	(f)	(g) (d) + (e) + (f)	(h) f/(c)
Hahamongna Basin Multi-Use Project	Arroyo Seco Foundation	$7,340,486	$50,567,382	$0	$689,771	$51,257,154	6.98
Citywide Smart Irrigation Control System and Recycled Water Improvements	City of Calabasas	$849,234	$612,985	$0	$1,214,757	$1,827,741	2.15
Storm Drain Improvements and Installation of Infiltration Chambers on Hawthorne Blvd	City of Hawthorne	$10,603,033	$0	$0	$0	$0	0
Penmar Water Quality Improvement and Runoff Reuse Project	City of Los Angeles, Bureau of Sanitation	$27,269,735	$1,764,283	$0	$0	$1,764,283	0.06
Model Equestrian Center	City of Rolling Hills	$6,470,364	$12,574	$0	$363,881	$376,454	0.06
16th Street Watershed Runoff	City of Santa Monica	$1,890,356	$68,612	$0	$0	$68,612	0.04
Covina Irrigating Co. Surface Water Treatment Plant Improvements	Covina Irrigating Company	$1,918,312	$68,612	$0	$0	$68,612	0.04

Table 8.1: Costs and Benefits Summary

Project	Agency	Total Present Value Project Costs	Total Present Value Project Benefits				Benefit/ Cost Ratio
			Water Supply	Flood Damage Reduction	Water Quality & Other	Total	
(a)	(b)	(c)	(d)	(e)	(f)	(g) (d) + (e) + (f)	(h) f/(c)
Central Los Angeles County - Regional Water Recycling Program	Los Angeles Department of Water and Power (LADWP)	$10,660,636	$172,150,784	$0	$0	$172,150,784	16.15
Tujunga Spreading Grounds Enhancements	Three Valleys Municipal Water District	$11,383,796	$4,231,326	$0	$0	$4,231,326	0.37
San Antonio Spreading Grounds Improvements	Three Valleys MWD	$4,279,286	$36,937,911	$0	$0	$36,937,911	8.63
Leo J. Vander Lans Advanced Water Treatment Plant Expansion	Water Replenishment District of Southern California	$54,232,760	$45,285,312	$0	$0	$45,285,312	0.84
Whittier Narrows Conservation Pool Project	Water Replenishment District of Southern California	$4,406,336	$7,781,351	$0	$0	$7,781,351	1.8
Water and Energy Efficiency in the School and Hotel/Motel Sectors	West Basin Municipal Water District	$475,660	$1,028,177	$0	$1,713,048	$2,741,224	5.76
TOTAL		**$164,829,606**	**$399,212,426**	**$0**	**$3,981,457**	**$403,193,881**	**2.45**

Detailed information and background regarding the qualitative and quantitative costs and water quality and other benefits of each individual project follows.

II. Hahamongna Basin Multi-Use Project

Water Quality Benefits

This Project will provide several water quality benefits as described below and summarized in Table 8.2.

Reduction in Trash and Sediment

This Project will install screens at the discharge point, prior to entering the basin, for the collection of urban trash. The screens will prevent trash entering the Basin at the three drainage systems along the Westside Perimeter Trail.

Sediment also enters the basin at the three drainage systems from the upper watershed by way of the Arroyo Seco Canyon as a natural process. The amount of sediment from the upper watershed is expected to decrease significantly in 5 to 10 years as the burned habitat in the 2009 Station Fire reestablishes. Implementing basin sediment removal and creating the Water Conservation Pool will allow sediment to be managed.

Reduction in Water Quality Degradation

This Project will construct public restrooms at the entrance of Arroyo Seco Canyon in an effort to decrease fecal bacteria from entering canyon water flows. It is estimated that the new restrooms will serve 600 visitors per week; therefore reducing the amount of human waste transferred into the Canyon flows.

Table 8.2: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduction in trash and sediment	Qualitative	Local and Regional
Reduction in water quality degradation (due to new restrooms)	Physically Quantified	Local and Regional

Other Expected Benefits

This Project will provide several other expected benefits as described below and summarized in Table 8.3.

Ecosystem Restoration (Basin Component)

This Project will improve the quality and biodiversity of 23 acres of habitat by raising the grade above the existing inundation level. Habitat restoration will be done to mitigate habitat impacted by the excavation of the Water Conservation Sediment Management Pool and the placement of fill to raise the Basin's west side above the inundation elevation.

Ecosystem Restoration (Canyon Component)

This Project will include a fish ladder that allows fish to travel up and down stream. The use of a fish screen will also be implemented to prohibit fish entry at the intake to the spreading grounds. Habitat restoration under the Canyon component will be for mitigation of habitat impacted by the site clearing for restroom building and would include removal of English Ivy, Arrundo, and Castor Bean over a 5-acre area.

Recreation – Trail Improvements

This Project will raise 3,000 linear feet of the primary Westside Perimeter Trail to an elevation above the level of frequent inundation to improve year round recreational opportunities. Once the Project is completed, it is estimated that there will be a 5% increase in users in both thetrail and public areas per year. Currently the trail system sees an average of 15,000 users per year and the public areas see an average of 150,000 per year.

Avoided Power Costs

This Project will avoid power costs due to reductions in water pumping to the point of distribution. The water from the Canyon intake will be pumped from the Monk Hill Subarea from wells located at a higher elevation. The only additional pumping costs for the 875 AFY of diverted Canyon water will be approximately $60/AF. Over the life of the Project, the total value of the avoided power costs is estimated to be $689,771 in 2009 dollars.

Table 8.3: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Ecosystem restoration (Basin Component)	Physically Quantified	Local and Regional
Ecosystem restoration (Canyon Component)	Physically Quantified	Local and Regional
Recreation (trail improvements)	Physically Quantified	Local and Regional
Avoided power costs	Monetized	Local, Regional, and Statewide

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. The Project water quality improvements will benefit local water rate payers from reduced pumping costs that could result in lower water rates. The water quality improvements will benefit local residents, regional residents, and statewide residents that visit the Hahamongna Basin recreational facilities.

Table 8.4: Project Beneficiaries Summary

Local	Regional	Statewide
Local Residents	Regional Visitors	Statewide Visitors

Project Benefits Timeline Description

The Basin component of the Project will provide water quality benefits beginning in 2013. The Canyon component of the Project will provide water quality benefits beginning in 2014.

Uncertainty of Benefits

There is uncertainty in the water quality benefits and several of the other expected benefits because they cannot be monetized; however, these benefits are likely to increase the net benefits significantly or relative to the quantified estimates.

Table 8.5: Omissions, Biases, and Uncertainties and Their Effect on the Project

Benefit or cost category	Likely impact on net benefits*	Comment
Water Quality (trash and sediment reduction)	+	Not monetized
Water Quality (human bacteria reduction)	+	Not monetized
Recreation Improvements (trails)	+	Not monetized
Ecosystem Enhancements	++	Not monetized

* *Direction and magnitude of effects on net benefits*
+ Likely to increase net benefits relative to quantified estimates
++ Likely to increase net benefits significantly
- Likely to decrease net benefits
-- Likely to decrease net benefits significantly
+/- Uncertain

The "Without Project" Baseline

If the Project is not implemented, urban trash will continue to be transported through the storm drain system, urine and fecal bacteria will continue to adversely impact the water quality, and there will be 23 acres of low quality habitat with no aquatic connectivity to the current intake structure dam system. Under existing conditions, imported water will require additional pumping (power) to be moved up to a sub-area of the Raymond Basin Located at the higher elevation.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.6.

Table 8.6: Benefit-Cost Analysis Overview

	Present Value (in 2009 dollars)
Costs – Total Capital and O&M	**$7,340,486**
Monetizable Benefits	
Water Supply Benefits	$50,567,382
Power Benefits	$689,771
Total Benefits	**$51,257,154**
Qualitative Benefits	**Qualitative Indicator****
Improved water supply reliability	+
Trash and sediment reduction	+
Ecosystem restoration	+
Recreation	+
Reduced Local and Regional Flooding	+

** *Magnitude of effect on net benefits*

+/- (negligible or unknown)

+ (moderate)

++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 7.x.6 of Appendix x.2. For this analysis, the water quality improvements, reduction in water quality degradation, and recreation enhancement benefits were not monetized; ecosystem restoration for both Project components was not monetized. The avoided power cost was the only benefit that could be monetized.

III. Citywide Smart Irrigation Control System and Recycled Water Improvements

Water Quality Benefits

This Project will provide a water quality benefit. This benefit is described in detail below and summarized in Table 8.7.

Reduction in Pollutant Discharge

This Project will reduce the amount of surface pollutants due to reduced runoff from 15% of City parks, medians and parkways, totaling approximately 950,000 square feet of surface area. The Project will prevent bacteria, nutrients and metals from contaminating nearby water bodies through dry weather run-off. The Project will prevent 57 AFY of nutrient rich runoff from flowing into the Las Virgenes Creek, Malibu Creek, Dry Canyon Creek, McCoy Creek, Santa Monica Bay, and the Los Angeles River.

Table 8.7: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduction in pollutant discharge	Physical Quantification	Local /Regional / Statewide

Other Expected Benefits

This Project will provide other expected benefits, summarized in Table 8.8.

Recreation Benefits

This Project will prevent the over-watering of city parks and parkways making irrigation consistent with weather data. More than 20 acres of landscaped sub-areas will benefit from the Project.

Power Cost Savings

Currently, the cost of electricity to operate city-owned irrigation system is approximately $6,800 per year. By implementing the smart irrigation control system there will be about a 25% reduction in electricity usage; assuming an electricity rate of $0.19/KWH, this equates to $1,700 in annual power cost savings.

Table 8.8: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Recreation benefits (due to efficient irrigation)	Physical Quantification	Local and Regional
Power Cost Savings	Monetized	Local and Regional

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. This Project would benefit visitors of the local parks due to the appropriate irrigation of more than 20 acres of recreational space, recreational users of the local creeks and Santa Monica Bay due to reduced runoff pollution.

Table 8.9: Project Beneficiaries Summary

Local	Regional	Statewide
Visitors to local parks	Recreational users of Santa Monica Bay	NA

Project Benefits Timeline Description

The Project benefits will be received beginning in 2011.

Uncertainty of Benefits

There is uncertainty associated with the non-monetized recreational benefits; however, these benefits are likely to increase the net benefits relative to the quantified estimates.

Table 8.10: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits**	Comment
Recreation	+	Not monetized

** *Direction and magnitude of effects on net benefits*
+ *Likely to increase net benefits relative to quantified estimates*
++ *Likely to increase net benefits significantly*
- *Likely to decrease net benefits*
-- *Likely to decrease net benefits significantly*
+/- *Uncertain*

The "Without Project" Baseline

If the Project is not implemented, continued overwatering of parks will carry surface pollutants, nutrients, and metals from the parks and streets into the local creeks, streams, and other water bodies.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.11.

Table 8.11: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$849,234
Monetizable Benefits	
Water Supply Benefits	$612,985
Other Benefits (Recreation, Power, Water Quality)	$1,214,757
Total Benefits	**$1,827,741**
Qualitative Benefits	**Qualitative Indicator***
Improved water supply reliability	+
Reduction in pollutant discharge	+
Other Benefits (Recreation)	+/-

	Present Value (In 2009 Dollars)
* *Magnitude of effect on net benefits* *+/- (negligible or unknown)* *+ (moderate)* *++ (significant)*	

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.B.1 of Appendix 8.B.

Reduction in Pollutant Discharge

The Project benefits for reducing pollutant discharge were monetized based on avoided treatment costs from a feasibility study recently completed for a water treatment facility in Las Virgenes, using a UV disinfection process (see Appendix x-x for feasibility study). The cost of establishing the facility is about $4.4 million and the operating cost would be approximately $240,000/year. It is assumed that about 1/3 of pollutants come from run-off from city-owned facilities, resulting in $80,000 saving in O&M costs attributing to improving water quality. This equates to approximately $0.08 per square foot of reduced runoff area.

Recreation Benefits

The Project will improve more than 20 acres of landscaped sub-areas by retrofitting existing irrigation systems with smart controller systems. Efficient irrigation practices will improve the aesthetic quality of parks, thereby enhancing recreation quality in the region. The recreational benefits of the Project cannot be monetized.

Power Cost Savings

The Project will create avoided power costs by reducing operation time of the sprinklers. These avoided power costs are associated with reduction in recycling and pumping water. It is estimated that Project will save about 25% on power consumption and costs associated with irrigation for the City. Currently, the cost of electricity to operate city-owned irrigation system is approximately $6,800 per year. The electricity rate is $0.19/KWH. Based on a 25% reduction in power consumption, the Project will result in about $1,700 in annual power cost savings.

IV. Storm Drain Improvements and Installation of Infiltration Chambers

Water Quality Benefits

This Project will provide several water quality benefits, as described below and summarized in Table 8.12.

Reduced Groundwater Pollution

This Project will allow 9 million gallons per year of stormwater to infiltrate into the West Coast Groundwater Basin. The installation of new catch basin filtering devices and infiltration basins under street medians, which are also parking areas, and will prevent pollutants from entering groundwater supplies.

Reduced Pollutant Discharge to Ocean

This Project will catch debris before entering the storm drain system to the Dominguez Channel, and, ultimately, to the Los Angeles Harbor. The quality of stormwater runoff into the Los Angeles Harbor is already compromised by various contaminants, particularly debris. Groundwater infiltration will reduce the quantity of polluted runoff that would otherwise be discharged into the ocean.

Table 8.12: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduced groundwater pollution	Qualitative	Local and Regional
Reduced pollutant discharge to ocean	Qualitative	Local / Regional / Statewide

Other Expected Benefits

This Project would not provide other expected benefits.

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. The Project's water quality improvements would benefit local residents that rely on groundwater supplies from the West

Coast Groundwater Basin as a drinking water source. The Project would additionally benefit regional and Statewide Los Angeles Harbor recreational visitors from improved beach water quality.

Table 8.13: Project Beneficiaries Summary

Local	Regional	Statewide
Groundwater Users, Local Visitors to Los Angeles Harbor	Regional Visitors to Los Angeles Harbor	Statewide Visitors to Los Angeles Harbor

Project Benefits Timeline Description

The Project benefits would be received beginning in 2014.

Uncertainty of Benefits

There is uncertainty in the water quality benefits because they cannot be monetized; however, these benefits are likely to increase the net benefits relative to the quantified estimates.

Table 8.14: Omissions, Biases, and Uncertainties and Their Effect on the Project

Benefit or cost category	Likely impact on net benefits*	Comment
Water Quality		
• Reduced groundwater pollution	+	Not monetized
• Reduced pollutant discharge to ocean	+	Not monetized

* *Direction and magnitude of effects on net benefits*

+ Likely to increase net benefits relative to quantified estimates

++ Likely to increase net benefits significantly

- Likely to decrease net benefits

-- Likely to decrease net benefits significantly

+/- Uncertain

The "Without Project" Baseline

If the Project were not implemented, 9 million gallons per year of stormwater would not infiltrate the West Coast groundwater basin and improve groundwater quality. Additionally, stormwater runoff from Hawthorne Boulevard would continue to transport pollutants and debris into the Dominguez Channel and into the Santa Monica Bay.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project would occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and the monetized and qualitative benefits are provided in Table 8.15.

Table 8.15: Benefit-Cost Analysis Overview

	Present Value (in 2009 dollars)
Costs – Total Capital and O&M	**$10,603,033**
Monetizable Benefits	**$0**
Qualitative Benefits	**Qualitative Indicator****
Reduction in pollution to groundwater	+
Reduction in pollution discharge to ocean	+
Flood damage reduction	+
** *Magnitude of effect on net benefits* *+/- (negligible or unknown)* *+ (moderate)* *++ (significant)*	

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.C.1 of Appendix 8.C. For this analysis, water quality benefits could not be quantified; however, there are implied water quality benefits associated with the Project such as groundwater quality improvements and reduced pollutant discharge into the Santa Monica Bay.

V. Penmar Water Quality Improvement and Runoff Reuse Project

Water Quality Benefits

This Project will provide the water quality benefits described below (Table 8.16).

Reduced Pollution Discharged to Ocean

The Project will capture, treat, and reuse dry- and wet-weather runoff carrying pollutants and bacteria that will otherwise discharge into the ocean. This Project will enable the City of Los Angeles to meet stormwater NPDES requirements to reduce bacterial levels in the surf zone and assist in meeting the Santa Monica Bay Beaches Dry and Wet Weather Bacteria Total Maximum Daily Loads (TMDLs) requirements.

Table 8.16: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduced pollution discharged to ocean	Physical Quantification	Local and Regional

Other Expected Benefits

This Project will provide other expected benefits (Table 8.17).

Recreational Benefits

This Project will reduce bacteria loading to the Santa Monica Bay and potentially reduce the number of beach closures due to bacteria level exceedance. This will increase the recreational uses of the receiving water bodies, specifically the Pacific Ocean and Santa Monica Bay.

Table 8.17: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Recreation benefits from improving ocean water quality	Qualitative	Local / Regional / Statewide

Distribution of Project Benefits and Identification of Beneficiaries

This Project will benefit visitors and local and regional users of the Santa Monica Bay by reducing pollutant discharge into the ocean and improving water quality (Table 8.18).

Table 8.18: Project Beneficiaries Summary

Local	Regional	Statewide
Local users of Santa Monica Bay	Regional users of Santa Monica Bay	Recreation visitors to Santa Monica Bay

Project Benefits Timeline Description

The Project benefits will be received beginning in 2013.

Uncertainty of Benefits

There is an uncertainty in the water quality and other expected benefits, and they cannot be monetized. However, these benefits are likely to increase the net benefits relative to the quantified estimates (Table 8.19).

Table 8.19: Omissions, Biases, and Uncertainties and Their Effect on the Project

Benefit or cost category	Likely impact on net benefits**	Comment
Water Quality (reduction in pollution discharge to ocean)	+	Not monetized
Recreation (from improved ocean water quality)	+	Not monetized

** *Direction and magnitude of effects on net benefits*
+ *Likely to increase net benefits relative to quantified estimates*
++ *Likely to increase net benefits significantly*
- *Likely to decrease net benefits*
-- *Likely to decrease net benefits significantly*
+/- *Uncertain*

The "Without Project" Baseline

If the Project is not implemented, pollutants associated with stormwater runoff will continue to be discharged into the ocean. This pollutant discharge violates the City of Los Angeles' Stormwater NPDES permit requirements and prevents the City from meeting the Santa Monica Bay Beaches Dry & Wet Weather Bacteria TMDL requirements.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.20.

Table 8.20: Benefit-Cost Analysis Overview

	Present Value (in 2009 dollars)
Costs – Total Capital and O&M	**$27,269,735**
Monetizable Benefits	
Water Supply Benefits	$1,764,283
Total Benefits	**$1,764,283**
Qualitative Benefits	**Qualitative Indicator****
Improved water supply reliability	+
Reduction in pollutant discharged to ocean	++
Recreation benefits from improved ocean water quality	+
Flood damage reduction	+

** *Magnitude of effect on net benefits*

+/- (negligible or unknown)

+ (moderate)

++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 7.x.6 of Appendix x.2. The benefits for this analysis were estimated assuming ten (10) storms per year with dry-weather runoff flows in storm drains as 0.44 cfs for 275 dry-weather runoff days per year[1]. The 0.44 cfs of dry-weather flow was based on a TMDL model. The Project will capture and divert 2.75 MG per storm, including dry-weather flows that occur starting 72 hours after a storm event. To account for the variability of storm seasons and dry-weather flow from urban sources, only 65% of the total 324 AFY estimated annual capture was included in the water quality calculations. The total reduction in discharge will be 68,704,293 gallons per year.

[1] Calculation: 365 days/year - 10 storms x 3 days - 6 days of non capture after storm x 10 storm events = 275 dry-weather runoff days per year

VI. Model Equestrian Center

Water Quality Benefits

This Project would provide several water quality benefits. These benefits are described in detail below and are summarized in Table 8.21.

Phosphorous Load Reduction

The Project will reduce phosphorous loading caused by horse urine and feces by 90.2 pounds during the first year of implementation in two ways: 20 horses from the existing facilities are relocated to the new zero discharge facility (ZDF) and the remaining horse area is retrofitted to decrease runoff by 50%.

Nitrogen Load Reduction

The Project will reduce nitrogen loading caused by horse urine and feces by 489.6 pounds during the first year of implementation in two ways: 20 horses are relocated to the new zero discharge facility (ZDF); and the remaining horse area is retrofitted to decrease runoff by 50%.

Education - Phosphorous Load Reduction

Educational outreach, as part of the Project, will encourage residents to change their behaviors with regard to managing their horses and the waste produced and could achieve a 50% reduction in phosphorus loading from privately owned horse barns. The total phosphorous reduction as a result of this outreach could be as much as 0.94 pounds per year through 2023 for the horses on the peninsula, a decrease of 10.34 pounds.

Education - Nitrogen Load Reduction

Educational outreach, as part of the Project, will encourage residents to change their behaviors with regard to managing their horses and the waste produced and could achieve a 50% reduction in nitrogen loading from privately owned horse barns. The total nitrogen reduction as a result of this outreach could be as much as 5.1 pounds per year through 2023 for the horse on the peninsula, a decrease of 56.1 pounds.

Table 8.21: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Phosphorous Load Reduction	Physical Quantification	Local and Regional
Nitrogen Load Reduction	Physical Quantification	Local and Regional
Education - Phosphorous Load	Physical Quantification	Local and Regional

Type of Benefit	Assessment Level	Beneficiaries
Reduction		
Education - Nitrogen Load Reduction	Physical Quantification	Local and Regional

Other Expected Benefits

This Project would provide other expected benefits. These benefits are described in detail below and are summarized in Table 8.23.

Habitat Creation

This Project will create 1.00 acres of native habitat buffers and planted treatment bioswales. This native habitat will provide food and shelter for local wildlife.

Recreation Value of Improved Facilities

This Project will create recreation value associated with the replacing of pipe corrals with barn/box stalls for the upgraded boarding facilities. This value creates an economic benefit of an additional $480 per hour per year for the box stall vs. the pipe corral; 35 boarding spaces will be retrofitted.

Table 8.23: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Habitat Creation	Physical Quantification	Local and Regional
Recreation Value of Improved Facilities	Monetized	Local
Power Cost Savings	Monetized	Local, Regional, and Statewide

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. This Project will benefit the following groups in different ways:

- Equestrian users will benefit from the educational outreach associated with environmentally responsible horse care, and
- Recreational users of Santa Monica Bay will benefit from improved water quality and the creation of native habitat.

Table 8.24: Project Beneficiaries Summary

Local	Regional	Statewide
Equestrian users	Recreational users of Santa Monica Bay	Visitors to Santa Monica Bay

Project Benefits Timeline Description

The Project benefits will be realized beginning in 2012 and will provide benefits in excess of the 50-year Project lifetime (2012-2060).

Uncertainty of Benefits

It is uncertain whether the equestrian users will fully utilize the new box stalls or make changes in their behavior as a result of education. Habitat creation and improved recreation value are both expected to produce a net benefit.

Table 8.25: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits	Comment
Water Quality		
• Phosphorous Load Reduction (direct and educational)	+	Not monetized
• Nitrogen Load Reduction (direct and educational)	+	Not monetized
Habitat Creation	+	Not Monetized
Recreation	-	Equestrian users may not fully utilize new box stalls

** *Direction and magnitude of effects on net benefits*
+ Likely to increase net benefits relative to quantified estimates
++ Likely to increase net benefits significantly
"-" Likely to decrease net benefits
"--" Likely to decrease net benefits significantly
+/- Uncertain

The "Without Project" Baseline

If the Project is not implemented, the nutrient loading associated with runoff to either to Machado Lake in the Dominguez Watershed or to the southern portion of Santa Monica Bay will continue to endanger the surrounding native habitat.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the costs for the Project and monetized and qualitative benefits are provided in Table 8.26.

Table 8.26: Benefit-Cost Analysis Overview

	Present Value (2009)
Costs – Total Capital and O&M	$5,303,972
Monetizable Benefits	
Water Supply Benefits	$8,368
Other Benefits (Water Quality, Recreation)	$351,692
Total Benefits	**$360,060**
Qualitative Benefits	**Qualitative Indicator***
Improved water supply reliability	+/-
Reduction in pollutant loading through runoff	+
Other Benefits (Habitat Creation)	+/-

*** Magnitude of effect on net benefits:*

+/- (negligible or unknown)

+ (moderate)

++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.E.1 of Appendix 8.E.

Phosphorous Load Reduction

According to Penn State College of Agricultural Sciences, the average 1000-pound horse generates about 18.8 pounds of phosphorous per year. For this Project, it is assumed that 10% of that loading is not typically captured. As a result, the Project will reduce phosphorous loading by 90.2 pounds during the first year of implementation in two ways: 20 horses are relocated to the new zero discharge facility (ZDF); and the remaining horse area (housing 96 horses) is retrofitted to decrease runoff by 50%.

Nitrogen Load Reduction

According to Penn State College of Agricultural Sciences the average 1000-pound horse generates about 102 pounds of nitrogen per year. For this Project, it is assumed that 10% of that loading is not typically captured. As a result, the Project will reduce nitrogen loading by 489.6 pounds during the first year of implementation in two ways: 20 horses are relocated to the new zero discharge facility (ZDF); and the remaining horse area (housing 96 horses) is retrofitted to decrease runoff by 50%.

Habitat Creation

This Project will create 1.00 acres of native habitat buffers and planted treatment bioswales. This native habitat will provide food and shelter for local wildlife.

Recreation Value of Improved Facilities

This Project will create recreation value by replacing pipe corrals with barn/box stalls for the upgraded boarding facilities. This value creates an economic benefit of an additional $480 per hour per year rental fee, for the box stall vs. the pipe corral; 35 boarding spaces will be retrofitted.

Power Cost Savings

The retrofitted facilities will use 50% less electricity than the existing facility by supplementing the electricity with solar panels.

Education - Phosphorous Load Reduction

Educational outreach, as part of the Project, will encourage residents to change their behaviors with regard to management of waste and could achieve a 50% reduction in phosphorus loading from privately owned horse barns. The phosphorous reduction could be as much as 0.94 pounds per year through 2023, a decrease of 10.34 pounds for the horses on the peninsula.

Education - Nitrogen Load Reduction

Educational outreach, as part of the Project, will encourage residents to change their behaviors with regard the management of waste and could achieve a 50% reduction in nitrogen loading from privately owned horse barns. The nitrogen reduction could be as much as 5.1 pounds per year through 2023, a total decrease of 56.1 pounds for the horses on the peninsula.

VII. 16th Street Watershed Runoff Use Project

Water Quality Benefits

There are not any water quality benefits associated with this Project.

Table 8.27: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
NA	NA	NA

Distribution of Project Benefits and Identification of Beneficiaries

Since there are no water quality benefits, there are no beneficiaries associated with this Project.

Table 8.28: Project Beneficiaries Summary

Local	Regional	Statewide
NA	NA	NA

Project Benefits Timeline Description

Not applicable

Uncertainty of Benefits

There are no water quality benefits associated with this Project and therefore, no uncertainty of benefits.

Table 8.29: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits	Comment
NA	NA	NA
•		
•		

** *Direction and magnitude of effects on net benefits*
+ *Likely to increase net benefits relative to quantified estimates*
++ *Likely to increase net benefits significantly*
"-" *Likely to decrease net benefits*
"--" *Likely to decrease net benefits significantly*
+/- *Uncertain*

The "Without Project" Baseline

If the Project were not implemented, the dry- and wet-weather runoff would be treated through Phase 1 of the City of Los Angeles Penmar Water Quality Improvement Project.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project would occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs, along with monetized and qualitative benefits are provided in Table 8.30.

Table 8.30: Benefit-Cost Analysis Overview

	Present Value ($2009)
Costs – Total Capital and O&M	**$1,918,312**
Monetizable Benefits	
Water Supply Benefits	$68,612
Water Quality Benefits	$0
Other Benefits (Recreation, Power)	$0
Total Benefits	**$68,612**
Qualitative Benefits	**Qualitative Indicator***
Improved beach water quality	+/-
Protect beneficial uses of Santa Monica Bay	+
Protect natural processes and habitats	+/-
** *Magnitude of effect on net benefits*	
+/- (negligible or unknown)	
+ (moderate)	
++ (significant)	

Methods used to Estimate With- and Without-Project Conditions

There are no annual expected benefits of water quality and other expected benefits anticipated for this project.

VIII. Surface Treatment Plant Improvements

Water Quality Benefits

This Project would provide a water quality benefit. This benefit is described in detail below and summarized in Table 8.31.

Reduction in Disinfection Byproducts

This Project will reduce the current level of Disinfection Byproducts (DBP) from 135 parts per billion (ppb) to 45 ppb for a total reduction in DBP of 90 ppb. The Project would provide a public health benefit from drinking water improvements.

Table 8.31: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduction in Disinfection Byproducts	Physical Quantification	Local

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. This Project would benefit local residents who rely on CIC water supplies for drinking water.

Table 8.32: Project Beneficiaries Summary

Local	Regional	Statewide
Local residents	N/A	N/A

Project Benefits Timeline Description

The Project benefits would be received beginning in 2012.

Uncertainty of Benefits

The amount of reduction in DBP is likely to increase the net benefits relative to the quantified estimates.

Table 8.33: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits**	Comment
Water Quality		
• Reduction in disinfectant byproducts	+	Not monetized

** *Direction and magnitude of effects on net benefits*
+ *Likely to increase net benefits relative to quantified estimates*
++ *Likely to increase net benefits significantly*
- *Likely to decrease net benefits*
-- *Likely to decrease net benefits significantly*
+/- *Uncertain*

The "Without Project" Baseline

If the Project is not implemented, the Temple Water Treatment Plant (TWTP) will not be able to meet water quality standards and remain in compliance once the Stage II DBP Rule is in effect in mid-2012.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project would occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and O&M through the year 2060, along with monetized and qualitative benefits are provided in Table 8.34.

Table 8.34: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$10,660,636
Monetizable Benefits	
Water Supply Benefits	$172,150,784
Water Quality Benefits	$0
Other Benefits (Recreation, Power)	$0
Total Benefits	**$172,150,784**

Qualitative Benefits	**Qualitative Indicator***
Improved water supply reliability	++
Reduction in disinfectant byproducts (DBPs)	+

* *Magnitude of effect on net benefits*

+/- (negligible or unknown)

+ (moderate)

++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.G.1 of Appendix 8.G. For this analysis, the assumption was made that the Stage II DBP Rule will become effective in mid-2012, at which point the TWTP will not be in compliance unless the Project is implemented.

IX. Central Los Angeles County Regional Water Recycling Program

Water Quality Benefits

There are no expected Water Quality benefits associated with this Project.

Other Expected Benefits

The Project will provide several other expected benefits. These benefits are described in detail below and are summarized in Table 8.35.

Increase Operation and Distribution Efficiency of Los Angeles-Glendale Water Reclamation Plant Distribution System

The Project will increase the distribution system for recycled water produced at the Los Angeles-Glendale Water Reclamation Plant (Plant). Any operational efficiency gains converted into reduced operational costs will reduce the funding burden for the CeLAC member agencies and may reduce the local tax burden of the customers of these agencies. Customers may also benefit if efficiency gains are translated into lower rates. This benefit was not monetized because technical efficiency gains have not been measured nor has the resulting analysis of the impact on rates been performed.

Enhanced Recreation

The Project will create a reliable, local supply of recycled water that may allow the City of Los Angeles to improve the condition of the Roosevelt Municipal Golf Course by watering the grounds at times and at levels that imported water supplies normally would not allow. Improved course conditions will increase the value consumers place on each round of golf at Roosevelt Municipal Golf Course, thus increasing their benefit. This benefit was not monetized.

Enhanced Ecosystem Habitat

The Bay-Delta ecosystem is sensitive to water levels and pumping activities associated with water exports for the SWP and Central Valley Project (CVP). As the Project reduces demands for Metropolitan Water District of Southern California (MWD) water supplies, it indirectly decreases demand for Delta exports, assuming all demands by other water users is unchanged. Reduced water exports from the Delta may increase habitat quality and associated services provided by the ecosystem, such as recreational opportunities.

Table 8.35: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Increased operating and distribution system efficiency from the Plant	Qualitative	Local / Regional
Enhanced recreation	Qualitative	Local
Enhanced ecosystem habitat	Qualitative	Statewide

Distribution of Project Benefits and Identification of Beneficiaries

The Project water quality improvements would benefit patrons of the Roosevelt Municipal Golf Course by having the golf course watered at times and at levels that the current imported water supplies normally would not allow. The improved golf course conditions will increase the value consumers place on each round of golf, thus increasing their benefit. The Project will benefit taxpayers and the members of the CeLAC by improving the operational efficiency of the distribution system for recycled water produced at the Plant and reducing the operating costs, thereby providing relief to the taxpayer. On a statewide level, reduced water exports would mitigate declining Bay-Delta ecosystem conditions. The Project's beneficiaries are summarized in Table 8.36.

Table 8.36: Project Beneficiaries Summary

Local	Regional	Statewide
Patrons of Roosevelt Municipal Golf Course	Taxpayers, or others funding the Los Angeles-Glendale Water Reclamation Plant (LAGWRP)	Bay-Delta Ecosystem

Project Benefits Timeline Description

The Project benefits will be received beginning in 2014.

Uncertainty of Benefits

There is a level of uncertainty for all other expected benefits of the Project, since they cannot be monetized.

Table 8.37: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits*	Comment
Other Benefits (Increased efficiency of distribution system for recycled water)	+/-	Even if efficiency gains in the distribution system for recycled water produced at the Plant are translated into lower operating costs, and thus lower tax burdens, taxpayers may experience an offsetting marginal increase in tax expenditures required to fund the proposed Project.
Other Benefits (Enhanced recreation)	+/-	Improved course quality may also increase the demand for rounds of golf at the golf course. Crowding and slow-play may reduce patrons' willingness-to-pay for rounds of golf at the golf course, especially if substitute golf courses of comparable quality are available. Assuming the golf course's capacity (rounds of golf per year) is fully utilized, improved course conditions should increase consumer benefit without the potential for offsetting benefit reductions due to crowding, but these data have not been gathered and analyzed and the effect on net benefits related to improved course conditions is uncertain.

Benefit or cost category	Likely impact on net benefits*	Comment
* *Direction and magnitude of effects on net benefits* *+ Likely to increase net benefits relative to quantified estimates* *++ Likely to increase net benefits significantly* *- Likely to decrease net benefits* *-- Likely to decrease net benefits significantly* *+/- Uncertain*		

The "Without Project" Baseline

If the Project is not implemented, the operational efficiency of the distribution system for recycled water produced at the Plant will not be improved and operational costs will not be reduced. The golf course conditions will not be improved due to irrigation restrictions on MWD water, adversely impacting the value Roosevelt Municipal Golf Course patrons place on a round of golf. Continued SWP water exports from the Bay-Delta area will continue to affect Bay-Delta habitat quality and associated ecosystem services.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.38.

Table 8.38: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	**$11,383,796**
Monetizable Benefits	
Water Supply Benefits (Avoided Costs of Imports)	$4,231,326
Total Benefits	**$4,231,326**
Qualitative Benefits	**Qualitative Indicator****
Water Supply Benefits (Avoided water imports - GWR)	++
Water Supply Benefits (Improved supply reliability)	+/-
Water Supply Benefits (Enhanced ecosystem habitat)	+/-
Other Benefits (Enhanced recreation)	+/-
Other Benefits (Increased efficiency of the Los	

Angeles-Glendale Water Reclamation Plant Distribution System)	
** Magnitude of effect on net benefits +/- (negligible or unknown) + (moderate) ++ (significant)	

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.H.1 of Appendix 8.H. There are no annual expected benefits of water quality and other expected benefits associated with implementation of this Project.

X. Tujunga Spreading Grounds Enhancement

Water Quality Benefits

This Project will provide several water quality benefits, as described in detail below and summarized in Table 3.39.

Groundwater Dilution

This Project will increase stormwater capture and groundwater recharge. The Project will provide the added benefit of improving groundwater quality through percolation.

Downstream Water Quality Improvements

By diverting and filtrating dry-weather flows in the Basin the project will prevent contaminants from reaching the Los Angeles River and eventually, the Los Angeles Harbor, thus improving the overall downstream water quality.

Table 3.39: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Groundwater dilution	Qualitative	Local and Regional
Downstream Water Quality Improvements	Qualitative	Local and Regional

Other Expected Benefits

The Project will provide several other expected benefits, as described in detail below and summarized in Table 8.40.

Habitat Enhancement and Open Space

The Project will protect and enhance 15 acres of open space with drought-tolerant and native vegetation, which will result in enhanced natural processes and habitats.

Recreation Benefits

The Project will provide passive recreational opportunities such as walking trails and outdoor classrooms. Preliminary projections of recreational use on the site include approximately 50 users per day which will equate to approximately 18,250 recreation visits per year.

Community Benefits

The Project will provide educational opportunities to the community to safeguard the natural resources of the community.

Table 8.40: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Habitat enhancement and open space	Physically quantified	Local and Regional
Recreation	Qualitative	Local
Community	Qualitative	Local and Regional

Distribution of Project Benefits and Identification of Beneficiaries

The Project water quality improvements will benefit local residents that rely on local groundwater supplies from the San Fernando Basin as a drinking water source (Table 8.41).

Local residents will benefit from the recreation opportunity created by the Project and both local and regional residents will benefit from the educational opportunities.

Table 8.41: Project Beneficiaries Summary

Local	Regional	Statewide
Local Residents and Groundwater Users	Regional Residents	*Not applicable*

Project Benefits Timeline Description

The Project benefits would be received beginning in 2013.

Uncertainty of Benefits

There is some uncertainty associated with the water quality benefits and other expected benefits since they cannot be monetized; however, these benefits are likely to increase the net benefits relative to the quantified estimates.

Table 8.42: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits*	Comment
Water Quality		
• Groundwater dilution	+	Not monetized
• Improved downstream water quality	+	Not monetized
Habitat Enhancement and Open Space	+	Not Monetized
Recreation	+	Not Monetized
Community	+	Not Monetized

* *Direction and magnitude of effects on net benefits*
+ Likely to increase net benefits relative to quantified estimates
++ Likely to increase net benefits significantly
- Likely to decrease net benefits
-- Likely to decrease net benefits significantly

+/-	*Uncertain*

The "Without Project" Baseline

If the Project is not implemented, the stormwater could be captured for groundwater percolation, approximately 8,000 AFY, will not be available to improve the overall water quality of the San Fernando Basin. The local residents will not have access to an additional 15 acres of recreational space for community and educational benefits.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project would occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.43.

Table 8.43: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$24,939,968
Monetizable Benefits	
Water Supply Benefits	$78,771,729
Total Benefits	**$78,771,729**
Qualitative Benefits	**Qualitative Indicator****
Improved water supply reliability	+/-
Improved groundwater quality	+
Habitat enhancement and open space	+
Recreation	+
Community	+
Reduced Local Flooding	+
** *Magnitude of effect on net benefits* *+/- (negligible or unknown)* *+ (moderate)* *++ (significant)*	

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.I.1 of Appendix 8.I. For this analysis, water quality benefits could not be quantified; however, there are implied water quality benefits associated with the Project such as groundwater quality improvements and downstream water quality improvements. Other expected benefits, such as community educational opportunities for safeguarding open recreational space and preserving natural resources, also could not be quantified.

XI. San Antonio Spreading Grounds Improvements

Water Quality and Other Expected Benefits

This Project would provide a water quality benefit, in the form of dilution of nitrate, total dissolved solids (TDS), and volatile organic compounds (VOCs) in the local groundwater basin, and will create habitat (Table 8.44).

Groundwater Quality Improvement

This Project is expected to dilute nitrate contamination in the local groundwater basin. Recharging groundwater within the San Antonio Spreading Grounds will improve the water quality more quickly than waiting for natural recharge to the basin to reduce nitrate levels through blending. The Project would represent a public health benefit from drinking water improvements.

Habitat Creation

The existing spreading grounds, listed as Riversidean Alluvial Fan Sage Scrub, would be preserved and maintained as open space. The preservation and protection of the 140-acres of sensitive habitat will be realized when Claremont City's Open Space zoning designation changes from a temporary to permanent designation.

Table 8.44: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduction in Nitrate Levels	Qualitative	Local and Regional
Habitat Preservation	Physical Quantification	Local and Regional

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. Local pumpers would experience improved groundwater quality which would reduce the amount of treatment needed prior to use. Improved groundwater would also benefit groundwater users throughout the Six Basins. Various stakeholders would benefit from the preservation of habitat and open space.

Table 8.45: Project Beneficiaries Summary

Local	Regional	Statewide
Local ground water pumpers and other stakeholders	Six Basins pumpers and other stakeholder	*Not applicable*

Project Benefits Timeline Description

The Project benefits would be received beginning in 2014.

Uncertainty of Benefits

The amount of reduction in nitrate, TDS and VOCs in the groundwater is likely to increase the net benefits relative to the quantified estimates. The preservation of habitat is also likely to increase the net benefits relative to the quantified estimates.

Table 8.46: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits**	Comment
Water Quality - Reduction in Nitrate, TDS, and VOC Levels	+	Not monetized
Habitat Preservation	+	Not Monetized

** *Direction and magnitude of effects on net benefits*
- \+ *Likely to increase net benefits relative to quantified estimates*
- ++ *Likely to increase net benefits significantly*
- \- *Likely to decrease net benefits*
- -- *Likely to decrease net benefits significantly*
- +/- *Uncertain*

The "Without Project" Baseline

If the Project is not implemented, nitrate, TDS, and VOC levels will be reduced more slowly as the reduction will rely only on natural recharge. In addition, if the Project is not implemented,

it will be less likely that the existing area will be maintained as habitat and open space due to potential sale of the land.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project would occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs, and monetized and qualitative benefits are provided in Table 8.47.

Table 8.48: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$4,279,286
Monetizable Benefits	
Water Supply Benefits	$32,306,146
Total Benefits	**$32,306,146**
Qualitative Benefits	**Qualitative Indicator***
Improved water supply reliability	++
Reduction in nitrate levels through blending	+
Habitat preservation	+

* *Magnitude of effect on net benefits*
+/- (negligible or unknown)
+ (moderate)
++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.K.1 of Appendix 8.K. Water quality and other expected benefits were not monetized for this Project.

XII. Leo J Vander Lans Advanced Treatment Plant Expansion

Water Quality and Other Expected Benefits

This Project would provide water quality benefits, in the form of reduced total dissolved solids (TDS) in the local groundwater basin and reduced pollution discharged to the ocean (Table x.1).

Reduced TDS

This Project is expected to reduce loading of TDS to the local groundwater basin. Recharging groundwater with advanced treated recycled water will improve the water quality more quickly than waiting for natural recharge within the spreading grounds to reduce TDS levels through blending. The Project will benefit public health with drinking water improvements.

Reduced Pollution to the Ocean

This project will increase the use of recycled water. The expanded use of recycled water will result in less treated wastewater being discharged to the ocean.

Table 8.49: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduced TDS injected into groundwater aquifer	Physical Quantification	Local / Regional
Reduced pollution discharged to ocean	Physical Quantification	Local / Regional / Statewide

Distribution of Project Benefits and Identification of Beneficiaries

The following table summarizes the Project's beneficiaries. Local water customers who rely on groundwater would benefit from improvement to groundwater quality. Residents in the region and visitors to the region who use the beach for recreation would benefit from improved water quality in the ocean.

Table 8.50: Project Beneficiaries Summary

Local	Regional	Statewide
Local water customers; local beach and ocean users	Recreational and commercial ocean users	Visitors to region

Project Benefits Timeline Description

The Project benefits would be received beginning in 2014.

Uncertainty of Benefits

The amount of reduction in TDS in the groundwater is likely to increase the net benefits relative to the quantified estimates. The reduced pollution levels of avoided discharged water are likely to increase the net benefits relative to the quantified estimates. The recreation experience will be improved as pollution discharges are decreased. This will most likely increase the net benefits relative to the quantified estimates.

Table 8.51: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits**	Comment
Water Quality and Other Benefits		
• Reduction in TDS injected into groundwater	+	Not quantified
• Pollution levels of avoided discharged water	+	Not quantified
• Ocean Recreation	+	Improvements to recreation experience related to the reduction of pollution discharges.

** *Direction and magnitude of effects on net benefits*
+ *Likely to increase net benefits relative to quantified estimates*
++ *Likely to increase net benefits significantly*
- *Likely to decrease net benefits*
-- *Likely to decrease net benefits significantly*
+/- *Uncertain*

The "Without Project" Baseline

If the Project is not implemented, TDS reduction will rely only on natural recharge. In addition, there would be continued discharge of treated wastewater at current levels to the ocean.

Potential Adverse Effects from the Project

Any potential adverse effects from this Project will occur during construction and will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and O&M through the year 2043, along with monetized and qualitative benefits, are provided in Table 8.52.

Table 8.52: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$54,232,760
Monetizable Benefits	
Water Supply Benefits	$45,285,312
Total Benefits	**$45,285,312**
Qualitative Benefits	**Qualitative Indicator***
Improved water supply reliability	++
Reduction in nitrate levels through blending	+
Habitat preservation	+

* *Magnitude of effect on net benefits*

+/- (negligible or unknown)

+ (moderate)

++ (significant)

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.K.1 of Appendix 8.K. Water quality and other expected benefits were not monetized for this Project.

XIII. Whittier Narrows Conservation Pool Project

Water Quality and Other Expected Benefits

This Project will provide benefits through enhanced beach recreation and avoided health costs through the reduction of runoff contamination, and enhanced Bay-Delta ecosystem habitat through the reduction of imported water usage (Table x.1).

Enhanced Recreation

Increasing the quantity of storm water captured behind the Whittier Narrows Dam (Dam) by 1,100 AFY will reduce the amount of storm water normally discharged into the ocean via the Los Angeles and San Gabriel Rivers. Storm water is a major source of non-point source pollution of coastal waters in Southern California. The level of pollutants discharged into Southern California coastal waters varies seasonally and the waters are consistently monitored. Beach closures are common when pollutants reach unacceptable levels for human safety.

Several studies have documented the value that people place on recreational opportunities at beaches. These studies have used both revealed and stated preference methods to quantify willingness-to-pay to avoid or reduce beach closures (Lew and Larson, 2008, Rabinovici et al, 2004, Ofiara and Seneca, 2001) and for improvements in water quality (Hannemann et al 2004, NOAA NFMS *various,* Kling and Bockstael, 1974). For example, Lew and Larson (2008) used preference methods to estimate that the value of access to San Diego beaches ranged from $21 to $23 per person per day.

Although it is possible to transfer the value estimates from these and other studies to measure the benefits of projects that improve water quality, the data required to monetize improved recreation benefits associated with the Project are unavailable. Specifically, the number of avoided beach closures associated with reduction in pollution levels resulting from the capture and natural treatment of an additional 1,100 AFY of storm water behind the Dam has not been quantified. If the data were available, visitation data at beaches proximate to the Los Angeles and San Gabriel Rivers (See Given et al 2006) could be utilized to measure the lower-bound value of enhanced recreation opportunities resulting from the Project.

Avoided Costs Associated with Illness

Beach closures are not the only negative impact of excessive pollution levels. Some beach goers may become ill when exposed to pollutant levels that are considered safe based on regulatory standards. Given et al (2006) estimated that the cost of gastrointestinal illness (GI) contracted at 28 Los Angeles area beaches, spanning 160 km, ranged from $21 and $51 million annually. Costs included direct expenditures to combat the illness and lost time at work. Dwight et al (2005) estimated water-borne GI illnesses at Huntington State Beach and Newport Beach cost $36.58 per illness in 2004 dollars. Avoided cost of water-borne illnesses from Los Angeles area beaches cannot be quantified because the reduction in the number of water-borne illnesses in correlation to decreasing storm water runoff by 1,100 AFY, as proposed by the Project, has not been determined.

Enhanced Ecosystem Habitat

The Bay-Delta ecosystem is sensitive to water levels and pumping activities associated with water exports for the SWP and Central Valley Project (CVP). As the Project reduces demands

for Metropolitan Water District of Southern California (MWD) water supplies, it indirectly decreases demand for Delta exports, assuming all demands on other water users is unchanged. Reduced water exports from the Delta may increase habitat quality and associated services provided by the ecosystem, such as recreational opportunities. Prior studies have monetized these services as well as willingness-to-pay for general improvement in habitat (non-use values). Data limitations and Project budget constraints prevent monetization of these benefits.

Table 8.53: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Enhanced beach recreation	Qualitative	Local / Regional / Statewide
Avoided health costs	Qualitative	Local / Regional / Statewide
Enhanced ecosystem habitat	Qualitative	Statewide

Distribution of Project Benefits and Identification of Beneficiaries

Beach-goers will realize welfare benefits associated with improved beach water quality, reduced beach closures, and avoided health care costs resulting from water borne pollutants transmitted into the water off the coastal areas near the mouth of the Los Angeles and San Gabriel Rivers. Beaches near the mouth of these rivers include Hermosa Beach and Huntington Beach. On a statewide level, reduced water exports would mitigate declining Bay-Delta ecosystem conditions.

Table 8.54: Project Beneficiaries Summary

Local	Regional	Statewide
Visitors to Los Angeles Area Beaches	Visitors to Los Angeles Area Beaches	Visitors to Los Angeles Area Beaches; Bay-Delta Ecosystem

Project Benefits Timeline Description

The Project benefits will be received beginning in 2015.

Uncertainty of Benefits

There are no uncertainties that would have an impact on the benefits discussed above.

Table 8.55: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net	Comment

	benefits*	
Not Applicable	Not Applicable	Not Applicable

* *Direction and magnitude of effects on net benefits*
- *+ Likely to increase net benefits relative to quantified estimates*
- *++ Likely to increase net benefits significantly*
- *- Likely to decrease net benefits*
- *-- Likely to decrease net benefits significantly*
- *+/- Uncertain*

The "Without Project" Baseline

If the Project is not implemented, local surface water that would be captured will continue to contribute to the associated contamination in the ocean and on the beaches, and the purchase of imported water would continue to have a negative impact on the Bay-Delta ecosystem.

Potential Adverse Effects from the Project

Any potential adverse effects from Project implementation will be mitigated.

Project Benefit Costs Comparison

The total present value of the Project costs and monetized and qualitative benefits are provided in Table 8.56.

Table 8.56: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	$4,412,611
Monetizable Benefits	
Water Supply Benefits (Avoided water supply purchases)	$7,781,351
Total Benefits	**$7,781,351**
Qualitative Benefits	**Qualitative Indicator****
Water Supply Benefits (Improved supply reliability)	+
Other (Enhanced ecosystem habitat)	+
Other (Enhanced beach recreation)	+/-
Other (Avoided public health costs)	+/-+
Reduced Local and Regional Flooding	+

** *Magnitude of effect on net benefits*
- *+/- (negligible or unknown)*
- *+ (moderate)*
- *++ (significant)*

Methods used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table 8.L.1 of Appendix 8.L. Water quality and other expected benefits were not monetized for this Project.

XIV. Water and Energy Efficiency in the Schools and Hotel/Motel Sectors

Water Quality Benefits

This Program will provide water quality benefits (Table 8.57).

Reduced Wastewater Flow by Installation of Water Efficient Devices

This Program will provide a reduction in the amount of wastewater discharged to the area septic systems. With reduced water usage, less wastewater will enter the septic systems and, ultimately, the regional beaches. . The estimated reduction in wastewater associated with this Program is approximately 85 (acre-feet per year (AFY). As a result of reduced water consumption, costs associated with the operation and maintenance of individual septic systems are avoided. There is no monetized benefit because avoided septic system operation and maintenance (O&M) costs are not readily available.

Reduced Dry Weather Runoff by Use of Smart Irrigation Controllers

A combination of sources contributes to the pollutants detected at Malibu beaches and in Malibu Creek and other tributaries to the Pacific Ocean. These include septic systems and dry- and wet-weather runoff from trails, parks, yards, and streets. This Program will reduce dry-weather runoff through the installation of smart irrigation controllers. The smart irrigation controllers regulate landscaping irrigation and reduce excess watering. The Program will decrease the levels of excess landscape irrigation and runoff into Santa Monica Bay resulting in improved water quality. This benefit is not monetized.

Table 8.57: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Reduced flow to septic systems by installation of	Qualitative	Local/Regional/Statewide

water efficient devices		
Reduced dry weather runoff by use of smart irrigation controllers	Qualitative	Local/Regional/Statewide

Other Expected Benefits

This Program will provide other expected benefits. These benefits are described in detail below and are summarized in Table 8.58.

Avoided Power Costs with Increased Usage of Low-Flow Showerheads

Power costs to pump water will be reduced with the installation of low-flow showerheads. The estimate of power cost savings was based on Southern California Edison's "Flex Your Power" Program. This benefit was monetized based on the assumption that 200 low-flow showerheads would be installed between 2012 and 2032, and that each showerhead has a unit savings of $15 per fixture per year in natural gas savings and $50 per fixture per year in electric savings; these savings are in 2009 dollars.

Avoided Power Costs with Increased Usage of Aerators

Installing new 0.5 gallon per minute aerators in place of older existing fixtures will reduce power costs to pump water. The estimate of power cost savings was based on Southern California Edison's "Flex Your Power" Program. This benefit was monetized based on the assumption that 1800 aerators would be installed annually between 2012 and 2032, and that each aerator has a unit savings of $58.40 per fixture per year in natural gas savings and $42.40 per fixture per year in electric savings; these savings are in 2009 dollars. The power costs to convey water will be reduced with decreased usage, by approximately 85 AFY, and power consumption will be reduced by 347,687 KWH per year. Benefits associated with water conveyance cannot be monetized because power costs are included in MWD water rates.

Table 8.58: Benefits Summary

Type of Benefit	Assessment Level	Beneficiaries
Avoided power costs by use of low flow showerheads	Monetized	Local/Regional
Avoided power costs by use of aerators	Monetized	Local/Regional
Avoided power consumption with reduced conveyance of	Physically Quantified	Local/Regional/Statewide

imported water		

Distribution of Project Benefits and Identification of Beneficiaries

The Program will benefit local schools and hotels/motels through avoided O&M costs associated with reduced sewer flows (Table 8.59). Improved water quality in the Santa Monica Bay and at Malibu Beaches will benefit local residents and regional and statewide visitors by increasing the number of safe beach days, and decreasing the risk of gastrointestinal ailments and risk to human health. An increase in safe beach days will increase the amount of tourism revenue generated by these natural attractions. Lower electricity usage will allow lowered electrical rates, benefiting local, regional and statewide ratepayers.

Table 8.59: Project Beneficiaries Summary

Local	Regional	Statewide
Schools and Hotels/Motels; Local Visitors to Santa Monica Bay; Local Electrical Ratepayers	Regional Visitors to Santa Monica Bay; Regional Electrical Ratepayers	Statewide Visitors to Santa Monica Bay; Statewide Electrical Ratepayers

Project Benefits Timeline Description

The Program will provide benefits beginning in 2012.

Uncertainty of Benefits

There is uncertainty in the water quality benefits of avoided septic system O&M costs and reduced ocean discharge as they are not monetized.

Table 8.60: Omissions, Biases, and Uncertainties and their Effect on the Project

Benefit or cost category	Likely impact on net benefits*	Comment
Water Quality (Avoided Septic System O&M Costs)	-	Not monetized; also, users may not fully participate in program; hence septic flows and discharges to the ocean may not be reduced as much as anticipated
Water Quality (Reduced Ocean Discharge)	-	Not monetized; also, users may not fully participate in program;

		hence dry weather runoff may not be reduced as much as anticipated

* *Direction and magnitude of effects on net benefits*
- *+ Likely to increase net benefits relative to quantified estimates*
- *++ Likely to increase net benefits significantly*
- *- Likely to decrease net benefits*
- *-- Likely to decrease net benefits significantly*
- *+/- Uncertain*

The "Without Project" Baseline

If the Program is not implemented, outdated water devices will continue to overuse water and energy, and contaminate Malibu Beaches with seepage from the septic systems and dry-weather runoff from over irrigation.

Potential Adverse Effects from the Project

There are no anticipated potential adverse effects from this Program.

Project Benefit Costs Comparison

The total present value of the Program costs and monetized and qualitative benefits are provided in Table 8.61.

Table 8.61: Benefit-Cost Analysis Overview

	Present Value (In 2009 Dollars)
Costs – Total Capital and O&M	**$475,660**
Monetizable Benefits	
Water Supply Benefits	$1,028,177
Other Benefits (avoided power costs)	$2,035,009
Total Benefits	**$3,063,186**
Qualitative Benefits	**Qualitative Indicator****
Improved water supply reliability	+/-
Reduced flow to septic systems by installation of water efficient devices	+
Reduced dry weather runoff by use of smart irrigation controllers	+

** *Magnitude of effect on net benefits*
+/- (negligible or unknown)

+ (moderate)
++ (significant)

Methods Used to Estimate With- and Without-Project Conditions

The annual expected benefits of water quality and other expected benefits are summarized in Table .M.1 of Appendix 8.M.

Avoided Power Costs

Installing low-flow showerheads and replacing older plumbing fixtures with new 0.5 gallon per minute aerators will reduce power costs. This benefit was monetized to be $2,035,009 in 2009 dollars.

APPENDIX A

Hahamongna Basin Multi-Use Project –

Arroyo Seco Foundation

Table 8.A.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Hahamonga Basin Multi-Use Project

	(b) Type of Benefit: Reduction in trash/sediment (C) Measure of Benefit [Unit]: [Qualitative]					(b) Type of Benefit: Reduction in water quality degradation (C) Measure of Benefit [Unit]: Number of restrooms users per week [not monetized]					(b) Type of Benefit: Recreational trail improvements (C) Measure of Benefit [Unit]: Linear feet of new trail [not monetized]					(b) Type of Benefit: Ecosystem restoration (Basin) (C) Measure of Benefit [Unit]: Acres [not monetized]					(b) Type of Benefit: Ecosystem restoration (Canyon) (C) Measure of Benefit [Unit]: Acres [not monetized]					(b) Type of Benefit: Avoided power costs due to pumping (C) Measure of Benefit [Unit]: $ per AF per year					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.792**	**$41,580**
2014			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.747**	**$39,218**
2015			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.705**	**$37,013**
2016			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.665**	**$34,913**
2017			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.627**	**$32,918**
2018			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.592**	**$31,080**
2019			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.558**	**$29,295**
2020			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.527**	**$27,668**
2021			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.497**	**$26,093**
2022			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.469**	**$24,623**
2023			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.442**	**$23,205**
2024			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.417**	**$21,893**
2025			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.390**	**$20,475**
2026			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.371**	**$19,478**
2027			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.350**	**$18,375**
2028			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.331**	**$17,378**
2029			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.312**	**$16,380**
2030			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.294**	**$15,435**
2031			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.278**	**$14,595**
2032			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.262**	**$13,755**
2033			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.247**	**$12,968**
2034			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.233**	**$12,233**
2035			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.220**	**$11,550**
2036			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.207**	**$10,868**
2037			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.196**	**$10,290**
2038			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.185**	**$9,713**
2039			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.174**	**$9,135**
2040			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.164**	**$8,610**
2041			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.155**	**$8,138**
2042			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.146**	**$7,665**
2043			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.138**	**$7,245**
2044			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.130**	**$6,825**
2045			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.123**	**$6,458**
2046			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.116**	**$6,090**
2047			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.109**	**$5,723**
2048			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.103**	**$5,408**
2049			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.097**	**$5,093**
2050			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.092**	**$4,830**
2051			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.087**	**$4,568**
2052			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.082**	**$4,305**
2053			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.077**	**$4,043**
2054			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.073**	**$3,833**
2055			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.069**	**$3,623**
2056			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.065**	**$3,413**
2057			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.061**	**$3,203**
2058			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.058**	**$3,045**
2059			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.054**	**$2,850**
2060			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.051**	**$2,689**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$689,771
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$689,771**

Reduction in trash/sediment	Reduction in water quality degradation	Recreational trail improvements	Ecosystem restoration (Basin)	Ecosystem restoration (Canyon)	Avoided power costs due to pumping
Narrative description of benefits: Without project, urban trash will continue to be transported through stormdrain systems. In addition, the errosion problem will also continue. With project, screens will be installed for collection of urban trash at the discharge points, prior to entering the basin. In addition, transport of sediment will be eliminated.	**Narrative description of benefits: Currently there is no public restroom available at the recreation area. In an effort to dramatically decrease human bacteria in canyon water flows, a public restroom will be constructed at the entrance of Arroyo Seco Canyon. This is expected to greatly improve water quality in the canyon. The restroom is aniticipated to serve an average of 150 people per day on weekdays and 1,000 people on weekends. Without project, urine and fecal bacteria are spread to the water flow impacting the water quality and habitat. With the project, area users are expected to utilize the new restroom therefore reducing the amount of human waste tranferred to the water flow.**	**Narrative description of benefits: Raise 3,000 linear feet of the primary Westside Perimeter Trail to an elevation above the level of frequent innundation to improve year round recreational opportunities. The trail system sees an average of 15,000 users per year. The public areas see an average of 15,000 per year in addition to trail users. Once the project is completed, we are projecting a 5% increase in users in each sector (trail and public area) per year.**	**Narrative description of benefits: Without project, there will be 26 acres of low quality habitat. With project, the quality and biodiversity of 26 acre feet of habitat will be improved to high quality by raising the grade above the existing innundation level. The dollar value is undetermined.**	**Narrative description of benefits: Without project, no aquatic connectivity with current intake structure dam system and invasive/non-native plant species will remain and continue to increase. With the project, the new intake system will include a fish ladder allowing fish to move up and down the stream and fish screens will prohibit fish entry into the intake. Habitat restoration benefits will include removal of English Ivy, Arrundo, and Castor Bean over a five acre area.**	**Narrative description of benefits: Water from the Canyon intake will be pumped from wells located at a higher elevation. Withough the project, imported water would require additional pumping (power) to be pumped up to a sub-area of the Raymond Basin located at the higher elevation.**

APPENDIX B

Citywide Smart Irrigation Control System and Recycled Water Improvements

Table 8.B.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Citywide Smart Irrigation Control System Recycled Water Improvements Project

	(b) Type of Benefit: Reduction in nutrient-rich runoff into tributary (C) Measure of Benefit [Unit]: Square feet of surface area runoff					(b) Type of Benefit: Recreation from extending availability of consistent irrigation to local parks (C) Measure of Benefit [Unit]: Acres					(b) Type of Benefit: Power cost savings due to reduced pumping of water (C) Measure of Benefit [Unit]: Annual power costs					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			$0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			$0		$0	**$0**	**0.943**	**$0**
2011	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.890**	**$72,713**
2012	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.840**	**$68,628**
2013	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.792**	**$64,706**
2014	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.747**	**$61,030**
2015	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.705**	**$57,599**
2016	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.665**	**$54,331**
2017	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.627**	**$51,226**
2018	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.592**	**$48,366**
2019	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.558**	**$45,589**
2020	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.527**	**$43,056**
2021	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.497**	**$40,605**
2022	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.469**	**$38,317**
2023	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.442**	**$36,111**
2024	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.417**	**$34,069**
2025	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.390**	**$31,863**
2026	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.371**	**$30,311**
2027	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.350**	**$28,595**
2028	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.331**	**$27,043**
2029	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.312**	**$25,490**
2030	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.294**	**$24,020**
2031	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.278**	**$22,713**
2032	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.262**	**$21,405**
2033	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.247**	**$20,180**
2034	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.233**	**$19,036**
2035	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.220**	**$17,974**
2036	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.207**	**$16,912**
2037	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.196**	**$16,013**
2038	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.185**	**$15,115**
2039	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.174**	**$14,216**
2040	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.164**	**$13,399**
2041	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.155**	**$12,664**
2042	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.146**	**$11,928**
2043	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.138**	**$11,275**
2044	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.130**	**$10,621**
2045	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.123**	**$10,049**
2046	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.116**	**$9,477**
2047	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.109**	**$8,905**
2048	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.103**	**$8,415**
2049	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.097**	**$7,925**
2050	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.092**	**$7,516**
2051	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.087**	**$7,108**
2052	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.082**	**$6,699**
2053	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.077**	**$6,291**
2054	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.073**	**$5,964**
2055	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.069**	**$5,637**
2056	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.065**	**$5,311**
2057	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.061**	**$4,984**
2058	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.058**	**$4,739**
2059	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.054**	**$4,435**
2060	-950,000	0	950,000	$0.08	$80,000	0	25	25	$0	$0	-$6,800	-$5,100	$1,700	1	$1,700	**$81,700**	**0.051**	**$4,184**
																	Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$1,214,757
																	Project Allocation:	100.0%
																	Total Present Value of Discounted Benefits (Monetized Benefits):	**$1,214,757**

	Narrative description of benefits: Currently Calabasas creeks are listed imapired for bacteria, nutrient, metals and trash. Without this project, the imapirements will continue and will detriorate the water quality of creeks. With this project, the amount of surface pollutant from parks and streets will be reduced by 15% of the surface area (950,000 sq ft) due to controlled run-off. Bacteria, nutrient and metals will not be washed down the storm drain as a result of run-off during dry weather. 57 AF/Y of nutrient rich runoff will be prevented from flowing into creeks and other water bodies. This project will limit nutrient rich irrigation overflow into tribibutaries of the Los Angeles River and Malibu Creek Watershed. City of Calabasas conducted a feasibility study recently for a water treatment facility on Las Virgenes Creek, using UV disinfection process. The cost of establishing the facility is about $4.4 million and the operating cost will be about $240,000/year. If we assume that about 1/3 of pollutants in the creek come from run-off from city-owned facilities, we can calculate $80,000 saving in water quality/year.	Narrative description of benefits: Some areas within park are over-watered and some don't receive enough. Implementation of this project will make irrigation consistent with weather data. reduces irrigation usage at city parks and parkways. Aproximately 25 acres of parkland will benefit from prject. This project will retrofit exsiting irrigation with smart controll system at City Parks, Parkways and Medians. [Not Monetized]	Narrative description of benefits: extra time to perate sprinklers. Extra power will be consumed to recycle and pump water. Will save about 25% on power consumption due to less power used for irrigation and also for recycling and pumping water. There will be power savings incured by the LVWD due to more effcient irrigation system and reduced cost associated with transporation of potable water. Currently, the cost of electricity to operate city-owned irrigation system is approximately $6,800 per year. The electricity rate is $.19/KWH. It's estimated that by implementing the smart irrigation control system, there will be about 25% reduction in electric usage which translates to $1,700 in power cost saving. Also, there will be a reduction in pumping water from the LVMWD that we can't quantify.			

Comments: This project once implemented in 2011 will have similar annual benefits. The City along with the product distibution company plan on this system to be in place for 25 years without major modification. The only o/m cots associated with the project will be occasional sprinkler head replacement and costs associated with weather data access for the main controller station.

APPENDIX C

Storm Drain Improvements and Installation of Infiltration Chambers – City of Hawthorne

Table 8.C.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Storm Drain Improvements and Installation of Infiltration Chambers on Hawthorne Blvd

	(b) Type of Benefit: Reduction in trash/sediment (C) Measure of Benefit [Unit]: [Qualitative]					(b) Type of Benefit: Reduction in water quality degradation (C) Measure of Benefit [Unit]: Number of restrooms users per week [not monetized]					(b) Type of Benefit: Recreational trail improvements (C) Measure of Benefit [Unit]: Linear feet of new trail [not monetized]					(b) Type of Benefit: Ecosystem restoration (Basin) (C) Measure of Benefit [Unit]: Acres [not monetized]					(b) Type of Benefit: Ecosystem restoration (Canyon) (C) Measure of Benefit [Unit]: Acres [not monetized]					(b) Type of Benefit: Avoided power costs due to pumping (C) Measure of Benefit [Unit]: $ per AF per year					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012			0		$0			0		$0			0		$0			0.0		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.792**	**$41,580**
2014			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.747**	**$39,218**
2015			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.705**	**$37,013**
2016			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.665**	**$34,913**
2017			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.627**	**$32,918**
2018			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.592**	**$31,080**
2019			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.558**	**$29,295**
2020			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.527**	**$27,668**
2021			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.497**	**$26,093**
2022			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.469**	**$24,623**
2023			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.442**	**$23,205**
2024			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.417**	**$21,893**
2025			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.390**	**$20,475**
2026			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.371**	**$19,478**
2027			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.350**	**$18,375**
2028			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.331**	**$17,378**
2029			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.312**	**$16,380**
2030			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.294**	**$15,435**
2031			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.278**	**$14,595**
2032			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.262**	**$13,755**
2033			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.247**	**$12,968**
2034			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.233**	**$12,233**
2035			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.220**	**$11,550**
2036			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.207**	**$10,868**
2037			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.196**	**$10,290**
2038			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.185**	**$9,713**
2039			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.174**	**$9,135**
2040			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.164**	**$8,610**
2041			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.155**	**$8,138**
2042			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.146**	**$7,665**
2043			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.138**	**$7,245**
2044			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.130**	**$6,825**
2045			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.123**	**$6,458**
2046			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.116**	**$6,090**
2047			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.109**	**$5,723**
2048			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.103**	**$5,408**
2049			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.097**	**$5,093**
2050			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.092**	**$4,830**
2051			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.087**	**$4,568**
2052			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.082**	**$4,305**
2053			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.077**	**$4,043**
2054			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.073**	**$3,833**
2055			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.069**	**$3,623**
2056			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.065**	**$3,413**
2057			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.061**	**$3,203**
2058			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.058**	**$3,045**
2059			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.054**	**$2,850**
2060			0		$0	0	600	600		$0	0	3,000	3,000		$0	0.0	26.0	26.0		$0	0.0	5.0	5.0		$0	-875	0	875	$60	$52,500	**$52,500**	**0.051**	**$2,689**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits): $689,771

Project Allocation: 100.0%

Total Present Value of Discounted Benefits (Monetized Benefits): **$689,771**

Reduction in trash/sediment	Reduction in water quality degradation	Recreational trail improvements	Ecosystem restoration (Basin)	Ecosystem restoration (Canyon)	Avoided power costs due to pumping
Narrative description of benefits: Without project, urban trash will continue to be transported through stormdrain systems. In addition, the errosion problem will also continue. With project, screens will be installed for collection of urban trash at the discharge points, prior to entering the basin. In addition, transport of sediment will be eliminated.	Narrative description of benefits: Currently there is no public restroom available at the recreation area. In an effort to dramatically decrease human bacteria in canyon water flows, a public restroom will be constructed at the entrance of Arroyo Seco Canyon. This is expected to greatly improve water quality in the canyon. The restroom is aniticipated to serve an average of 150 people per day on weekdays and 1,000 people on weekends. Without project, urine and fecal bacteria are spread to the water flow impacting the water quality and habitat. With the project, area users are expected to utilize the new restroom therefore reducing the amount of human waste tranferred to the water flow.	Narrative description of benefits: Raise 3,000 linear feet of the primary Westside Perimeter Trail to an elevation above the level of frequent innundation to improve year round recreational opportunities. The trail system sees an average of 15,000 users per year. The public areas see an average of 15,000 per year in addition to trail users. Once the project is completed, we are projecting a 5% increase in users in each sector (trail and public area) per year.	Narrative description of benefits: Without project, there will be 26 acres of low quality habitat. With project, the quality and biodiversity of 26 acre feet of habitat will be improved to high quality by raising the grade above the existing innundation level. The dollar value is undetermined.	Narrative description of benefits: Without project, no aquatic connectivity with current intake structure dam system and invasive/non-native plant species will remain and continue to increase. With the project, the new intake system will include a fish ladder allowing fish to move up and down the stream and fish screens will prohibit fish entry into the intake. Habitat restoration benefits will include removal of English Ivy, Arrundo, and Castor Bean over a five acre area.	Narrative description of benefits: Water from the Canyon intake will be pumped from wells located at a higher elevation. Withough the project, imported water would require additional pumping (power) to be pumped up to a sub-area of the Raymond Basin located at the higher elevation.

APPENDIX D

Penmar Water Quality and Runoff Reuse –

City of Los Angeles, Bureau of Sanitation

Table 8.D.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Penmar Water Quality Improvement and Runoff Reuse Project

	(b) Type of Benefit: Reduced discharge into ocean (C) Measure of Benefit [Unit]: Gallons per year [not monetized]					(b) Type of Benefit: Recreation benefits associated with ocean uses (C) Measure of Benefit [Unit]: [qualitative]					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.792**	**$0**
2014	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.747**	**$0**
2015	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.705**	**$0**
2016	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.665**	**$0**
2017	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.627**	**$0**
2018	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.592**	**$0**
2019	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.558**	**$0**
2020	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.527**	**$0**
2021	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.497**	**$0**
2022	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.469**	**$0**
2023	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.442**	**$0**
2024	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.417**	**$0**
2025	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.390**	**$0**
2026	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.371**	**$0**
2027	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.350**	**$0**
2028	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.331**	**$0**
2029	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.312**	**$0**
2030	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.294**	**$0**
2031	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.278**	**$0**
2032	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.262**	**$0**
2033	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.247**	**$0**
2034	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.233**	**$0**
2035	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.220**	**$0**
2036	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.207**	**$0**
2037	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.196**	**$0**
2038	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.185**	**$0**
2039	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.174**	**$0**
2040	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.164**	**$0**
2041	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.155**	**$0**
2042	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.146**	**$0**
2043	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.138**	**$0**
2044	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.130**	**$0**
2045	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.123**	**$0**
2046	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.116**	**$0**
2047	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.109**	**$0**
2048	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.103**	**$0**
2049	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.097**	**$0**
2050	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.092**	**$0**
2051	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.087**	**$0**
2052	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.082**	**$0**
2053	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.077**	**$0**
2054	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.073**	**$0**
2055	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.069**	**$0**
2056	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.065**	**$0**
2057	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.061**	**$0**
2058	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.058**	**$0**
2059	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.054**	**$0**
2060	-68,704,293	0	68,704,293		$0			0		$0			0		$0	**$0**	**0.051**	**$0**
																Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):		$0
																Project Allocation:		100.0%
																Total Present Value of Discounted Benefits (Monetized Benefits):		**$0**

	Narrative description of benefits: Capturing and using stormwater for irrigation reduces the amount of urban runoff that discharges into the Santa Monica bay thereby reducing pollution of the receiving water	Narrative description of benefits: Recreation benefits associated with improved water quality in Santa Monica Bay; thereby potentially reducing beach clsoures due to bacteria exceedance	Narrative description of benefits:			

Comments: Assumptions: 1) Life span through 2060. 2) 10 Storms per year 3) Dry Weather flow in Storm drain is 0.44 cfs for 275 dry weather runoff days per year (365 - 10 storms @ 3 days - 6 days of non capture after storm @ 10 storm events = 275). The 0.44 cfs dry weather flow is based on TMDL Model. The project will capture and divert up to 2.75 MG per storm as well as dry weather flow that occurs starting 72 hour after a storm event however to account for variability storm seasons and dry weather flow and future upstream bmps to reduece runoff from storms and urban sources we will only count 65% of the for the water quality calculations. . Project will reduce bacteria loading ot Bay and reduce the number of beach closures due to bacteria exceedences.

APPENDIX E

Model Equestrian Center –

City of Rolling Hills Estates

Table 8.E.1 - Water Quality and Other Expected Benefits (2009 dollars)
Project: Model Equestrian Center

(a) Year	(b) Type of Benefit: Phosphorous Load Reduction (C) Measure of Benefit [Unit]: Pounds					(b) Type of Benefit: Nitrogen Load Reduction (C) Measure of Benefit [Unit]: Pounds				
	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]
2009										
2010										
2011										
2012	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2013	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2014	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2015	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2016	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2017	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2018	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2019	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2020	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2021	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2022	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2023	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2024	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2025	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2026	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2027	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2028	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2029	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2030	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2031	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2032	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2033	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2034	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2035	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2036	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2037	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2038	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2039	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2040	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2041	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2042	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2043	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2044	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2045	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2046	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2047	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2048	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2049	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2050	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2051	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2052	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2053	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2054	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2055	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2056	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2057	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2058	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2059	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0
2060	-90.24	0	90.24	$0	$0	-489.6	0	489.6	$0	$0

(a) Year	(b) Type of Benefit: Habitat Creation (C) Measure of Benefit [Unit]: Acres					(b) Type of Benefit: RecreationValue of Improved Facilities (C) Measure of Benefit [Unit]: New box stalls relative to corral					(b) Type of Benefit: Power Cost Savings (C) Measure of Benefit [Unit]: Avoided annual electricity expenditur				
	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]
2009															
2010															
2011															
2012	0	1	1		$0	0	35	35	$496	$17,354	-1	0	1	$2,500	$2,500
2013	0	1	1		$0	0	35	35	$504	$17,623	-1	0	1	$2,500	$2,500
2014	0	1	1		$0	0	35	35	$511	$17,892	-1	0	1	$2,500	$2,500
2015	0	1	1		$0	0	35	35	$521	$18,245	-1	0	1	$2,500	$2,500
2016	0	1	1		$0	0	35	35	$532	$18,614	-1	0	1	$2,500	$2,500
2017	0	1	1		$0	0	35	35	$542	$18,984	-1	0	1	$2,500	$2,500
2018	0	1	1		$0	0	35	35	$553	$19,354	-1	0	1	$2,500	$2,500
2019	0	1	1		$0	0	35	35	$564	$19,740	-1	0	1	$2,500	$2,500
2020	0	1	1		$0	0	35	35	$576	$20,143	-1	0	1	$2,500	$2,500
2021	0	1	1		$0	0	35	35	$586	$20,496	-1	0	1	$2,500	$2,500
2022	0	1	1		$0	0	35	35	$596	$20,849	-1	0	1	$2,500	$2,500
2023	0	1	1		$0	0	35	35	$606	$21,218	-1	0	1	$2,500	$2,500
2024	0	1	1		$0	0	35	35	$617	$21,588	-1	0	1	$2,500	$2,500
2025	0	1	1		$0	0	35	35	$628	$21,974	-1	0	1	$2,500	$2,500
2026	0	1	1		$0	0	35	35	$638	$22,344	-1	0	1	$2,500	$2,500
2027	0	1	1		$0	0	35	35	$650	$22,747	-1	0	1	$2,500	$2,500
2028	0	1	1		$0	0	35	35	$661	$23,134	-1	0	1	$2,500	$2,500
2029	0	1	1		$0	0	35	35	$673	$23,554	-1	0	1	$2,500	$2,500
2030	0	1	1		$0	0	35	35	$684	$23,957	-1	0	1	$2,500	$2,500
2031	0	1	1		$0	0	35	35	$696	$24,377	-1	0	1	$2,500	$2,500
2032	0	1	1		$0	0	35	35	$708	$24,797	-1	0	1	$2,500	$2,500
2033	0	1	1		$0	0	35	35	$721	$25,234	-1	0	1	$2,500	$2,500
2034	0	1	1		$0	0	35	35	$734	$25,687	-1	0	1	$2,500	$2,500
2035	0	1	1		$0	0	35	35	$746	$26,124	-1	0	1	$2,500	$2,500
2036	0	1	1		$0	0	35	35	$759	$26,578	-1	0	1	$2,500	$2,500
2037	0	1	1		$0	0	35	35	$773	$27,048	-1	0	1	$2,500	$2,500
2038	0	1	1		$0	0	35	35	$786	$27,518	-1	0	1	$2,500	$2,500
2039	0	1	1		$0	0	35	35	$800	$28,006	-1	0	1	$2,500	$2,500
2040	0	1	1		$0	0	35	35	$814	$28,493	-1	0	1	$2,500	$2,500
2041	0	1	1		$0	0	35	35	$828	$28,997	-1	0	1	$2,500	$2,500
2042	0	1	1		$0	0	35	35	$843	$29,501	-1	0	1	$2,500	$2,500
2043	0	1	1		$0	0	35	35	$858	$30,022	-1	0	1	$2,500	$2,500
2044	0	1	1		$0	0	35	35	$873	$30,542	-1	0	1	$2,500	$2,500
2045	0	1	1		$0	0	35	35	$888	$31,080	-1	0	1	$2,500	$2,500
2046	0	1	1		$0	0	35	35	$903	$31,618	-1	0	1	$2,500	$2,500
2047	0	1	1		$0	0	35	35	$919	$32,172	-1	0	1	$2,500	$2,500
2048	0	1	1		$0	0	35	35	$936	$32,743	-1	0	1	$2,500	$2,500
2049	0	1	1		$0	0	35	35	$952	$33,314	-1	0	1	$2,500	$2,500
2050	0	1	1		$0	0	35	35	$969	$33,902	-1	0	1	$2,500	$2,500
2051	0	1	1		$0	0	35	35	$985	$34,490	-1	0	1	$2,500	$2,500
2052	0	1	1		$0	0	35	35	$1,003	$35,095	-1	0	1	$2,500	$2,500
2053	0	1	1		$0	0	35	35	$1,020	$35,700	-1	0	1	$2,500	$2,500
2054	0	1	1		$0	0	35	35	$1,038	$36,338	-1	0	1	$2,500	$2,500
2055	0	1	1		$0	0	35	35	$1,056	$36,960	-1	0	1	$2,500	$2,500
2056	0	1	1		$0	0	35	35	$1,075	$37,615	-1	0	1	$2,500	$2,500
2057	0	1	1		$0	0	35	35	$1,093	$38,270	-1	0	1	$2,500	$2,500
2058	0	1	1		$0	0	35	35	$1,113	$38,942	-1	0	1	$2,500	$2,500
2059	0	1	1		$0	0	35	35	$1,132	$39,614	-1	0	1	$2,500	$2,500
2060	0	1	1		$0	0	35	35	$1,152	$40,320	-1	0	1	$2,500	$2,500

(a) Year	(b) Type of Benefit: Education - Phosphorous Load Reduction (C) Measure of Benefit [Unit]: Pounds					(b) Type of Benefit: Education - Nitrogen Load Reduction (C) Measure of Benefit [Unit]: Pounds					Discounting Calculations for Economic Benefits		
	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009											$0	1.000	$0
2010											$0	0.943	$0
2011											$0	0.890	$0
2012											$19,854	0.840	$16,678
2013	-0.94	0	0.94		$0	-5.1	0	5.1		$0	$20,123	0.792	$15,938
2014	-1.88	0	1.88		$0	-10.2	0	10.2		$0	$20,392	0.747	$15,233
2015	-2.82	0	2.82		$0	-15.3	0	15.3		$0	$20,745	0.705	$14,625
2016	-3.76	0	3.76		$0	-20.4	0	20.4		$0	$21,114	0.665	$14,041
2017	-4.7	0	4.7		$0	-25.5	0	25.5		$0	$21,484	0.627	$13,470
2018	-5.64	0	5.64		$0	-30.6	0	30.6		$0	$21,854	0.592	$12,937
2019	-6.58	0	6.58		$0	-35.7	0	35.7		$0	$22,240	0.558	$12,410
2020	-7.52	0	7.52		$0	-40.8	0	40.8		$0	$22,643	0.527	$11,933
2021	-8.46	0	8.46		$0	-45.9	0	45.9		$0	$22,996	0.497	$11,429
2022	-9.4	0	9.4		$0	-51	0	51		$0	$23,349	0.469	$10,951
2023	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$23,718	0.442	$10,484
2024	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$24,088	0.417	$10,045
2025	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$24,474	0.390	$9,545
2026	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$24,844	0.371	$9,217
2027	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$25,247	0.350	$8,837
2028	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$25,634	0.331	$8,485
2029	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$26,054	0.312	$8,129
2030	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$26,457	0.294	$7,778
2031	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$26,877	0.278	$7,472
2032	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$27,297	0.262	$7,152
2033	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$27,734	0.247	$6,850
2034	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$28,187	0.233	$6,568
2035	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$28,624	0.220	$6,297
2036	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$29,078	0.207	$6,019
2037	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$29,548	0.196	$5,791
2038	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$30,018	0.185	$5,553
2039	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$30,506	0.174	$5,308
2040	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$30,993	0.164	$5,083
2041	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$31,497	0.155	$4,882
2042	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$32,001	0.146	$4,672
2043	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$32,522	0.138	$4,488
2044	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$33,042	0.130	$4,296
2045	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$33,580	0.123	$4,130
2046	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$34,118	0.116	$3,958
2047	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$34,672	0.109	$3,779
2048	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$35,243	0.103	$3,630
2049	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$35,814	0.097	$3,474
2050	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$36,402	0.092	$3,349
2051	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$36,990	0.087	$3,218
2052	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$37,595	0.082	$3,083
2053	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$38,200	0.077	$2,941
2054	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$38,838	0.073	$2,835
2055	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$39,460	0.069	$2,723
2056	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$40,115	0.065	$2,607
2057	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$40,770	0.061	$2,487
2058	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$41,442	0.058	$2,404
2059	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$42,114	0.054	$2,286
2060	-10.34	0	10.34		$0	-56.1	0	56.1		$0	$42,820	0.051	$2,193

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$351,692
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$351,692**

Narrative description of benefits: *Assume 20 horses are moved from old facility to new facility with zero discharge at new facility so 100% reduction in loading from 20 horses additionally, loading from 56 horses remaining in retrofit area to be reduced by 50%*

Narrative description of benefits: *Assume 20 horses are moved from old facility to new facility with zero discharge at new facility so 100% reduction in loading from 20 horses additionally, loading from 56 horses remaining in retrofit area to be reduced by 50%*

Narrative description of benefits: *1.25 acres of native habitat buffers and planted treatment bioswales*

Narrative description of benefits: upgraded boarding facilities replacing pipe corrals with barn/box stalls

Narrative description of benefits: size solar panel to generate all electricity needed for faclity

Narrative description of benefits: assume each year we achieve 50% reduction in load from 10 additional horses on private property through educational outreach

Narrative description of benefits: assume each year we achieve 50% reduction in load from 10 additional horses on private property through educational outreach

Comments: Life of project estimated at 50 years

APPENDIX F

16th Street Watershed Runoff Use Project – City of Santa Monica

Table 8.F.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: 16th Street Watershed Runoff Use Project - City of Santa Monica

	(b) Type of Benefit: Avoided discharge (pollution) into Bay (C) Measure of Benefit [Unit]: Gallons					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.792**	**$0**
2014	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.747**	**$0**
2015	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.705**	**$0**
2016	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.665**	**$0**
2017	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.627**	**$0**
2018	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.592**	**$0**
2019	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.558**	**$0**
2020	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.527**	**$0**
2021	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.497**	**$0**
2022	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.469**	**$0**
2023	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.442**	**$0**
2024	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.417**	**$0**
2025	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.390**	**$0**
2026	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.371**	**$0**
2027	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.350**	**$0**
2028	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.331**	**$0**
2029	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.312**	**$0**
2030	-1139204	0	1139204	$0	$0			0		$0			0		$0	**$0**	**0.294**	**$0**
2031			0		$0			0		$0			0		$0	**$0**	**0.278**	**$0**
2032			0		$0			0		$0			0		$0	**$0**	**0.262**	**$0**
2033			0		$0			0		$0			0		$0	**$0**	**0.247**	**$0**
2034			0		$0			0		$0			0		$0	**$0**	**0.233**	**$0**
2035			0		$0			0		$0			0		$0	**$0**	**0.220**	**$0**
2036			0		$0			0		$0			0		$0	**$0**	**0.207**	**$0**
2037			0		$0			0		$0			0		$0	**$0**	**0.196**	**$0**
2038			0		$0			0		$0			0		$0	**$0**	**0.185**	**$0**
2039			0		$0			0		$0			0		$0	**$0**	**0.174**	**$0**
2040			0		$0			0		$0			0		$0	**$0**	**0.164**	**$0**
2041			0		$0			0		$0			0		$0	**$0**	**0.155**	**$0**
2042			0		$0			0		$0			0		$0	**$0**	**0.146**	**$0**
2043			0		$0			0		$0			0		$0	**$0**	**0.138**	**$0**
2044			0		$0			0		$0			0		$0	**$0**	**0.130**	**$0**
2045			0		$0			0		$0			0		$0	**$0**	**0.123**	**$0**
2046			0		$0			0		$0			0		$0	**$0**	**0.116**	**$0**
2047			0		$0			0		$0			0		$0	**$0**	**0.109**	**$0**
2048			0		$0			0		$0			0		$0	**$0**	**0.103**	**$0**
2049			0		$0			0		$0			0		$0	**$0**	**0.097**	**$0**
2050			0		$0			0		$0			0		$0	**$0**	**0.092**	**$0**
2051			0		$0			0		$0			0		$0	**$0**	**0.087**	**$0**
2052			0		$0			0		$0			0		$0	**$0**	**0.082**	**$0**
2053			0		$0			0		$0			0		$0	**$0**	**0.077**	**$0**
2054			0		$0			0		$0			0		$0	**$0**	**0.073**	**$0**
2055			0		$0			0		$0			0		$0	**$0**	**0.069**	**$0**
2056			0		$0			0		$0			0		$0	**$0**	**0.065**	**$0**
2057			0		$0			0		$0			0		$0	**$0**	**0.061**	**$0**
2058			0		$0			0		$0			0		$0	**$0**	**0.058**	**$0**
2059			0		$0			0		$0			0		$0	**$0**	**0.054**	**$0**
2060			0		$0			0		$0			0		$0	**$0**	**0.051**	**$0**
																	Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$0
																	Project Allocation:	100.0%
																	Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

	Narrative description of benefits: Capturing and using stormwater for irrigation reduces the amount of urban runoff that discharges into the Santa Monica bay thereby reducing pollution of the receiving water	Narrative description of benefits:	Narrative description of benefits:			

Comments: Assume 15 year lifespan of the project.

APPENDIX G

Surface Water Treatment Plant Improvements – Covina Irrigating Company

Table 8.G.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Covina Irrigating Co Surface Water Treatment Plant Improvements

	(b) Type of Benefit: Water Quality (C) Measure of Benefit [Unit]: DBP/ppb					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.792**	**$0**
2014	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.747**	**$0**
2015	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.705**	**$0**
2016	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.665**	**$0**
2017	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.627**	**$0**
2018	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.592**	**$0**
2019	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.558**	**$0**
2020	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.527**	**$0**
2021	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.497**	**$0**
2022	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.469**	**$0**
2023	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.442**	**$0**
2024	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.417**	**$0**
2025	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.390**	**$0**
2026	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.371**	**$0**
2027	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.350**	**$0**
2028	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.331**	**$0**
2029	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.312**	**$0**
2030	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.294**	**$0**
2031	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.278**	**$0**
2032	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.262**	**$0**
2033	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.247**	**$0**
2034	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.233**	**$0**
2035	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.220**	**$0**
2036	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.207**	**$0**
2037	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.196**	**$0**
2038	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.185**	**$0**
2039	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.174**	**$0**
2040	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.164**	**$0**
2041	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.155**	**$0**
2042	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.146**	**$0**
2043	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.138**	**$0**
2044	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.130**	**$0**
2045	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.123**	**$0**
2046	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.116**	**$0**
2047	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.109**	**$0**
2048	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.103**	**$0**
2049	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.097**	**$0**
2050	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.092**	**$0**
2051	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.087**	**$0**
2052	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.082**	**$0**
2053	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.077**	**$0**
2054	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.073**	**$0**
2055	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.069**	**$0**
2056	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.065**	**$0**
2057	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.061**	**$0**
2058	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.058**	**$0**
2059	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.054**	**$0**
2060	-135	-45	90	$0	$0			0		$0			0		$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$0
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

	Narrative description of benefits:	Narrative description of benefits:	Narrative description of benefits:			

Comments: Assumption ismade that the Stage II DBP Rule will become effective in mid-2012 and that the Wm. B. Temple Treatment Plant will not be able to remain in compliance. Loss of local resource will result in retail agencies having to resort to more expensive imported water to replace the treated surface water oridinarly produced from the Temple Plant. Basis or benefit value is derived from expected costs of imported water less current cos of local waer (see Econ Analysis --WCS &B).

APPENDIX H

Central Los Angeles County Regional Water Recycling Program – Los Angeles Department of Water and Power

Table 8.H.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Central Los Angeles County - Regional Water Recycling Program

	(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012			0		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013			0		$0			0		$0			0		$0	**$0**	**0.792**	**$0**
2014			0		$0			0		$0			0		$0	**$0**	**0.747**	**$0**
2015			0		$0			0		$0			0		$0	**$0**	**0.705**	**$0**
2016			0		$0			0		$0			0		$0	**$0**	**0.665**	**$0**
2017			0		$0			0		$0			0		$0	**$0**	**0.627**	**$0**
2018			0		$0			0		$0			0		$0	**$0**	**0.592**	**$0**
2019			0		$0			0		$0			0		$0	**$0**	**0.558**	**$0**
2020			0		$0			0		$0			0		$0	**$0**	**0.527**	**$0**
2021			0		$0			0		$0			0		$0	**$0**	**0.497**	**$0**
2022			0		$0			0		$0			0		$0	**$0**	**0.469**	**$0**
2023			0		$0			0		$0			0		$0	**$0**	**0.442**	**$0**
2024			0		$0			0		$0			0		$0	**$0**	**0.417**	**$0**
2025			0		$0			0		$0			0		$0	**$0**	**0.390**	**$0**
2026			0		$0			0		$0			0		$0	**$0**	**0.371**	**$0**
2027			0		$0			0		$0			0		$0	**$0**	**0.350**	**$0**
2028			0		$0			0		$0			0		$0	**$0**	**0.331**	**$0**
2029			0		$0			0		$0			0		$0	**$0**	**0.312**	**$0**
2030			0		$0			0		$0			0		$0	**$0**	**0.294**	**$0**
2031			0		$0			0		$0			0		$0	**$0**	**0.278**	**$0**
2032			0		$0			0		$0			0		$0	**$0**	**0.262**	**$0**
2033			0		$0			0		$0			0		$0	**$0**	**0.247**	**$0**
2034			0		$0			0		$0			0		$0	**$0**	**0.233**	**$0**
2035			0		$0			0		$0			0		$0	**$0**	**0.220**	**$0**
2036			0		$0			0		$0			0		$0	**$0**	**0.207**	**$0**
2037			0		$0			0		$0			0		$0	**$0**	**0.196**	**$0**
2038			0		$0			0		$0			0		$0	**$0**	**0.185**	**$0**
2039			0		$0			0		$0			0		$0	**$0**	**0.174**	**$0**
2040			0		$0			0		$0			0		$0	**$0**	**0.164**	**$0**
2041			0		$0			0		$0			0		$0	**$0**	**0.155**	**$0**
2042			0		$0			0		$0			0		$0	**$0**	**0.146**	**$0**
2043			0		$0			0		$0			0		$0	**$0**	**0.138**	**$0**
2044			0		$0			0		$0			0		$0	**$0**	**0.130**	**$0**
2045			0		$0			0		$0			0		$0	**$0**	**0.123**	**$0**
2046			0		$0			0		$0			0		$0	**$0**	**0.116**	**$0**
2047			0		$0			0		$0			0		$0	**$0**	**0.109**	**$0**
2048			0		$0			0		$0			0		$0	**$0**	**0.103**	**$0**
2049			0		$0			0		$0			0		$0	**$0**	**0.097**	**$0**
2050			0		$0			0		$0			0		$0	**$0**	**0.092**	**$0**
2051			0		$0			0		$0			0		$0	**$0**	**0.087**	**$0**
2052			0		$0			0		$0			0		$0	**$0**	**0.082**	**$0**
2053			0		$0			0		$0			0		$0	**$0**	**0.077**	**$0**
2054			0		$0			0		$0			0		$0	**$0**	**0.073**	**$0**
2055			0		$0			0		$0			0		$0	**$0**	**0.069**	**$0**
2056			0		$0			0		$0			0		$0	**$0**	**0.065**	**$0**
2057			0		$0			0		$0			0		$0	**$0**	**0.061**	**$0**
2058			0		$0			0		$0			0		$0	**$0**	**0.058**	**$0**
2059			0		$0			0		$0			0		$0	**$0**	**0.054**	**$0**
2060			0		$0			0		$0			0		$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$0
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

	Narrative description of benefits:	Narrative description of benefits:	Narrative description of benefits:			

Comments:

APPENDIX I

Enhancement Project – Tujunga Spreading Grounds – Los Angeles Department of Water and Power

Table 8.I.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Tujunga Spreading Grounds Enhancement Project

	(b) Type of Benefit: Improved groundwater quality (C) Measure of Benefit [Unit]: [qualtitative]					(b) Type of Benefit: Protection of open space (C) Measure of Benefit [Unit]: acres [not monetized]					(b) Type of Benefit: Recreation (C) Measure of Benefit [Unit]: [qualitative]					(b) Type of Benefit: Community (provide educational opportunities) (C) Measure of Benefit [Unit]: [qualitative]					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012			0		$0			0		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.792**	**$0**
2014			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.747**	**$0**
2015			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.705**	**$0**
2016			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.665**	**$0**
2017			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.627**	**$0**
2018			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.592**	**$0**
2019			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.558**	**$0**
2020			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.527**	**$0**
2021			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.497**	**$0**
2022			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.469**	**$0**
2023			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.442**	**$0**
2024			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.417**	**$0**
2025			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.390**	**$0**
2026			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.371**	**$0**
2027			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.350**	**$0**
2028			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.331**	**$0**
2029			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.312**	**$0**
2030			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.294**	**$0**
2031			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.278**	**$0**
2032			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.262**	**$0**
2033			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.247**	**$0**
2034			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.233**	**$0**
2035			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.220**	**$0**
2036			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.207**	**$0**
2037			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.196**	**$0**
2038			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.185**	**$0**
2039			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.174**	**$0**
2040			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.164**	**$0**
2041			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.155**	**$0**
2042			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.146**	**$0**
2043			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.138**	**$0**
2044			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.130**	**$0**
2045			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.123**	**$0**
2046			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.116**	**$0**
2047			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.109**	**$0**
2048			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.103**	**$0**
2049			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.097**	**$0**
2050			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.092**	**$0**
2051			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.087**	**$0**
2052			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.082**	**$0**
2053			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.077**	**$0**
2054			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.073**	**$0**
2055			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.069**	**$0**
2056			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.065**	**$0**
2057			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.061**	**$0**
2058			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.058**	**$0**
2059			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.054**	**$0**
2060			0		$0	0	15	15		$0			0		$0			0	$0	$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	**$0**
Project Allocation:	**100.0%**
Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

Narrative description of benefit: From the workplan; " the increase of stormwater capture will provide the added benefit of improving groundwater quality through dilution". "Water Quality benefits cannot be quantified however there are implied water quality benefits such as removal of trash from trash racks."	**Narrative description of benefit: ~~based on Open Space cost of $2,500,000 ($2.5M/15 acres).~~ Enhance natural processes and habitats**	**Narrative description of benefit: ~~based on Open Space cost of $2,500,000~~**	**Narrative description of benefit: Provide educational opportunities for the community to safeguard the natural resources**

APPENDIX J

San Antonio Spreading Grounds Improvements – Three Valleys Municipal Water District

Table 8.J.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: San Antonio Spreading Grounds Improvements Project

	(b) Type of Benefit: Water Quality (reduction in nitrate levels) (C) Measure of Benefit [Unit]: N/A (qualitative)					(b) Type of Benefit: Habitat Preservation (C) Measure of Benefit [Unit]: Acres					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009					$0					$0			0		$0	**$0**	**1.000**	**$0**
2010					$0					$0			0		$0	**$0**	**0.943**	**$0**
2011	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.890**	**$0**
2012	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.840**	**$0**
2013	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.792**	**$0**
2014	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.747**	**$0**
2015	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.705**	**$0**
2016	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.665**	**$0**
2017	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.627**	**$0**
2018	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.592**	**$0**
2019	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.558**	**$0**
2020	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.527**	**$0**
2021	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.497**	**$0**
2022	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.469**	**$0**
2023	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.442**	**$0**
2024	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.417**	**$0**
2025	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.390**	**$0**
2026	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.371**	**$0**
2027	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.350**	**$0**
2028	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.331**	**$0**
2029	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.312**	**$0**
2030	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.294**	**$0**
2031	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.278**	**$0**
2032	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.262**	**$0**
2033	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.247**	**$0**
2034	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.233**	**$0**
2035	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.220**	**$0**
2036	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.207**	**$0**
2037	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.196**	**$0**
2038	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.185**	**$0**
2039	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.174**	**$0**
2040	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.164**	**$0**
2041	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.155**	**$0**
2042	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.146**	**$0**
2043	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.138**	**$0**
2044	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.130**	**$0**
2045	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.123**	**$0**
2046	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.116**	**$0**
2047	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.109**	**$0**
2048	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.103**	**$0**
2049	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.097**	**$0**
2050	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.092**	**$0**
2051	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.087**	**$0**
2052	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.082**	**$0**
2053	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.077**	**$0**
2054	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.073**	**$0**
2055	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.069**	**$0**
2056	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.065**	**$0**
2057	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.061**	**$0**
2058	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.058**	**$0**
2059	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.054**	**$0**
2060	*Unknown*	*Unknown*			$0	0	140	140		$0			0		$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$0
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

	Narrative description of benefits:	Narrative description of benefits:	Narrative description of benefits:			

Comments: Recharging groundwater within the San Antonio Spreading Grounds will improve the water quality much quicker than waiting for natural recharge within the spreading grounds to reduce nitrate levels through blending. This improvement is difficult to quantify, as there are many inputs & extractions within the Six Basins. An additional benefit would be the preservation of the existing spreading grounds, listed as Riversidean Alluvial Fan Sage Scrub (RAFSS) a very limited ecosystem, to be maintained as open space. The preservation and protection of the 140-acres of sensitive habitat would become a long-term benefit once the project were to move forward, allowing the Claremont City's Open Space zoning designation to change from a temporary to permanent designation.

APPENDIX K

Leo J. Vander Lans Advanced Water Treatment Plant Expansion – Water Replenishment District

Table 8.K.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Leo J. Vander Lans Advanced Water Treatment Plant Expansion

	(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: Improved groundwater quality (TDS) (C) Measure of Benefit [Unit]: Parts per million (ppm)					(b) Type of Benefit: Reduced discharge to ocean (C) Measure of Benefit [Unit]: Acre feet per year					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0											**$0**	**1.000**	**$0**
2010			0		$0											**$0**	**0.943**	**$0**
2011			0		$0											**$0**	**0.890**	**$0**
2012			0		$0											**$0**	**0.840**	**$0**
2013			0		$0											**$0**	**0.792**	**$0**
2014			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.747**	**$0**
2015			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.705**	**$0**
2016			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.665**	**$0**
2017			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.627**	**$0**
2018			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.592**	**$0**
2019			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.558**	**$0**
2020			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.527**	**$0**
2021			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.497**	**$0**
2022			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.469**	**$0**
2023			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.442**	**$0**
2024			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.417**	**$0**
2025			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.390**	**$0**
2026			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.371**	**$0**
2027			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.350**	**$0**
2028			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.331**	**$0**
2029			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.312**	**$0**
2030			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.294**	**$0**
2031			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.278**	**$0**
2032			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.262**	**$0**
2033			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.247**	**$0**
2034			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.233**	**$0**
2035			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.220**	**$0**
2036			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.207**	**$0**
2037			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.196**	**$0**
2038			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.185**	**$0**
2039			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.174**	**$0**
2040			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.164**	**$0**
2041			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.155**	**$0**
2042			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.146**	**$0**
2043			0		$0	-660	-68	592		$0	-4,000	0	4,000		$0	**$0**	**0.138**	**$0**
2044			0		$0					$0					$0	**$0**	**0.130**	**$0**
2045			0		$0					$0					$0	**$0**	**0.123**	**$0**
2046			0		$0					$0					$0	**$0**	**0.116**	**$0**
2047			0		$0					$0					$0	**$0**	**0.109**	**$0**
2048			0		$0					$0					$0	**$0**	**0.103**	**$0**
2049			0		$0					$0					$0	**$0**	**0.097**	**$0**
2050			0		$0					$0					$0	**$0**	**0.092**	**$0**
2051			0		$0					$0					$0	**$0**	**0.087**	**$0**
2052			0		$0					$0					$0	**$0**	**0.082**	**$0**
2053			0		$0					$0					$0	**$0**	**0.077**	**$0**
2054			0		$0					$0					$0	**$0**	**0.073**	**$0**
2055			0		$0					$0					$0	**$0**	**0.069**	**$0**
2056			0		$0					$0					$0	**$0**	**0.065**	**$0**
2057			0		$0					$0					$0	**$0**	**0.061**	**$0**
2058			0		$0					$0					$0	**$0**	**0.058**	**$0**
2059			0		$0					$0					$0	**$0**	**0.054**	**$0**
2060			0		$0					$0					$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):	$0
Project Allocation:	100.0%
Total Present Value of Discounted Benefits (Monetized Benefits):	**$0**

Narrative description of benefits: I deleted the claimed benefits at the request of the proponent. The propents response to questions: "No power benefits can be claimed if using MWD rate projection --energy already included within the projects --please remove."	Narrative description of benefits: Injecting recycled water into groundwater aquifer improves quantity and quality of groundwater.	Narrative description of benefits:	

APPENDIX L

Whittier Narrows Conservation Pool Project

Table 8.L.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Whittier Narrows Conservation Pool Project

	(b) Type of Benefit: Reduced discharges to ocean (C) Measure of Benefit [Unit]: AF per year					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					(b) Type of Benefit: (C) Measure of Benefit [Unit]:					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012			0		$0			0		$0			0		$0	**$0**	**0.840**	**$0**
2013			0		$0			0		$0			0		$0	**$0**	**0.792**	**$0**
2014			0		$0			0		$0			0		$0	**$0**	**0.747**	**$0**
2015	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.705**	**$0**
2016	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.665**	**$0**
2017	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.627**	**$0**
2018	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.592**	**$0**
2019	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.558**	**$0**
2020	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.527**	**$0**
2021	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.497**	**$0**
2022	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.469**	**$0**
2023	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.442**	**$0**
2024	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.417**	**$0**
2025	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.390**	**$0**
2026	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.371**	**$0**
2027	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.350**	**$0**
2028	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.331**	**$0**
2029	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.312**	**$0**
2030	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.294**	**$0**
2031	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.278**	**$0**
2032	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.262**	**$0**
2033	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.247**	**$0**
2034	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.233**	**$0**
2035	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.220**	**$0**
2036	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.207**	**$0**
2037	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.196**	**$0**
2038	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.185**	**$0**
2039	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.174**	**$0**
2040	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.164**	**$0**
2041	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.155**	**$0**
2042	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.146**	**$0**
2043	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.138**	**$0**
2044	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.130**	**$0**
2045	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.123**	**$0**
2046	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.116**	**$0**
2047	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.109**	**$0**
2048	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.103**	**$0**
2049	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.097**	**$0**
2050	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.092**	**$0**
2051	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.087**	**$0**
2052	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.082**	**$0**
2053	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.077**	**$0**
2054	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.073**	**$0**
2055	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.069**	**$0**
2056	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.065**	**$0**
2057	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.061**	**$0**
2058	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.058**	**$0**
2059	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.054**	**$0**
2060	-1,100	0	1,100		$0		0	0		$0			0		$0	**$0**	**0.051**	**$0**
																Total Present Value of Discounted Benefits over Project Life (Monetized Benefits):		$0
																Project Allocation:		100.0%
																Total Present Value of Discounted Benefits (Monetized Benefits):		**$0**

APPENDIX M

Water and Energy Efficiency in the School and Hotel/Motel Sectors – West Basin Municipal Water District

Table 8.M.1 - Water Quality and Other Expected Benefits (2009 dollars)

Project: Water and Energy Efficiency in the Schools and Hotel/Motel Sectors

	(b) Type of Benefit: Avoided Sanitation Costs (C) Measure of Benefit [Unit]: Acre-feet per year [not monetized]					(b) Type of Benefit: Reduction in ocean discharges (C) Measure of Benefit [Unit]: [qualitative]					(b) Type of Benefit: Avoided Power Costs (Shower Heads-Electric) (C) Measure of Benefit [Unit]: # shower heads					(b) Type of Benefit: Avoided Power Costs (Shower Heads-Gas) (C) Measure of Benefit [Unit]: # shower heads					(b) Type of Benefit: Avoided Power Costs (Aerators-Gas) (C) Measure of Benefit [Unit]: # aerators					(b) Type of Benefit: Avoided Power Costs (Aerators-Electric) (C) Measure of Benefit [Unit]: # aerators					(b) Type of Benefit: Avoided Power Costs (Conveyance) (C) Measure of Benefit [Unit]: KWH per year					Discounting Calculations for Economic Benefits		
(a) Year	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(d) Without Project	(e) With Project	(f) Change Resulting from Project [e - d]	(g) Unit $ Value	(h) Annual $ Value [f x g]	(h) Total Annual Benefits ($)	(i) Discount Value	(j) Discounted Benefits [h x i]
2009			0.0		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0			0		$0	**$0**	**1.000**	**$0**
2010			0.0		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0			0		$0	**$0**	**0.943**	**$0**
2011			0.0		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0			0		$0	**$0**	**0.890**	**$0**
2012	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.840**	**$163,330**
2013	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.792**	**$153,996**
2014	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.747**	**$145,247**
2015	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.705**	**$137,080**
2016	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.665**	**$129,303**
2017	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.627**	**$121,914**
2018	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.592**	**$115,108**
2019	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.558**	**$108,498**
2020	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.527**	**$102,470**
2021	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.497**	**$96,637**
2022	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.469**	**$91,192**
2023	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.442**	**$85,942**
2024	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.417**	**$81,081**
2025	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.390**	**$75,832**
2026	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.371**	**$72,137**
2027	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.350**	**$68,054**
2028	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.331**	**$64,360**
2029	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.312**	**$60,665**
2030	-82.0	0.0	82.0		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.294**	**$57,165**
2031	-79.3	0.0	79.3		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.278**	**$54,054**
2032	-76.5	0.0	76.5		$0			0.0		$0	0	200	200	$50	$10,000	0	200	200	$15	$3,000	0	1,800	1,800	$58.40	$105,120	0	1,800	1,800	$42.40	$76,320	-347,687	0	347,687		$0	**$194,440**	**0.262**	**$50,943**
2033	-73.8	0.0	73.8		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.247**	**$0**
2034	-71.1	0.0	71.1		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.233**	**$0**
2035	-68.3	0.0	68.3		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.220**	**$0**
2036	-65.6	0.0	65.6		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.207**	**$0**
2037	-62.9	0.0	62.9		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.196**	**$0**
2038	-60.1	0.0	60.1		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.185**	**$0**
2039	-57.4	0.0	57.4		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.174**	**$0**
2040	-54.7	0.0	54.7		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.164**	**$0**
2041	-51.9	0.0	51.9		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.155**	**$0**
2042	-49.2	0.0	49.2		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.146**	**$0**
2043	-46.5	0.0	46.5		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.138**	**$0**
2044	-43.7	0.0	43.7		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.130**	**$0**
2045	-41.0	0.0	41.0		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.123**	**$0**
2046	-38.3	0.0	38.3		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.116**	**$0**
2047	-35.5	0.0	35.5		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.109**	**$0**
2048	-32.8	0.0	32.8		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.103**	**$0**
2049	-30.1	0.0	30.1		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.097**	**$0**
2050	-27.3	0.0	27.3		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.092**	**$0**
2051	-24.6	0.0	24.6		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.087**	**$0**
2052	-21.9	0.0	21.9		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.082**	**$0**
2053	-19.1	0.0	19.1		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.077**	**$0**
2054	-16.4	0.0	16.4		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.073**	**$0**
2055	-13.7	0.0	13.7		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.069**	**$0**
2056	-10.9	0.0	10.9		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.065**	**$0**
2057	-8.2	0.0	8.2		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.061**	**$0**
2058	-5.5	0.0	5.5		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.058**	**$0**
2059	-2.7	0.0	2.7		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.054**	**$0**
2060	0.0	0.0	0.0		$0			0.0		$0			0		$0			0		$0			0		$0			0		$0					$0	**$0**	**0.051**	**$0**

Total Present Value of Discounted Benefits over Project Life (Monetized Benefits): $2,035,009

Project Allocation: 100.0%

Total Present Value of Discounted Benefits (Monetized Benefits): **$2,035,009**

Avoided Sanitation Costs	Reduction in ocean discharges	Avoided Power Costs (Shower Heads-Electric)	Avoided Power Costs (Shower Heads-Gas)	Avoided Power Costs (Aerators-Gas)	Avoided Power Costs (Aerators-Electric)	Avoided Power Costs (Conveyance)
Narrative description of benefits: The reduction in water use results in avoided sanitation costs. Most of the sites have septic systems so the reduction in water use will reduce operations and maintenance costs to the individual septic systems, although the calculation is based on costs to the LA County Sanitation District and is representative of sewer system costs.	Narrative description of benefits: The constituents detected at Malibu beaches come from a combination of sources including septic systems, dry and wet weather runoff from landscapes and streets that drain into Malibu Creek, and other water ways that flow out into the ocean. The project will decrease the levels of excess landscape irrigation and runoff as well as reduce flows leaching through septic systems in the project area.	Narrative description of benefits: These estimates are provided directly from Southern California Edison's Flex Your Power Program. The calculations are in the referenced documentation.	Narrative description of benefits: These estimates are provided directly from Southern California Edison's Flex Your Power Program and are shown for showerheads, but the gallons per minute (gpm) usage is the same for both devices. The calculations are in the referenced documentation.	Narrative description of benefits: These estimates are provided directly from Southern California Edison's Flex Your Power Program and are shown for showerheads, but the gallons per minute (gpm) usage is the same for both devices. The calculations are in the referenced documentation.	Narrative description of benefits: These estimates are provided directly from Southern California Edison's Flex Your Power Program and are shown for showerheads, but the gallons per minute (gpm) usage is the same for both devices. The calculations are in the referenced documentation.	Narrative description of benefits: It takes 13,022kWh/million gallons to convey water to Southern California. Monetized benefits included in water supply benefist (MWD rates include cost to convey water)