

Other Expected Benefits

This Proposal provides a number of benefits in addition to the water supply and water quality benefits described in Attachment 10. These other expected benefits will help the Region meet specific objectives established in the IRWM Plan, such as conserving and restoring native habitat and managing public open spaces to reduce the risk of wildland fires. The complete list of objectives is provided in Chapter 3 of the Draft IRWM Plan.

Table 11-1 summarizes the “physical” benefits associated with the 13 projects and present value associated with the benefits that could be monetized.

Table 11-1: Other Expected Benefits and Present Value

Type of Benefit	# of Projects	Physical Benefits	Present Value ¹
Wetland Habitat Restoration	4	29 acres	\$30,867,612
Riparian Habitat Restoration	5	63.5 acres	
Open Space / Visual Improvement	5	30.5 acres	
Flood Protection (New Storage)	2	5,730 afy	-
Recreational Opportunities	5	30.5 acres	
Educational Opportunities	4	3 Area; 60 Classes; 17 Demo Gardens	-
Disadvantaged Communities	6	Various benefits	-
Reduced Energy Use	6	65.9 Million kWh per year	-
<p>1. See Table D-1 (Attachment 11-A). Generally, services to people, such as recreational opportunities, flood control protection, and increased property values can be economically quantified. Benefits that are not directly affecting people, such as improved ecological functions that do not improve recreational opportunities, are more difficult to assess in a monetary metric and was not quantified economically in this Proposal.</p>			

The following sections specifically discuss for each project:

- Other Benefits (other than water supply and water quality benefits)
- Most Likely Alternative
- Monetary Benefits – The IRWM Plan Benefits Assessment Framework (Attachment 10-A) identifies unit value benefit estimates that were used in assessing benefits in this Proposal. **Table 11-2** identifies the major benefit types, the benefit estimate source, the monetary value, and the relevant section in the Benefits Assessment Framework.

Table 11-2: Benefits Assessment Framework Summary for Other Benefits

Section	Benefit Type	Benefit Estimate Source	Monetary Value
Sec. 5.4: Recreation	Parkland, Bird Watching	Varies from Economic Literature	\$1,597 per acre
Sec. 5.5: Aesthetic Services	Improved Natural Areas	Willingness to pay	\$26,188 per acre
Sec. 5.6 Flood Control	Avoided Damages	LA County Model & USACE	-

Energy use reductions will also be realized with decreases in imported water use. The cost of energy is already accounted for in the cost of different water sources; however, reduced energy use benefits the State by reducing demand on a stressed energy grid. As discussed in Attachment 10, imported water comes from three sources: 1) State Water Project / Bay Delta (55% of imported water); 2) Colorado River Aqueduct (36%); and 3) Los Angeles Aqueduct (9%). The energy intensity required to transport these water sources from the Bay Delta and the Colorado River are 2,580 kWh/af and 2,000 kWh/af, respectively (Attachment 11-B; pp. 34 and 44). As a result, 1 af reduction in imported water use results in a reduction of 2,140 kWh [on average; $(2,580 * 55\% + 2,000 * 36\%)$]. This value will be applied to all projects that offset the use of imported water.

1. Central Basin Southeast Water Reliability Project

Other Expected Benefits

Other Benefits

- **Disadvantaged Communities** – This project benefits potable water users within the Central Basin Recycled Water Service Area since the project results in a decreased demand for potable water as well as decreased cost of service. Of the project areas that use potable water, 16 cities are considered disadvantaged and include a population of 786,202. See Figure 5-3 in Attachment 5 for a map of the cities in the Central Basin service area that are considered disadvantaged.
- **Energy Savings** – Reduction in need for 16,000 afy of imported water reduces energy use by 34.24 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

Project benefits will be realized upon recycled water delivery of 13,500 afy in 2008, while delivery of 2,500 afy will occur 3 years later in 2011.

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is continued use of existing water supplies, which include imported water and groundwater. Under this scenario, disadvantage communities would lose the project water supply benefits.

Monetary Benefits

The project other benefits cannot be monetized based on available information.

2. JWPCP Marshland Enhancement Project

Other Expected Benefits

Other Benefits

- **Marshland Habitat Restoration** – The project will restore and enhance the JWPCP marshland, including 17 acres of marshland and related habitats (riparian, open water, scrub, meadow and upland). The restoration includes removal of non-native (noxious, invasive) vegetation and introduction of habitats not formerly available at the site (open water and meadow). It is anticipated that the following objectives will be achieved: 80% plant survival rate for Year 1 and 100% plant survival rate for Year 2; 75% coverage after Year 3 and 90% coverage after Year 5; non-native plants reduction to less than 15% coverage; 100% removal of eucalyptus and palm trees. Since 95% of the original wetlands in California have been destroyed, every remaining wetlands area is vitally important. This benefit will provide benefits locally, regionally, and statewide.
- **Wildlife Protection** – The restored and enhanced marshland will be better able to support wildlife and may become a viable stopover for the Pacific flyway. This benefit will provide benefits locally, regionally, and statewide.
- **Recreational Opportunities**- Similarly, Pacific flyaway stopover creates bird watching recreational opportunities. This benefit will provide benefits locally and regionally.
- **Flood Protection** – The project will provide 8.8 af of new water storage for flood protection. This benefit will provide benefits locally.
- **Educational Area** – An education and viewing area will be added at the site, allowing public access by local schools, clubs, and residents to this area that was formerly closed to the public. Educational opportunities will be served by educational placards documenting marshland plants and wildlife, while recreational opportunities will be provided by trails and observation areas where bird watching can be done. Since this site is very close to a disadvantaged area, it can be assumed that these benefits will also be applicable to school children and residents of this area. This benefit will provide benefits locally and regionally.
- **Demonstration of recycled products use** – Recycled construction materials include eucalyptus logs, plastic lumber, and recycled materials [300 feet of eucalyptus logs (see Non-Native Species Removal) for educational pavilions; 1,200 square feet of plastic lumber for walkways; 3 benches from recycled material; 3 trash receptacles from recycled material]. The use of these recycled materials will conserve the water it would take to produce the lumber that would otherwise be used. Eucalyptus logs will be used for the shade pavilions, plastic lumber will be used for the boardwalks, and recycled materials will be used for the benches and trash receptacles at the education and viewing area. The use of these recycled materials will conserve the water it would take to produce the lumber that would otherwise be used. This benefit will provide benefits locally, regionally, and statewide.

Regional Benefit

Creates 17 Acres of Marshland in Industrial Setting & Disadvantage Communities

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is construction of additional wastewater treatment facilities on the site. This alternative would result in high environmental cost impacts due to the loss of all benefits identified above. Seventeen acres of marshland, riparian, upland, and wildlife habitat would be lost if wastewater facilities were constructed on the site and this would reduce the already decimated total of wetlands areas in existence in Los Angeles County. It would also eliminate one more potential stop over area for birds using the Pacific flyway and any flood protection benefits.

2. JWPCP Marshland Enhancement Project

Monetary Benefits

Monetized benefits for wetlands and aesthetic services are \$1,597 per acre and \$26,188 per acre. Compared with the most likely alternative, the proposed project creates an additional 17 acres of wetlands and aesthetic services. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

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

Other Benefits

- Regional Benefit
Educational Program Provides Grassroots Conservation Benefits

 ■ **Education: Demonstration Ocean-Friendly Gardens** – The “Ocean Friendly Gardens” program will educate the public and local governments on the water conservation and water quality benefits of drought resistant landscaping and water-saving irrigation devices and practices. 17 demonstration gardens are planned. This benefit will provide benefits locally.
- **Education: Native Landscape Classes** – 61 landscape and native plant landscape classes will be held in the Region will be scheduled upon award of contract. Those who participate in the program will help the environment and also receive direct benefits. Through the landscape classes, Central Basin Municipal Water District will disseminate information about the water supply and water quality issues associated with urban runoff throughout the Region. Also, by providing landscape classes and rebates for residential controllers, this project will motivate the public to install weather-based irrigation controllers and drip irrigation, in addition to planting native plants. Each of these measures will contribute to conserving water, thus increasing water supply reliability and reducing runoff. This benefit will provide benefits locally.
- **Disadvantaged Communities** – This project benefits potable water users within the Region since the project results in a decreased demand for potable water and educational opportunities. Of the areas that will be involved in this project, 22 are considered disadvantaged. See Figure 5-7 for a map of the cities in the project area that are considered disadvantaged.
- **Regional Benefits** - This project is the only project in this suite of projects that spans across three sub-regions within the Greater Los Angeles County region: North Santa Monica Bay, South Bay, and San Gabriel and Lower Los Angeles Rivers. It provides regional benefits beyond the other projects including reduced runoff into the local rivers and streams, potable water conservation, and providing education to the residents and businesses.
- **Partnerships** – The project will reinforce partnerships between water supply agencies, MWD and the Surfrider Foundation.
- **Energy Savings** – Reduction in need for 1,625 afy of imported water reduces energy use by 3.48 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no-project. Under this scenario, all other benefits identified above will be lost.

Monetary Benefits

The project other benefits cannot be monetized based on available information.

4. Las Virgenes Creek Restoration Project

Other Expected Benefits

Other Benefits

- **Creek and Riparian Habitat Restoration** – The project will restore ½ acre (along 400 linear feet) of streambed and riparian habitat that was covered with concrete in 1977. Also, the project will re-connect natural habitat upstream and downstream of the concrete segment and will improve the overall environment and habitat of the Las Virgenes Creek. This is the first reach of concrete channel to be targeted for removal in this creek, leading the way toward the future vision of restoring the entire length of the Las Virgenes Creek (7 miles). This benefit will provide benefits locally, regionally, and statewide.
- **Wildlife Protection** – The concrete removal and planting of native vegetation will restore the riparian habitat and tree canopy required for native habitat and ecosystems for wildlife to flourish and travel. The restoration will re-establish direct connectivity between the two existing wildlife and riparian communities to the north and south of the concrete segment and provide an alternative route for wildlife to pass under the 101 Freeway. In addition, the Malibu Creek Watershed provides habitat for Southern Steelhead Trout and their southern-most continuous annual run on the West Coast. The watershed also provides habitat for arroyo chub, southwestern pond turtle, California slender salamander, California newt, Arroyo toad, Pacific tree frog, American goldfinches, black phoebes, warbling vireos, song sparrows, belted kingfishers, raccoons, ring tailed cats, wrentits, bushtits, California towhees, California thrashers, bobcats, western fence lizards, rattlesnakes, various raptors, coyotes and mountain lions. This benefit will provide benefits locally, regionally, and statewide.
- **Public Outreach and Education** – The project includes a gazebo overlook that will be a public interface with storyboards educating visitors about water resource issues. Messages regarding the importance of water conservation and information on local water use reduction programs will be included in the sign program. This benefit will provide benefits locally and regionally.
- **Recreation and Aesthetic Services** – The project will restore ½ acre (along 400 linear feet) of streambed and riparian habitat that was covered with concrete. The restoration will provide new opportunities for wildlife watching and re-establish natural open space. This benefit will provide benefits locally and regionally.

Regional Benefit

First concrete channel removal project in Las Virgenes Creek

Project benefits will be realized upon completion of project construction in November 2007.

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no-project. Under this scenario, all other identified above would be lost. As a result, the watershed would remain concrete channel that provides no habitat or safe fish and wildlife passage.

In addition, the most likely alternative may cause neighboring agencies to view the re-naturalization approach to urban creeks as infeasible and that urbanized creek systems should remain.

Monetary Benefits

The project other benefits cannot be monetized based on available information.

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

Other Expected Benefits

Other Benefits

- **Habitat Restoration** – The project will reduce non-native flows to Malibu Creek and Malibu Lagoon by 350 afy, which is equivalent to twice the volume of Malibu Lagoon based on bathymetric data. The reduction of non-native flow into the lagoon will reduce the likelihood of aseasonal lagoon breaching, identified as a source of elevated bacteria levels at Surfrider Beach by the LARWQCB. Reduction of non-native flows is identified as a priority by both the Santa Monica Bay Restoration Commission Watershed Council and the Malibu Creek Executive Advisory Council.
- **Reduced O&M Costs** – Indoor water using appliance retrofits will similarly reduce inflows to the Tapia Treatment Plant, which treats approximately 10 mgd. This reduction in flow will reduce daily operational costs and delays the need for plant expansion in the future. However, reliable information to quantify the avoided cost is not available as part of Proposal submittal.
- **Energy Savings** – Reduction in need for 350 afy of imported water reduces energy use by 0.75 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

Project benefits will be realized upon completion of project construction in 2009.

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is the installation of stormwater collection and treatment devices to address water quality concerns, particularly the TMDL constituents: bacteria and nutrients. This scenario would not address non-native flows in Malibu Creek, a priority action item for the watershed, or treatment plant flows so all 'other' benefits would be lost.

Monetary Benefits

The project other benefits cannot be monetized based on available information.

6. Morris Dam Water Supply Enhancement Project

Other Expected Benefits

Other Benefits

- **Flood Protection** – The project will improve flood protection for the downstream communities. Due to the increased effective capacity of the reservoir, it will be capable of capturing more peak runoff during a storm event, which helps prevent flooding in the downstream communities. This project will ensure reliability of the river outlet valves for flood management, while still providing the same level of protection. Currently, LACFCD maintains a 9,720 acre-foot pool of water behind the dam to protect the outlet valves from damage or mis-operation from river flows with high sediment loads. This project will enable the required pool storage to be reduced to 4,000 acre-feet with the proposed modifications and increase the effective storage by 5,720 acre-feet. The modifications are necessary to safeguard the dam against anticipated sediment encroachment resulting from the lower minimum pool. This benefit will provide benefits locally.
- **Energy Savings** – Reduction in need for 5,720 afy of imported water reduces energy use by 12.24 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is imported water acquisition. In this scenario, baseline conditions would remain and all flood control benefits described above would be lost.

Monetary Benefits

The project flood control benefits cannot be monetized based on available information.

7. North Atwater Creek Restoration Project

Other Expected Benefits

Other Benefits

- **Wetland Habitat Restoration** – The project will create 2 acres of wetland habitat. This benefit will provide benefits locally, regionally, and statewide.
- **Recreational Opportunities / Aesthetic Services** – The project will enhance an existing 5 acre park with the restoration of a stream and wetland park. This benefit will provide benefits locally and regionally.
- **Disadvantaged Communities** – The project will provide the disadvantaged community of Atwater Village (within Los Angeles, CA) which is an 8,042 person community.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no-project. Under this scenario, all other identified above would be lost. As a result, the disadvantaged community of Atwater Village would also lose these benefits.

Monetary Benefits

Monetized benefits for wetlands and aesthetic services are \$1,597 per acre and \$26,188 per acre. Compared with the most likely alternative, the proposed project creates an additional 2 acres of wetlands and restores 5 acres of open space (aesthetic services). This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining benefits due to lack of information.

8. Pacoima Wash Greenway Project: 8th Street Park

Other Expected Benefits

Other Benefits

- **Habitat Creation** – The project will create a crucial native habitat node along the proposed greenway and an important regional riparian corridor with 2 acres of upland habitat, 400 feet of ephemeral stream and 1 acre of Coast live oak riparian woodland. This benefit will provide benefits locally, regionally, and statewide.
- **Flood Protection** – The project will reduce flood risks by preventing a substantial urban surface area of 33 acres to be drained directly into Pacoima Wash, thereby reducing peak flows in the Wash. This benefit will provide benefits locally.
- **Recreational Opportunities and Aesthetic Benefits**– The project will provide: new public access to recreational opportunities, connection to new and existing city and county bikeways, enhance public interest in rivers and washes, implementation of the Pacoima Wash Greenway, and enhancement of the quality of life of local residents. This will also increase the use and awareness of Pacoima Wash and its use as a regional link to the Angeles National Forest. This benefit will provide benefits locally and regionally.
- **Disadvantaged Communities** – Pacoima Wash flows through the communities of San Fernando, Pacoima, Sylmar and Arleta. Currently the public perception of Pacoima Wash is of an unsafe, neglected place frequented by homeless, and the site of illegal activities (Pacoima Wash Greenway Master Plan, 2004 p.7). The project will provide 3 acres of new open space that will benefit not only the community of City of San Fernando, but also the Northeast San Fernando Valley including Pacoima, Sylmar, and Arleta. The areas include some of the most crowded and impoverished inner-city areas in the country. These communities lack adequate parklands and recreational space for these densely populated areas, especially considering the high number of youth under the age of eighteen that reside in these areas. Providing open space within a residential area is vital to the communities and will contribute to the quality of life.

The are four primary communities that are in the area of the project and along the Pacoima Wash, San Fernando, Pacoima, Arleta and Sylmar. The community of San Fernando has a population of approximately 23,000 people of which 4,600 are below the poverty line. Pacoima community has a population of approximately 57,000 of which 12,414 are below the poverty line. The community of Arleta has a population of approximately 34,000 and 6,536 people live below the poverty line. The community of Sylmar has a population of approximately 64,000 and 8,176 people living below the poverty line.

- **Education** – This project will provide educational opportunities that incorporate and promote educational and interpretive materials regarding the natural infiltration system, water conservation, and watershed and habitat restoration. The project will serve as a pilot project for stormwater runoff management and demonstrate good public use of flood control channels in this major metropolitan area. Encouragement of public participation in the restoration activities will also serve to continue project momentum and promote community pride. The project and the collective Greenway vision will increase the use and awareness of Pacoima Wash and its position as a regional link to the Angeles National Forest. This benefit will provide benefits locally and regionally.
- **Alternative Transportation** – This project as a component of the Pacoima Wash Greenway will provide new routes and linkages to existing city, county and regional bike paths that will provide alternative modes of transportation to residents that heavily rely on public transportation and bicycling in their daily commutes. Additionally, this will work to elevate demands on congested highways and city roads by providing alternatives (Attachment 8, Reference 1, p. 8). This benefit will provide benefits locally, regionally, and statewide.

8. Pacoima Wash Greenway: 8th Street Park

- **Energy Savings** – Reduction in need for 10 afy of imported water reduces energy use by 21,400 kWh per year. This benefit will provide benefits locally, regionally, and statewide.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no-project. Under the most likely alternative, all the benefits listed above would be lost.

Monetary Benefits

Monetized benefits for parkland recreation and improved natural areas (aesthetic services) are \$1,597 per acre and \$26,188 per acre, respectively. Compared with the most likely alternative, the proposed project creates an additional 3 acres of habitat / open space. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining benefits due to lack of information.

9. San Gabriel Valley Riparian Habitat Arundo Removal Project

Other Expected Benefits

Other Benefits

- **Riparian Habitat Restoration** – The project will restore 3 miles (36 acres) of San Gabriel River riparian habitat in three distinct areas within Whittier Narrows basin by removing *Arundo* from 24 net acres. This benefit will provide benefits locally, regionally, and statewide.
- **Riparian Habitat Protection** – The project will prevent future expansion of *Arundo* in the 120 acres that are currently *Arundo*-free. The project will also reduce the threat of destructive wildfire where *Arundo* are present. This benefit will provide benefits locally, regionally, and statewide.
- **Recreation** – The project will enhance recreational visitor accessibility to Whittier Narrows Recreation Area. All 3 project areas are visited by equestrian riders, and in places their trails are currently being or will be gradually closed by *Arundo* growth forcing them to establish new trails through areas that previously were inaccessible. The project will therefore benefit these equestrian riders. This benefit will provide benefits locally and regionally.
- **Energy Savings** – Reduction in need for 90 afy of imported water reduces energy use by 0.19 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

Regional Benefit

Complete *Arundo* Removal
in San Gabriel Valley

Project other benefits will be realized over 5 years, starting upon implementation completion in 2008 and reaching full benefits by 2012 due to establishment of native species. These benefits will realized indefinitely (50 years) after 2012.

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no-project. Under this scenario, riparian habitat restoration and recreation benefits would be lost. An additional 120 acres of riparian habitat would be lost as existing populations of *Arundo* at Whittier Narrows expand and spread to infest riparian habitat. Finally, the threat of destructive *Arundo*-fueled wildfires would not be removed and may increase due to *Arundo* expansion.

Monetary Benefits

Monetized benefits for parkland recreation and improved natural areas (aesthetic services) are \$1,597 per acre and \$26,188 per acre, respectively. Compared with the most likely alternative, the proposed project improves 36 acres of habitat / open space. Only 66% of the acreage is included in the calculation since *Arundo* removal accounts for 24 acres of the project. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining benefits due to lack of information.

10. Solstice Creek Southern Steelhead Habitat Restoration

Other Expected Benefits

Other Benefits

- **Creek Habitat Restoration** – 1.5 miles of Solstice Creek will be restored as steelhead habitat through the removal of in-stream barriers to fish passage, removal of non-native species, and improved water clarity. This habitat enhancement will benefit the federally endangered Southern Steelhead Trout. This benefit will provide benefits locally, regionally, and statewide.
- | |
|--|
| Regional Benefit |
| Complete Solstice Creek Steelhead Restoration Plan |
- **Riparian Habitat Restoration** – Coastal ecosystems will be improved through the restoration of 16 acres of riparian habitat adjacent to Solstice Creek. Within this area non-native species will be removed. This habitat restoration will benefit wildlife through improved habitat quality. The 0.2 miles of Solstice Creek below the project area (from the NPS boundary to the Santa Monica Bay) will be protected from non-native species infestation through the removal of up-stream non-native species. This habitat protection will therefore benefit wildlife outside of the project area by protecting riparian habitat. This benefit will provide benefits locally, regionally, and statewide.
 - **Recreation and Aesthetic Services** – The project will restore 18 acres (1.5 miles) of riparian habitat. The restoration will provide new opportunities for wildlife watching and re-establish natural open space. This benefit will provide benefits locally and regionally.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is that final three (of eight) components of the Solstice Creek Steelhead Restoration Plan would not be implemented. Under the most likely alternative, endangered Southern Steelhead Trout would continue to have insufficient habitat and the value of the previous five restoration components would be diminished without the final components.

In addition, the riparian ecosystem quality would also continue to decline due to the spread of non-native species and the concomitant negative impacts on habitat quality (including erosion and sediment inputs). These species reduce habitat quality for all species, including Southern Steelhead Trout. Non-native plant species can increase erosion, decrease stream shading, increase stream temperatures (due to lack of shade) and interrupt terrestrial and aquatic food webs. If these adjacent areas are not restored, non-native species will spread along the creek and will undermine the habitat improvements gained by barrier removal.

Monetary Benefits

Monetized benefits for parkland recreation and improved natural areas (aesthetic services) are \$1,597 per acre and \$26,188 per acre, respectively. Compared with the most likely alternative, the proposed project improves 16 acres of habitat / open space. Only 50% of the acreage is included in the calculation since the project site is being improved from current conditions. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining other project benefits due to lack of information.

11. South Los Angeles Wetlands Park Project

Other Expected Benefits

Other Benefits

- **Habitat Restoration**– The project will restore 5 acres of native habitat of the LA River (including deep and shallow marshes, open pools of water, riparian woodlands, and native upland grassland habitats). This restored habitat will be populated with native Californian vegetation, colonized by wildlife, and would benefit the indigenous and migratory species. The benefits will be fully realized over a 5-year timeframe as the wetland and other habitat vegetation matures.
- **Passive Recreation/Active Recreation** – The Wetlands Park will be used for both passive and active recreational activities, such as walking and cycling, and nature study, photography and bird-watching. The open green space will be utilized immediately after installation. It will reduce the amount of recreation in other densely populated areas by creating an additional space for use.
- **Open Green Space/Visual Improvement** – The replacement of the existing industrial landscape with an open natural landscape of plants and water will create an urban oasis.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is no project. This alternative would result in the non-attainment of TMDL targets. This alternative would likely not be acceptable to the community as there already is a lack of green space in the area. A green park could be built as a mitigation measure to create open green space for the disadvantaged community.

Monetary Benefits

Monetized benefits for parkland recreation and improved natural areas (aesthetic services) are \$1,597 per acre and \$26,188 per acre, respectively. Compared with the most likely alternative, the proposed project improves 5 acres of habitat / open space. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining benefits due to lack of information.

12. Whittier Narrows Water Reclamation Plant UV Disinfection Facilities Project

Other Expected Benefits

Other Benefits

- **Research Application** – Research performed by LACSD, Trojan and Carollo Engineers (who acted as the required third party during validation studies), and which was performed in conjunction with this project, will benefit the wastewater profession and the UV technology. Although dual barrier systems have been utilized for drinking water, the use of these systems for wastewater has been limited, even though tertiary treated Title 22 water requires compliance with drinking water standards. This project design addresses the difficult and emerging issues of disinfection byproducts (NDMA) and disinfection (adenovirus inactivation by free chlorine in conjunction with UV), while also sponsoring the development of UV systems that are more cost efficient. While it is difficult to quantify the cost savings of these benefits, it is the District's intention to use the lessons learned at the WN WRP facility to set the course of disinfection at other plants. This benefit will provide benefits locally, regionally, and statewide.
- **Partnerships** – The region, state and nation are struggling with the issue of NDMA and other disinfection byproducts. LACSD have been directed to proceed with this project by the Los Angeles RWQCB, which is reflected in the NPDES permits for the Districts' San Jose Creek and Pomona Water Reclamation Plants, which discharge to the same receiving waters and spreading grounds as the WNWRP. The WNWRP UV Disinfection Facilities Project reflects a cooperative approach among agencies and regulators to engineer a workable solution for the delicate balance of providing disinfection from waterborne pathogens, while continuing to protect the public health from disinfection byproducts. The EPA will benefit because the groundwater around the Whittier Narrows Operating Unit will be less affected by NDMA, as well as the ultimate users of that water.
- **Habitat Enhancement** – The project will improve the quality of the water discharged to the Rio Hondo and San Gabriel River. The level of NDMA will be decreased in the effluent that is directed to these receiving waters. In addition, the level of the nutrient ammonia will also be reduced, so that it will not foster detrimental algae growth. Since ammonia is toxic to aquatic species, its reduction will thereby enhance the downstream habitat. The project will preserve the discharge of this water in the region, in which the streams are ephemeral and often effluent-dominated most of the year. This benefit will provide benefits locally, regionally, and statewide.
- **Disadvantaged Communities** – This project improves the water quality of reclaimed water used to replenish the Central Groundwater Basin and guarantee the durability of the recharge project. This project thereby improves the water supply reliability and cost benefit for 1.6 million people in 68 communities, 17 of which are disadvantaged communities, rely on the Central Basin for drinking water supply.
- **Energy Savings** – Reduction in need for 7,000 afy of imported water reduces energy use by 14.98 million kWh per year. This benefit will provide benefits locally, regionally, and statewide.

Project benefits will be realized upon project construction completion in June 2008 and will be realized for 30 years.

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative is to shut down the WN WRP entirely and divert flow to the JWPCP, treat to secondary treatment standards, and discharge to the ocean.

Negative benefits of the diverting flow from the most likely alternative include:

12. Whittier Narrows Water Reclamation Plant UV Disinfection Facilities Project

- Does not address the (regional and universal) dilemma of disinfection byproducts (NDMA, THM's, etc.)
- Costs associated with the reuse pump station construction effort would have no associated benefit
- Increased likelihood of flooding and sanitary sewer overflows
- Loss of sewer value to divert potentially stronger industrial wastes and total dissolved solids.
- Loss of WN WRP capital investment
- Loss of riparian habitat effluent along the effluent dominated reach of the Rio Hondo
- Loss of WN WRP as a full scale wastewater research facility (which continues with the implementation of the subject UV project)

Monetary Benefits

The project other benefits cannot be monetized based on available information.

13. Wilmington Drain Restoration Multiuse Project

Other Expected Benefits

Other Benefits

- **Wetland and Riparian Habitat Restoration** – The project will restore 5 acres of wetland habitat and 8 acres of riparian habitat, which will not only benefit water quality as discussed in Attachment 10, but also provide enhanced habitat for wildlife.
- **Recreational Opportunities** – This project will create a 13-acre public park along the downstream end of the Wilmington Drain.
- **Disadvantaged Communities** – The project will provide recreational benefits for the local disadvantaged communities of Harbor City and Wilmington.

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

Most Likely Alternative

As discussed in Attachment 10, the most likely alternative project is no project. The most likely alternative will result in the loss of habitat restoration, recreational opportunities and benefits to disadvantaged communities.

Monetary Benefits

Monetized benefits for parkland recreation and improved natural areas (aesthetic services) are \$1,597 per acre and \$26,188 per acre, respectively. Compared with the most likely alternative, the proposed project improves 13 acres of habitat / open space. This is included in Table D-1 (Appendix 11-A), which calculates the total present value of discounted 'other' benefits costs for the Proposal.

Monetary value cannot be assigned to the remaining benefits due to lack of information.

Appendix 11-A:

Table D-1

Proposal for Greater Los Angeles County Region

Table D-1. Other Expected Benefits
(All benefits should be in 2005 dollars)

(a)	(b)	(c)	(d)	(e)	(f)	(b)	(c)	(d)	(e)	(f)
YEAR	Benefit: _Improved Natural Areas_					Benefit: _Recreation / Parklands_				
	Measure of Benefit: _acres_			Complete these 2 columns if claiming \$ Value for the Benefit		Measure of Benefit: _acres_			Complete these 2 columns if claiming \$ Value for the Benefit	
	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	Unit \$ Value	Annual \$ Value (d x e)	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	Unit \$ Value	Annual \$ Value (d x e)
2006			0	\$ 26,188	\$ -			0	\$ 1,597	\$ -
2007			0	\$ 26,188	\$ -			0	\$ 1,597	\$ -
2008	0	7	7	\$ 26,188	\$ 189,863	0	7	7	\$ 1,597	\$ 11,578
2009	0	35	35	\$ 26,188	\$ 903,486	0	35	35	\$ 1,597	\$ 55,097
2010	0	39	39	\$ 26,188	\$ 1,014,785	0	39	39	\$ 1,597	\$ 61,884
2011	0	43	43	\$ 26,188	\$ 1,126,084	0	43	43	\$ 1,597	\$ 68,671
2012	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2013	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2014	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2015	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2016	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2017	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2018	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2019	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2020	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2021	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2022	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2023	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2024	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2025	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2026	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2027	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2028	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2029	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2030	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2031	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2032	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2033	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2034	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2035	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2036	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2037	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2038	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2039	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2040	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2041	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2042	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2043	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2044	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2045	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2046	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2047	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2048	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2049	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2050	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2051	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2052	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2053	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2054	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671
2055	0	97	97	\$ 26,188	\$ 2,540,236	0	43	43	\$ 1,597	\$ 68,671

2. JWPCP Marshland Project: 2008-2013: 3.4 ac to 17 ac; 2013-2062: 17 ac
 7. North Atwater Creek Project: 2009-2058: 5 ac
 8. Pacoima Wash Greenway Project: 2008-2057: 3 ac
 9. San Gabriel Valley Arundo Project: 2012-2051: 36 ac
 10. Solstice Creek Project: 2012-2051: 18 ac
 11. South LA Wetland Park: 2009-2058: 5 ac
 13. Wilmington Drain Project: 2009-2058: 13 ac

2. JWPCP Marshland Project: 2008-2013: 3.4 ac to 17 ac; 2013-2062: 17 ac
 7. North Atwater Creek Project: 2009-2058: 5 ac
 8. Pacoima Wash Greenway Project: 2008-2057: 3 ac
 11. South LA Wetland Park: 2009-2058: 5 ac
 13. Wilmington Drain Project: 2009-2058: 13 ac

Proposal for Greater Los Angeles County Region

Table D-1. Other Expected Benefits (All benefits should be in 2005 dollars)													
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	
YEAR	Benefit: _Flood Protection - New Storage_			Benefit: _Reduction in Energy Use_			Complete these columns if claiming economic benefits based on dollar value .						
	Measure of Benefit: _acre-feet_			x		Measure of Benefit: _kWh_			x		Discounting Calculations for Economic Benefits (If claiming \$ Value for the Benefit)		
	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	x	x	Without Proposal	With Proposal	Change Resulting from Proposal (c - b)	x	x	Total Benefits (Sum of Annual \$ Value for each Benefit)	Discount Factor	Discounted Benefits (g ÷ h)
2006			0					0			\$ -	1.06	\$ -
2007			0					0			\$ -	1.12	\$ -
2008			0				44,739,000	44,739,000			\$ 201,441	1.19	\$ 169,134
2009			0				46,358,000	46,358,000			\$ 958,583	1.26	\$ 759,287
2010	0	5,720	5,720			0	59,468,000	59,468,000			\$ 1,076,669	1.34	\$ 804,550
2011	0	5,720	5,720			0	65,687,000	65,687,000			\$ 1,194,755	1.42	\$ 842,255
2012	0	5,720	5,720			0	65,687,000	65,687,000			\$ 2,608,907	1.50	\$ 1,735,072
2013	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	1.59	\$ 1,636,861
2014	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	1.69	\$ 1,544,208
2015	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	1.79	\$ 1,456,800
2016	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	1.90	\$ 1,374,340
2017	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.01	\$ 1,296,547
2018	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.13	\$ 1,223,157
2019	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.26	\$ 1,153,922
2020	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.40	\$ 1,088,606
2021	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.54	\$ 1,026,987
2022	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.69	\$ 968,855
2023	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	2.85	\$ 914,014
2024	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	3.03	\$ 862,278
2025	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	3.21	\$ 813,470
2026	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	3.40	\$ 767,424
2027	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	3.60	\$ 723,985
2028	0	5,730	5,730			0	65,880,000	65,880,000			\$ 2,608,907	3.82	\$ 683,005
2029	0	5,730	5,730			0	65,131,000	65,131,000			\$ 2,608,907	4.05	\$ 644,344
2030	0	5,730	5,730			0	65,131,000	65,131,000			\$ 2,608,907	4.29	\$ 607,872
2031	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	4.55	\$ 573,464
2032	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	4.82	\$ 541,004
2033	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	5.11	\$ 510,381
2034	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	5.42	\$ 481,491
2035	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	5.74	\$ 454,237
2036	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	6.09	\$ 428,526
2037	0	5,730	5,730			0	61,653,000	61,653,000			\$ 2,608,907	6.45	\$ 404,269
2038	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	6.84	\$ 381,386
2039	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	7.25	\$ 359,798
2040	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	7.69	\$ 339,432
2041	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	8.15	\$ 320,219
2042	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	8.64	\$ 302,094
2043	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	9.15	\$ 284,994
2044	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	9.70	\$ 268,862
2045	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	10.29	\$ 253,644
2046	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	10.90	\$ 239,286
2047	0	5,730	5,730			0	46,673,000	46,673,000			\$ 2,608,907	11.56	\$ 225,742
2048	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	12.25	\$ 212,964
2049	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	12.99	\$ 200,910
2050	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	13.76	\$ 189,537
2051	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	14.59	\$ 178,809
2052	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	15.47	\$ 168,688
2053	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	16.39	\$ 159,139
2054	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	17.38	\$ 150,131
2055	0	5,730	5,730			0	12,433,000	12,433,000			\$ 2,608,907	18.42	\$ 141,633
													...
											Total Present Value of Discounted Benefits Based on Unit Value (Sum of the values in Column (i))	\$ 30,867,612	

2. JWPCP Marshland Project: 2013-2062: 10 afy 6. Morris Dam Enhancement Project: 2010-2059: 5,720 afy	2,140 kWh per af: 1. Central Basin SWRP: 2008-2010: 13,500 afy; 2011- 2047: 16,000 afy 3. Large Landscape Water Conservation Project: 2008 - 2011: 400afy to 1,625 afy; 2011- 2030: 1,625 afy 5. Malibu Creek Watershed Conservation Project: 2009-2028: 350afy 6. Morris Dam Water Supply Project: 2010 - 2059: 5,720 afy
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Appendix 10-B:

IRWM

[Included on CD Only]