

**Supplemental Information Document
Headworks Area Spreading Ground (Headworks) Site
Los Angeles and San Gabriel Rivers Watershed, California**

September 2002

1. STUDY AUTHORITY:

This study is authorized through utilization of the Los Angeles County Drainage Area (LACDA) Review flood control study, Senate Resolution approved 25 June 1969, as referenced in the *Los Angeles River Watercourse Improvement, California, Reconnaissance Study*, January, 1993; and as that report states, specifically reviewing "...the report of the Chief of Engineers on the Los Angeles and San Gabriel Rivers and Ballona Creek, California, published as House Document Number 838, Seventy-sixth Congress, and other pertinent reports, with a view to determining whether any modifications contained therein are advisable at the present time, in the resources in the Los Angeles County Drainage Area."

2. STUDY PURPOSE:

The purpose of this supplemental information document is to determine if there is a Federal interest in conducting a cost-shared feasibility study for improving water conservation, improving flood control, improving water quality, and restoring environmental resources at the Headworks Area Spreading Grounds (Headworks) site in the Los Angeles and San Gabriel Rivers Watershed. The study will seek to address restoration opportunities, and identify measures that balance the need for water conservation with the need to develop and preserve valuable watershed resources. This Supplemental Information Document includes the inventory of problems and opportunities development of a Project Management Plan (PMP) and the execution of a Feasibility Cost Sharing Agreement (FCSA) that are supported by both Federal and non-Federal interests.

3. DESCRIPTION OF STUDY AREA, NON-FEDERAL SPONSOR, AND CONGRESSIONAL DISTRICT:

A.) DESCRIPTION OF STUDY AREA

Headworks Site

The Headworks site is located in the southeastern portion of the San Fernando Valley, in the City of Los Angeles (City), just south of the border with the City of Burbank. It is located on the south bank of the concrete lined Los Angeles River (River) channel, about 5 to 6 kilometers (km) (3 to 4 miles) west of where the River turns south into Glendale Narrows (Figure 1). The site is on a relatively flat parcel adjacent to the River, just below the north slopes of the easternmost spur of the Santa Monica Mountains. The Headworks site encompasses about 12 hectares (30 acres) total, with additional perimeter areas along roadways increasing the area to about 19 hectares (46 acres). The site is elongated east to west; it is about 1060 m (3,500 feet) in the elongated direction, and about 300 m (1,000 feet) in the north south direction at the widest point. The Headworks site overlies the San Fernando Groundwater Basin

FIGURE 1
Headworks Site Vicinity Map

(SFB). Some local runoff appears to enter the site in the drainage on the south edge, and passes through the site exiting on the west side. The flow in this drainage is not continuous, and may represent storm runoff from surrounding hillsides. Elevations in the interior of the site range from 1 to 6 m (4 to 20 feet) above the invert of the adjacent River. There is infrastructure available to divert flows from the River for infiltration consisting of a gate in the channel sidewall. In addition to the River channel, the site is fronted on the north by the 134 Freeway, on the south by Forest Lawn Drive, and on the east by freeway on-ramps.

Water Resources

Los Angeles River. The Los Angeles River channel runs adjacent to the Headworks site. The River channel consists of a concrete box channel with vertical side slopes, approximately 6 m (20 feet) deep and 30 m (100 feet) wide. Flows in the adjacent River are perennial, resulting from discharge of effluent upstream at the Donald C. Tillman Water Reclamation Plant (Tillman WRP) and runoff from surrounding communities upstream of the site. The Los Angeles River is an effluent dominated stream during a majority of the year due to the large discharges of recycled water effluent from the Tillman WRP. Table 1 represents approximate mean high and low flows in the River at the Headworks site. The source of the calculated data is indicated.

Tujunga Wash. The Tujunga Wash (Wash) channel is a tributary of the Los Angeles River. It flows west out of the San Gabriel Mountains and turns south along the west side of the Verdugo Mountains. The Tujunga Wash channel merges into the Los Angeles River from the north near the intersection of Colfax Avenue and Ventura Boulevard. In the area at the confluence and just upstream, the Tujunga Wash channel consists of a concrete box channel with vertical side slopes, approximately 4 m (14 feet) deep and 20 m (70 feet) wide. Table 1 represents approximate flows in the Wash below Hansen Dam.

TABLE 1
Mean Monthly High and Low Flow from USGS Gauges in the Los Angeles River

	Rough Calculation of Mean Monthly Flow (m³/s)	Mean Monthly High Flow (m³/s)	High- Flow Month	Mean Monthly Low Flow (m³/s)	Low- Flow Month	Calculations Based on the Following Gauges
Los Angeles River near Headworks Site	Flow > 1.3 (46.3 cfs)	4.0 (142.09 cfs)	February	0.3 (10.72 cfs)	October	USGS11097500, USGS11097000, USGS11092450 Difference between 097500 and other two stations
Tujunga Wash below Hansen Dam	Flow > 0.37 (13.08 cfs)	Flow > 1.3 (49.25 cfs)	February	Flow > 0.02 (0.82 cfs)	October	USGS11097000

Biological Resources

Vegetation. Vegetation onsite consists predominantly of herbaceous ruderal grasses and weeds. Pine trees and other non-native ornamental trees have been planted along adjacent roadways. Some native mulefat (*Baccharis salicifolia*) and elderberry (*Sambucus* sp.) are present on the periphery of the site and in the small drainage in the center of the site. Potentially occurring special-status plants that have been recorded in this area, based on database queries from the California Natural Diversity Database (CNDDDB), includes Parish's brittle scale (*Atriplex parishii*) federal Species of Concern.

Wildlife. Wildlife present onsite consists of native and exotic species adapted to urban habitats, and some native species that utilize the ruderal grasslands and limited scrub vegetation. No special-status animals have been recorded on the site based on database queries of CNDDDB; however southwestern pond turtle (*Clemmys marmorata pallida*) is recorded breeding in the Santa Monica Mountains to the south of the site. Various resident and migratory birds have been recorded utilizing the site, including great blue heron (*Ardea herodias*), American goldfinch (*Carduelis tristis*), and house finch (*Carpodacus mexicanus*).

Adjacent Area. Extensive native coastal sage scrub, chaparral, sycamore riparian woodland, and live oak riparian woodland (*Quercus agrifolia*) habitats occur to the south of the Headworks site in the Santa Monica Mountains. These habitats are limited to the undeveloped areas in the mountains, but where they occur are relatively undisturbed. Native scrub vegetation occurs across Forest Lawn Drive on the southeast corner of the site in Griffith Park, offering some limited movement corridor for terrestrial mammals and herptiles. Birds using aquatic habitats, including waterfowl and shorebirds, typically use the Los Angeles River as a movement corridor.

Recreation

The Headworks site is bordered to the southeast by the extensive parkland in Griffith Park (over 1685 hectares (4,107 acres)). This park is dominated by native vegetation in the areas adjacent to the site, with an extensive foot trail and horse trail network. Other recreational facilities in the area include the Los Angeles Equestrian Center to the northeast of the site across the river and the 134 Freeway, and the Traveltown Museum to the east. Johnny Carson Park is located just to the west of Headworks on the north bank of the Los Angeles River, situated in residential neighborhoods. An equestrian trail lies along the north bank of the River opposite the Headworks site, extending from the Equestrian Center to Buena Vista Park and beyond. In addition, the Los Angeles River Bike Trail is proposed to cross the Headworks site along the River.

Land Use

The fee ownership of the parcel is held by the Los Angeles Department of Recreation and Parks (LADRAP), with an all-encompassing easement held by Los Angeles Department of Water and Power (LADWP) for the construction and operation of water facilities at the Headworks site. The Headworks site has historically been used

by LADWP as a groundwater infiltration basin; however, it is currently out of commission.

Land use immediately adjacent to Headworks site is indicated in Figure 2. The site is fronted on the south by cemeteries, including Mount Zion and Forest Lawn Cemeteries. Griffith Park lies to the southeast of the site. Immediately north of the site is the River channel, along with the transportation corridor for the 134 Freeway. To the north of the freeway are residential neighborhoods; and north and west of the site are the extensive studio complexes of NBC Studios, Disney Studios, and Warner Brothers Studios. To the northeast of the site is the Los Angeles Equestrian Center, and just east of the site is Traveltown Museum in Griffith Park. On a regional basis, the Headworks site is surrounded by open land with natural cover in the Santa Monica Mountains, landscaped cover in parks and cemeteries, residential and light commercial land use to the north, and studios to the west.

B.) NON-FEDERAL SPONSOR

The non-Federal sponsor for the feasibility phase of the study is the Los Angeles Department of Water and Power.

The Los Angeles Department of Water and Power was established in 1902 to provide the city of Los Angeles with a municipal water works system. Prior to the establishment of the LADWP, the city was supplied water through a system of crude dams, water wheels, and ditches (called "zanjas"). The LADWP has grown from modest beginnings to become the largest municipally owned utility in the nation. It exists under and by virtue of the Charter of the City of Los Angeles enacted in 1925, which states that LADWP is responsible for supplying the City and its inhabitants with water and electric energy by constructing, operating, and maintaining works extending throughout the City and to Inyo and Mono Counties. LADWP is also responsible for fixing rates for water and electric service, subject to approval of the City Council by ordinance. The Department has a work force in excess of 7,000 employees and provides water and electricity to some 3.8 million residents and businesses in a 1,201 square kilometers (464 square miles) area. LADWP's operations are financed solely by the sale of water and electric services.

C.) CONGRESSIONAL DISTRICT

The site lies within the 27th Congressional District of the State of California, represented by Congressman Adam B. Schiff.

4. PRIOR STUDIES, REPORTS, EXISTING WATER PROJECTS, AND ACTIVITIES OF OTHER AGENCIES

A.) PRIOR STUDIES AND REPORTS

There are a number of relevant documents that contain information regarding the Los Angeles River Watershed and the Headworks site; these documents are listed below. However, two of these documents have special relevance for the Headworks site and are described in the following paragraphs.

FIGURE 2
Headworks Site Land Use Map

Headworks Recharge Project

The Headworks Recharge Project was initiated in 1999 and was proposed for completion in 2006. The goal of the project was to restore the historic function of the Headworks Spreading Grounds by diverting water from the Los Angeles River into the spreading grounds to recharge the SFB. On average, approximately 70 percent of the water in the Los Angeles River is comprised of recycled water discharged from the Tillman WRP located upstream of the Headworks site. The project was initiated in 1999 with a series of stakeholder meetings. During these meetings, LADWP affirmed its commitment to promote other compatible beneficial uses of the Headworks site, to secure stakeholder input, and to address public concerns. Compatible uses that were identified included the following: (1) establishment of native riparian habitat, (2) educational signage, (3) passive recreation, and (4) flood mitigation.

In 2002, LADWP suspended the proposal to spread recycled water for the East Valley Water Recycling Project. LADWP has shifted its focus on using recycled water for non-potable uses such as irrigation. This could change in the future depending on economic or technological advances in water treatment, increasing water demands in conjunction with a diminishing water supply, or improved public acceptance towards the use of recycled water for groundwater recharge. To provide an alternative water source, LADWP has proposed the construction of a rubber dam and a four-mile trunkline to deliver native water from the Tujunga Wash Channel to the Headworks site. The rubber dam would divert native water from the Tujunga Wash upstream of its confluence with the Los Angeles River to avoid the use of recycled water for recharge at the Headworks site.

Headworks Wells Treatment Plant Project

This project was also planned by LADWP and consisted of the construction of a groundwater treatment plant, which was to be located at the Headworks site. However, LADWP has elected to make infrastructure improvements to its water distribution system and defer the need for this project. For information purposes, the project consisted of the construction of groundwater treatment facilities required to treat approximately 0.8 meters cubed per second (30 cubic feet per second (cfs)) of contaminated groundwater for potable use. The treatment plant was envisioned to occupy approximately 1.8 hectares (4.5 acres) at the eastern end of the Headworks site. The wells to supply the groundwater are located in the nearby Los Angeles Equestrian Center and the contamination consists primarily of trichloroethylene (TCE) and perchloroethylene (PCE). The area for the treatment plant's pad has been constructed by grading and compacting soil in 1.8 hectares (4.5 acres) of the site.

List of Prior Studies and Reports

California Department of Fish and Game. *The California Natural Diversity Database*. Last updated Spring 2001.

California Regional Water Quality Control Board, Los Angeles Region. *Basin Plan for the Coastal Watershed of Los Angeles and Ventura Counties*. November 1994.

———. *Total Trash Maximum Daily Loads for the Los Angeles River Watershed Draft Report*. November 2000.

City of Los Angeles, Department of Public Works. *Integrated Plan for Wastewater Program, City of Los Angeles, California*. June 2000.

City of Los Angeles Department of Water and Power. *Headworks Pilot Recharge Project: Water Quality Investigation*. Los Angeles. 1993.

———. *Headworks Recharge Project Description*. Internal Report last updated May 29, 2001.

———. *Headworks Wells Treatment Plant Project*.

Deverell, William and Greg Hise. *Eden by Design: the 1930 Olmsted-Bartholomew Plan for the Los Angeles Region*. 2000.

Los Angeles and San Gabriel Rivers Watershed Council. *Current Water Quality Improvement, Land Acquisition and Restoration Projects in Los Angeles County*. August 1999.

Los Angeles County Department of Public Works. *Final Master Environmental Impact Report: Los Angeles County Drainage Area Project*. Prepared by Woodward-Clyde Consultants. 1995.

———. *Los Angeles River Master Plan*. June 1996.

———. *Los Angeles River Master Plan Update*. July 1996.

———. 1999-2000 Hydrologic Report. June 2001.

Simons, Li & Associates. *Los Angeles River Alternative Flood Control Study. Volume I: Baseline Conditions Report*. Los Angeles: Los Angeles County Department of Public Works. 1997.

———. *Los Angeles River Alternative Flood Control Study. Volume II: Evaluation of Alternatives*. Los Angeles: Los Angeles County Department of Public Works. 1997.

———. *Los Angeles River Alternative Flood Control Study. Volume III: Final Report Appendices*. Los Angeles: Los Angeles County Department of Public Works. 1997.

B.) U.S. ARMY CORPS OF ENGINEERS STUDIES AND PROJECTS

The U.S. Army Corps of Engineers Los Angeles District has been involved in a number of planning and engineering studies within the Los Angeles River Watershed. These reports are listed below. However, significant information for this SID was garnered from the *Los Angeles and San Gabriel Rivers Watershed Feasibility Study*. The purpose of the *Los Angeles and San Gabriel Rivers Watershed Feasibility Study* was to develop a framework for an Integrated Basin Management Plan as well as to investigate the feasibility of utilizing Geographic Information System (GIS) technology to assist in identifying multiobjective demonstration project sites in the Los Angeles and San Gabriel Rivers Watershed. Specifically, the purpose of this study was to determine if a multiobjective approach could be used to solve flood

control problems while also addressing other deficiencies in the Watershed. The problems identified in the Plan of Study for the Los Angeles and San Gabriel Rivers Watershed included environmental degradation, loss of recreational space, continued flooding impacts, reduced water supply, and an overall declining aesthetic quality of the Watershed and riverfront areas. The Study was part of an effort that began in 1992 with the preparation of *the Los Angeles County Drainage Area (LACDA) Review Feasibility Report* (USACE, 1992). The Headworks site was identified in the *Los Angeles and San Gabriel River Watershed Feasibility Study* as a potential spin-off project.

List of U.S. Army Corps of Engineer Studies and Reports

Los Angeles District, Corps of Engineers. *Operation and Maintenance Manual for the Los Angeles County Drainage Area Project, California*. December 1975.

———. *Los Angeles County Drainage Area System Recreation Study*. March 1980.

———. *Los Angeles County Drainage Area Review: Final Feasibility Study Interim Report and Environmental Impact Statement*. December 1991.

———. *Los Angeles and San Gabriel River Watershed Feasibility Study, Plan of Study*. December 1998.

———. *Los Angeles and San Gabriel Rivers Watershed Feasibility Study, First Phase Report*. July 2000.

———. *Los Angeles and San Gabriel Rivers Watershed Preliminary Draft Feasibility Report*. July 2001.

U.S. Army Chief of Engineers. *Operation and Maintenance Manual, Los Angeles County Drainage Area Project, California*. Los Angeles. 1975.

———. *Los Angeles County Drainage Area Review: Final Feasibility Study Interim Report and Environmental Impact Statement*. Revised. Los Angeles. 1992.

5. PLAN FORMULATION

During a study, six planning steps that are set forth in the Water Resource Council's Principles and Guidelines are repeated to focus the planning effort and eventually to select and recommend a plan for authorization. The six planning steps are:

1. Specify the problems and opportunities
2. Inventory and forecast conditions
3. Formulate alternative plans
4. Evaluate effects of alternative plans
5. Compare alternative plans
6. Select recommended plan

The iterations of the planning steps typically differ in the emphasis that is placed on each of the steps. In the early iterations, those conducted during the reconnaissance phase, the specifying problems and opportunities step is emphasized. That is not to say, however, that the other steps are ignored since the initial screening of preliminary plans that results

from the other steps is very important to the scoping of the follow-on feasibility phase studies. The sub-paragraphs that follow present the results of the initial iterations of the planning steps that were conducted during the reconnaissance phase. This information will be refined in the future iterations of the planning steps that will be accomplished during the feasibility phase.

A.) NATIONAL OBJECTIVES

- 1.) The national or Federal objective of water and related land resources planning is to contribute to national economic development consistent with protecting the nation's environment, pursuant to national environmental statutes, applicable executive orders, and other Federal planning requirements. Contributions to National Economic Development (NED) are increases in the net value of the national output of goods and services, expressed in monetary units. Contributions to NED are the direct net benefits that accrue in the planning area and the rest of the nation.
- 2.) The U.S. Army Corps of Engineers has added a second national objective for Ecosystem Restoration in the response to legislation and administration policy. This objective is to contribute to the nation's ecosystems through ecosystem restoration, with contributions measured by changes in the amounts and values of habitat.

B.) PUBLIC CONCERNS

A number of public concerns were identified during the course of the reconnaissance study for the Los Angeles and San Gabriel Rivers Watershed (Table 2). While initial concerns were expressed in the *Plan of Study for the Los Angeles and San Gabriel Rivers Watershed Feasibility Study*, additional input was received through coordination with local agencies. The Los Angeles Department of Water and Power as well as the Los Angeles County Department of Public Works were contacted to solicit comments and concerns regarding the Headworks project.

The public concerns that are related to the establishment of planning objectives and planning constraints are:

- Development of a project that is consistent with LADWP's objective to maximize groundwater recharge while developing habitat restoration. In addition, incorporating into the site an allowance for potential development of the Headworks Well Treatment Plant. The pad for this treatment plant has already been constructed so all site plans will need to protect this area.
- Developing a plan that utilizes an alternative water supply such as water from the Tujunga Wash channel. This is necessary to accommodate public perception issues regarding the use of recycled water at a site where groundwater recharge will be occurring.
- Provide for flood mitigation downstream of the Headworks site by storing water at the site.

- Water Quality problems exist in both the Los Angeles River and the San Fernando Groundwater Basin. The River has been listed as having odors, scum/foaming unnatural and high coliform counts in the Los Angeles Regional Water Quality Control Board's (LARWQCB) 303(d) Impaired Waterways List. In addition, the LARWQCB has issued a trash TMDL for the Los Angeles River. The contamination in the SFB consists primarily of trichloroethylene (TCE) and perchloroethylene (PCE). This contamination has been verified from the nearby Headworks Wells located in the Los Angeles Equestrian Center, which is located 762 meters (2,500 feet) northwest of the Headworks site.
- Passive recreational opportunities for the site include educational signage regarding the history of the Los Angeles River, water supply in Los Angeles, Burbank, and Glendale, how wetlands work, and describing the habitat; and the Los Angeles River Bike River Bike Trail.
- Develop wetlands or riparian habitat at the Headworks site.
- Improve the declining aesthetic quality of the riverfront at the Headworks site.

TABLE 2
Problems within the Los Angeles and San Gabriel Rivers Watershed

Continued Flooding Impacts	Adverse Conditions for Aquatic Species
Increasing Peak Discharges	Adverse Conditions for Riparian Species
Inadequate Recreational Facilities	Increasing Invasive Species
Adverse Conditions for Water Supplies	Piecemeal Treatment of Problems
Surface Water Quality Problems	Declining Local Aesthetic Quality
Loss of Floodplain Habitat	Increasing Litigation Potential Related to Resources
Loss of Riparian Habitat	Conflicting Regulatory Actions

C.) PROBLEMS AND OPPORTUNITIES:

The evaluation of public concerns often reflects a range of needs, which are perceived by the public. This section describes these needs in the context of the problems and opportunities that can be addressed through water and related land resource management.

Water Resources

The Headworks site overlies the San Fernando Groundwater Basin (SFB). Although currently out of commission, the Headworks site was historically used as an infiltration basin. LADWP first constructed deep underground infiltration galleries at the Headworks site in 1905 to capture the Los Angeles River's subsurface flow. The Los Angeles River flows were diverted into the Headworks site via a gate in the River's channel sidewall. These galleries were in use until 1971 when the last remaining vertical pipe, the Headworks Deep Gallery, was shut down due to water quality concerns. In addition to the infiltration galleries, LADWP has operated water

distribution facilities and spreading basins at the Headworks site since the early 1900s; this included the construction of groundwater supply wells between 1956 and 1978. These wells are located about 760 to 900 m (2,500 to 3,000 feet) northeast of the site at the Los Angeles Equestrian Center, and are collectively known today as the Headworks Well Field. This well field historically provided the City with a reliable, high quality, and economical source of water. To complement the groundwater extractions, water from the River was diverted for infiltration at the Headworks site to replenish the SFB. Groundwater contamination was discovered in the early 1980s in the SFB; and the Headworks Well Field was taken out of operation.

In 1983, the Tillman WRP became operational and began discharging recycled water into the River upstream of the Headworks site. At this point, the California Department of Health Services (DHS) prohibited the diversion of River water for recharge purposes due to water quality concerns associated with treated wastewater; and the site was no longer used for infiltration. Effluent discharge from the Tillman WRP into the Los Angeles River is known to be high in nitrate-nitrogen, ammonia-nitrogen, and total organic carbon and have high coliform counts. Although the River in this location is not a high-priority reach under the 303(d) list, nevertheless, an appropriately designed wetland on the Headworks site could significantly reduce these constituents in the river water, thereby providing some form of treatment prior to infiltration.

There are two potential water supply sources for the Headworks site, the Los Angeles River and the Tujunga Wash Channel. These sources can provide water to the site for habitat restoration and groundwater recharge. LADWP has projected that between 0.11 and 0.391 meters cubed per second (3,000 and 10,000 acre-feet per year) of water (depending on the source) could be captured by restoring the Headworks site, that would otherwise be lost to the ocean.

Opportunity: Provide water conservation through groundwater recharge at the Headworks site. This increase in groundwater recharge would greatly benefit the overall health of the SFB to continue to provide a reliable source of groundwater supply to its users and represent a substantial increase in water conservation in the Los Angeles Region.

Opportunity: Evaluate the potential for treatment wetlands at the Headworks site to polish water and allow for infiltration of Los Angeles River water. The additional treatment provided by the wetlands could make the use of flows from the River acceptable for DHS.

Opportunity: Establish wetlands or riparian habitat restoration by utilizing water from Los Angeles River or Tujunga Wash. In addition, passive recreational opportunities such as the Los Angeles River Bike River Bike Trail and/or educational signage regarding the history of the Los Angeles River, water supply in Los Angeles, Burbank, and Glendale, how wetlands work, and describing the habitat could be developed.

Opportunity: Evaluate the potential for using the Tujunga Wash channel to supply water to the Headworks site. The water from the Tujunga Wash

channel would be diverted from the channel by construction of a rubber dam in the channel near Moorpark Avenue and pumping the water to the Headworks site via a 6.4 kilometer (4 mile) pipeline.

Environmental Restoration

There is scarce and degraded habitat along the Los Angeles River corridor. This is significant because birds using aquatic habitats, including waterfowl and shorebirds, typically use the Los Angeles River as a movement corridor, and could access the site via the River. Extensive native coastal sage scrub, chaparral, sycamore riparian woodland, and live oak riparian woodland (*Quercus agrifolia*) habitats occur to the south of the site in the Santa Monica Mountains. These habitats are limited to the undeveloped areas in the mountains, but where they occur are relatively undisturbed. These riparian habitats would support native riparian wildlife populations that could colonize any riparian habitat improvement projects on the Headworks site. Native scrub vegetation occurs across Forest Lawn Drive on the southeast corner of the site in Griffith Park, offering some limited movement corridor for terrestrial mammals and herptiles. The site could provide limited wetland vegetation in the form of emergent marsh. It would be anticipated that this would be of limited acreage to maintain compatibility with infiltration objectives. The site could also provide limited riparian vegetation, including sycamore, willow, and cottonwood woodlands, along the perimeter of basins. The aerial extent of this is likely to be limited to maintain compatibility with infiltration objectives.

Opportunity: Provide environmental restoration through the development of a wetland or restoration of riparian habitat. In addition, development of environmental restoration may provide a corridor for terrestrial mammals and herptiles.

Flood Control

There are potential areas of localized flooding near the site and in the river basin. FEMA flood maps show several locations in the vicinity of the Headworks site that have potential flooding risk for 100-year or 500-year flood events. This includes limited sites along the Los Angeles River adjacent to the site, slightly upstream of the site, and downstream of the site in the Glendale Narrows. Flood risk also occurs along the Burbank Western Channel and the Verdugo Wash channel north of the site; these channels feed into the Los Angeles River about 2 to 3 km (1 to 2 miles) downstream of the Headworks site. In addition, there are system capacity limitations along the Tujunga Wash channel. The Headworks site could be used as a retention basin during peak storm events to provide additional flood protection. This may ameliorate flooding risk in locations immediately adjacent to the site along the Los Angeles River, along the Burbank Western Channel to the north of the site, or in Tujunga Wash. Assuming 14 hectares (35 acres) of the site could contain floodwaters 1 to 3 m (5 to 10 feet) deep, the site could contain between 215,800 to 431,700 cubic meters (175 and 350 acre-feet); of stormwater during critical periods in the storm.

Opportunity: Evaluate the potential for utilizing the Headworks site as a retention basin for flood control protection.

Recreation

Recreational opportunities and open space adjacent to the River are limited in the Los Angeles Region. The Headworks site is bordered to the southeast by the extensive parkland in Griffith Park. This park is dominated by native vegetation in the areas adjacent to the site, with an extensive foot trail and horse trail network. Other recreational facilities in the area include the Los Angeles Equestrian Center to the northeast of the site across the river and the 134 Freeway, and the Traveltown Museum to the east. Johnny Carson Park is located just to the west of Headworks on the north bank of the Los Angeles River, situated in residential neighborhoods. An equestrian trail lies along the north bank of the River opposite the Headworks site, extending from the Equestrian Center to Buena Vista Park and beyond. Finally, the Los Angeles River Bike Trail is proposed for this location at the Headworks. All these recreational sites offer some potential for linkage with Headworks, although users of trails and parkways on the north side of the River would require crossings to access the site. A horse crossing may be available at the Equestrian Center for access of horse trails in Griffith Park.

Opportunity: Develop recreation opportunities at the Headworks site to complement the nearby parks and facilities. The Headworks site could provide a valuable linkage for the Los Angeles River Bikeway as well as provide a potential destination or resting point along the bikeway. In addition, the site could provide a public education function by providing information regarding the history of the Los Angeles River; water supply in Los Angeles, Burbank, and Glendale; information on how wetlands work; and information describing the habitat.

Future Conditions

The future or without project condition of the Headworks site is a serious concern to the public and the LADWP. The limited open space and habitat along the Los Angeles River corridor will result in the continual decline of the environmental and aesthetic quality in the Los Angeles Region. In addition, groundwater recharge provided by the Headworks site is an important component to water conservation in the SFB. Without an environmental restoration project at the Headworks site the problems identified by the public and local sponsor will continue unabated, these problems include:

1. Loss of water conservation in the SFB
2. Scarce and degraded habitat along the Los Angeles River corridor
3. Localized flooding
4. Inadequate open space and recreational opportunities along the Los Angeles River corridor

The establishment of an environmental restoration and groundwater recharge project at the Headworks site will address the problems listed above.

D.) PLANNING OBJECTIVES:

The national objectives of National Economic Development and National Ecosystem Restoration are general statements and not specific enough for direct use in plan formulation. The water and related land resource problems and opportunities identified in this study are stated as specific planning objectives to provide focus for the formulation of alternatives. These planning objectives reflect the problems and opportunities and represent desired positive changes from the without project conditions. The planning objectives are specified as follows:

- To stabilize SFB level/elevation
- To improve riparian and wetlands habitat
- To prevent further degradation and improve water quality (both surface and groundwater)
- To reduce urban flood damages and property loss
- To improve recreation opportunities
- To improve the riverfront aesthetic quality of the Los Angeles River

E.) PLANNING CONSTRAINTS:

Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that should not be violated, which may include local general plan, local agency jurisdiction, community philosophy and applicable Executive Orders and other Government Regulations that may apply. The major constraint facing the Headworks site is the need for groundwater recharge for water conservation at the site.

F.) MEASURES TO ADDRESS IDENTIFIED PLANNING OBJECTIVES:

A management measure is a feature or activity at a site, which addresses one or more of the planning objectives. A wide variety of measures were considered, some of which were found to be infeasible due to technical, economic, or environmental constraints. Each measure was assessed and a determination made regarding whether it should be retained in the formulation of alternative plans. The descriptions and results of the evaluations of the measures considered in this study are presented below:

1.) No Action

The U.S. Army Corps of Engineers is required to consider the option of “No Action” as one of the alternatives in order to comply with the requirements of the National Environmental Policy Act (NEPA). No Action assumes that no project would be implemented by the Federal Government or by local interests to achieve the planning objectives. No Action, which is synonymous with the Without Project Condition, forms the basis from which all other alternatives plans are measured.

Issues: Water supply is vital to the Los Angeles economy, as the city is located in a semi-arid region. As water is continually withdrawn from the SFB without groundwater recharge to replace it, this vital resource is reduced.

In addition, there is a lack of open space, riparian and wetland habitat, and recreational opportunities along the Los Angeles River corridor. Therefore, if No Action is taken on this feasibility study a unique opportunity to provide environmental restoration as well as groundwater recharge will be lost.

2.) Project Alternative

Based on review of existing information and coordination with local interests, the desired approach to proceed with a feasibility phase study is to conduct a site investigation to determine the various feasible compatible land uses that could be successfully integrated at the Headworks site. This study's objective would be to develop a project that will result in water quality improvement, flood control and protection, and creation of habitat, while maintaining the primary function of water conservation. Other possibilities that should be taken into consideration in the study include the creation of wetlands to provide water treatment, integration of the trails and bikeways to provide continuity along the Los Angeles River, and the overall development of the site to best accommodate the various functions and maximize the use of the entire property. The study should also evaluate the two potential water supply sources that are being considered for the site, water from (1) the Los Angeles River and (2) the Tujunga Wash channel.

G.) PRELIMINARY PLANS:

Preliminary plans are comprised of one or more management measures that survived the initial screening. The descriptions and results of the evaluations of the preliminary plans that were considered in this study are presented below:

1.) Preliminary Plans Eliminated from Further Consideration

No plans were eliminated from further consideration.

2.) Preliminary Plans for further Consideration

Preliminary screening indicates that alternatives for environmental restoration through either development of riparian habitat or treatment wetlands to polish recycled water from the Los Angeles River or stormwater from the Tujunga Wash channel have the greatest Federal Interest in further study for potential implementation. In conjunction with these alternatives, flood control through a retention basin on the Headworks site, water conservation through groundwater recharge, educational signage, and passive recreation could also be incorporated into a project that is implementable and has a Federal interest. In addition, the alternatives may be combined in different scenarios to develop and define the most optimal project alternative. These preliminary plans will be developed and evaluated further as part of the feasibility phase.

H.) CONCLUSIONS FROM THE PRELIMINARY SCREENING:

The preliminary screening indicated what alternatives listed above have the greatest potential for implementation. At this level of the investigation, these have the best potential for net environmental benefits though environmental restoration. Additional

benefits would include local flood control and associated damage reduction, improvement of water quality through wetland treatment, groundwater recharge, and recreational opportunities.

While there are a number of identified problems at the Headworks site, implementing solutions in the near future to address these problems will prevent further damage to the ecosystem and start a reversal of degradation.

All alternatives including the No Action alternative will be addressed during the feasibility phase of the study. The U.S. Army Corps of Engineers study team will prepare the Project Management Plan feasibility-level cost estimates based on the analysis of the No Action plan and alternative plans. The actual number of alternatives may vary, based on the plan formulation study plan formulation processes.

I.) ESTABLISHMENT OF A PLAN FORMULATION RATIONALE:

The conclusions from the preliminary screening form the basis for the next iteration of the planning steps that will be conducted in the feasibility phase. The likely array of alternatives that will be considered in the next iteration includes alternatives that do not significantly impact existing environmental habitat, but would improve the areas protection and provide restoration. Future screening and reformulation will be based on the following factors: water supply source, impacts to groundwater recharge, environmental restoration opportunities, safety issues, and optimum trade-off analysis.

6. FEDERAL INTEREST:

Since environmental restoration appears justified, and is an output with a high budget priority and environmental restoration, water quality, flood control, and other related issues are integral to any comprehensive plans that would be evaluated in the feasibility phase, there is a strong Federal interest in developing a feasibility study for the Headworks site. There is also incidental Federal interest in other benefits resulting from the alternatives such as recreation and water conservation/supply that could be developed within existing policy. Based on the preliminary screening of alternatives, there appears to be potential project alternatives that would be consist with the U.S. Army Corps of Engineers policies, benefits, and environmental impacts.

7. PRELIMINARY FINANCIAL ANALYSIS:

A local sponsor would be required to cost-share (50/50) the feasibility phase of the watershed planning effort. Up to 100 percent of this local share can be in the form of in-kind services. Knowing this requirement, Los Angeles Department of Water and Power has agreed to be the local sponsor for the feasibility study.

8. ASSUMPTIONS, EXCEPTIONS, AND QUALITY OBJECTIVES:

A.) Feasibility Phase Assumptions:

The following critical assumptions will provide a basis for the feasibility study.

1.) Without Project Conditions Assumptions

The without project condition assumptions are provided below:

1. The scarce and degraded habitat along the Los Angeles River will continue to lower the aesthetic quality of the riverfront.
2. Water conservation will not be recommissioned at the site and water levels/elevations in the SFB will drop.
3. Localized flooding will continue to occur and may be increased due to increased runoff as a result of upstream development.
4. Inadequate open space and recreational opportunities along the Los Angeles River corridor will continue to exist. A unique opportunity to provide environmental restoration in a heavily urbanized setting will be lost.

2.) WITH PROJECT CONDITIONS ASSUMPTIONS

The major initial assumptions used to define the scope of the feasibility study are presented below. These assumptions will be further developed upon receipt of additional funds needed to develop the Project Management Plan for the Study. The assumptions are:

1. An initial step in conducting the feasibility study will be to review and adjust the Project Management Plan based on gathering and review of all pertinent reports and information associated with defining baseline conditions; problems, needs and opportunities; and applicable alternative measures and plans. This effort will include identifying additional data needs, and developing scopes of work to be performed in coordination with the stakeholders interested in the Headworks site.
2. The potential water supply sources available for the Headworks site are the Los Angeles River water and water from the Tujunga Wash channel. The water from the Tujunga Wash channel would be native water diverted into a pipeline from the channel above its confluence with the Los Angeles River. The Tujunga Wash water source was included to provide an alternative native water supply source that does not contain recycled water.
3. It is assumed from information obtained from the LADWP that the Headworks Wells Treatment Plant Project is no longer being pursued. In addition, it is also assumed that the LADRAP is no longer considering athletic fields at the Headworks site. This PMP assumes that the entire Headworks site is available for the project except for the 1.8 hectares (4.5 acres) set-aside for the Headworks Well Treatment Plant.

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4. The development of alternative plans will be limited to conceptual designs, and evaluation of costs, benefits, and impacts considering environmental quality, regional economic development, and other social effects.
 5. Los Angeles Department of Water and Power will be the primary local sponsor for the study, and will coordinate the desired direction and funding of other stakeholders participating in the study to the U.S. Army Corps of Engineers.
 6. Additional details of the Project Management Plan will be identified based on further development of the study program and coordination with local interests.

B.) POLICY EXCEPTIONS AND STREAMLINING INITIATIVES:

The Study will be conducted in accordance with the Principles and Guidelines and the U.S. Army Corps of Engineers regulations. There are currently no anticipated or identified exceptions to established guidelines for streamlining the study process that will not adversely impact the quality of the feasibility phase of study.

C.) QUALITY OBJECTIVES:

The Feasibility Phase Study will be accomplished to meet the following quality objectives:

1. Information developed and thus project recommendations will be adequately described for the local project sponsor to make an informed decision on future participation.
2. Quality Control through the feasibility study phase will be in compliance with the U.S. Army Corps of Engineers Quality Control Plan as documented in the Los Angeles District OM 1100-1-2.

9. FEASIBILITY PHASE MILESTONES:

Table 3 presents an estimate of the milestone schedules for the feasibility study. The milestone schedule will be further defined upon further development of the Project Management Plan.

10. FEASIBILITY PHASE COST ESTIMATE:

Table 4 presents an initial estimate of the cost for the feasibility study. The Los Angeles Department of Water and Power has agreed to be local sponsor for the project and cost share 50 percent of the feasibility study. LADWP is continuing to work with local, State, and Federal officials to gain support for the project. The current estimated total study cost is \$1,836,000 with the Los Angeles Department of Water and Power as the non-Federal sponsor. The breakdown of the Federal and non-Federal cost will be in the PMP.

TABLE 3
FEASIBILITY PHASE MILESTONES

Milestone	Description	Duration (month)	Cumulative (month)	Date
Milestone F1	Initiate Study	0	0	Jan- 03
Milestone F2	Public Workshops/Scoping	5	5	Jun-03
Milestone F3	Feasibility Scoping Meeting	11	13	May-04
Milestone F4	Alternative Review Conference	9	22	Feb-05
Milestone F4A	Issue Resolution Conference	5	27	Jul-05
Milestone F5	Draft Feasibility Report	3	30	Oct-05
Milestone F6	Final Public Meeting	1	31	Nov-05
Milestone F7	Optional IRC	1	32	Dec-05
Milestone F8	Final Report to SPD	3	35	Mar-06

11. VIEWS OF OTHER RESOURCE AGENCIES:

LADWP has already established a comprehensive stakeholder group to educate and gain support from environmental groups, the local community, regulators, and local, state, and federal officials for the Headworks Recharge Project. LADWP has demonstrated a strong willingness to integrate other compatible uses into the project design and the Stakeholders have voiced their overwhelming support for the project. The compatible uses that have been identified by LADWP and the Stakeholder group are consistent with those identified with the U. S. Army Corps of Engineers. LADWP has requested that the feasibility study evaluate the use of both recycled and native water for groundwater recharge and to explore the potential for flood mitigation. LACDPW also supports this project, as it is consistent with its mission of flood protection, water conservation, water quality improvement, and management of natural resources.

12. POTENTIAL ISSUES EFFECTING INITIATION OF FEASIBILITY PHASE:

None

13. PROJECT MAP AREA:

Attachment 1 is a map of the Headworks site area.

TABLE 4
Headworks Spreading Ground Site Project Study
Preliminary Study Cost Estimate
(\$X1000)

Work Activity		Total \$
JAAOO	Feas - Survey and Mapping except Real Estate	70
JABOO	Feas - Hydrology and Hydraulics Studies/Reports	240
JACOO	Feas - Geotechnical Studies/Reports	60
JAEOO	Feas – Engineering and Design Analysis Report	120
JBOOO	Feas – Socioeconomic Studies	40
JCOOO	Feas – Real Estate Analysis Report	50
JDOOO	Feas - Environmental Studies/ Report	300
JFOOO	Feas - HTRW Studies/Report	30
JHOOO	Feas - Cost Estimating	40
JIOOO	Feas - Public Involvement	60
JJOOO	Feas - Plan Formulation	80
JLOOO	Feas - Report Documentation	70
JLDOO	Feas - Technical Review Document	60
JPAOO	Feas - Project Management and Budget Documents	170
JPBOO	Feas – Supervision and Administration	80
JPCOO	Feas - Contingency	50
	Washington Level Review	50
SUBTOTAL		1,530
CONTINGENCY (20%)		306
TOTAL		1,836

14. DISTRICT ENGINEER'S RECOMMENDATION:

I recommend that the Headworks Area Spreading Ground Site project study proceed into the feasibility phase. The feasibility phase will continue the investigation of environmental restoration, water quality, flood control, and related issues. The Los Angeles Department of Water and Power has agreed to be the local sponsor for the feasibility study and will initiate the Feasibility Cost Sharing Agreement upon completion of the PMP.

Date

Richard G. Thompson

Colonel, Corps of Engineer
District Engineer

ATTACHMENT 1

Figure 3. Map of the Headworks Area Spreading Ground Site