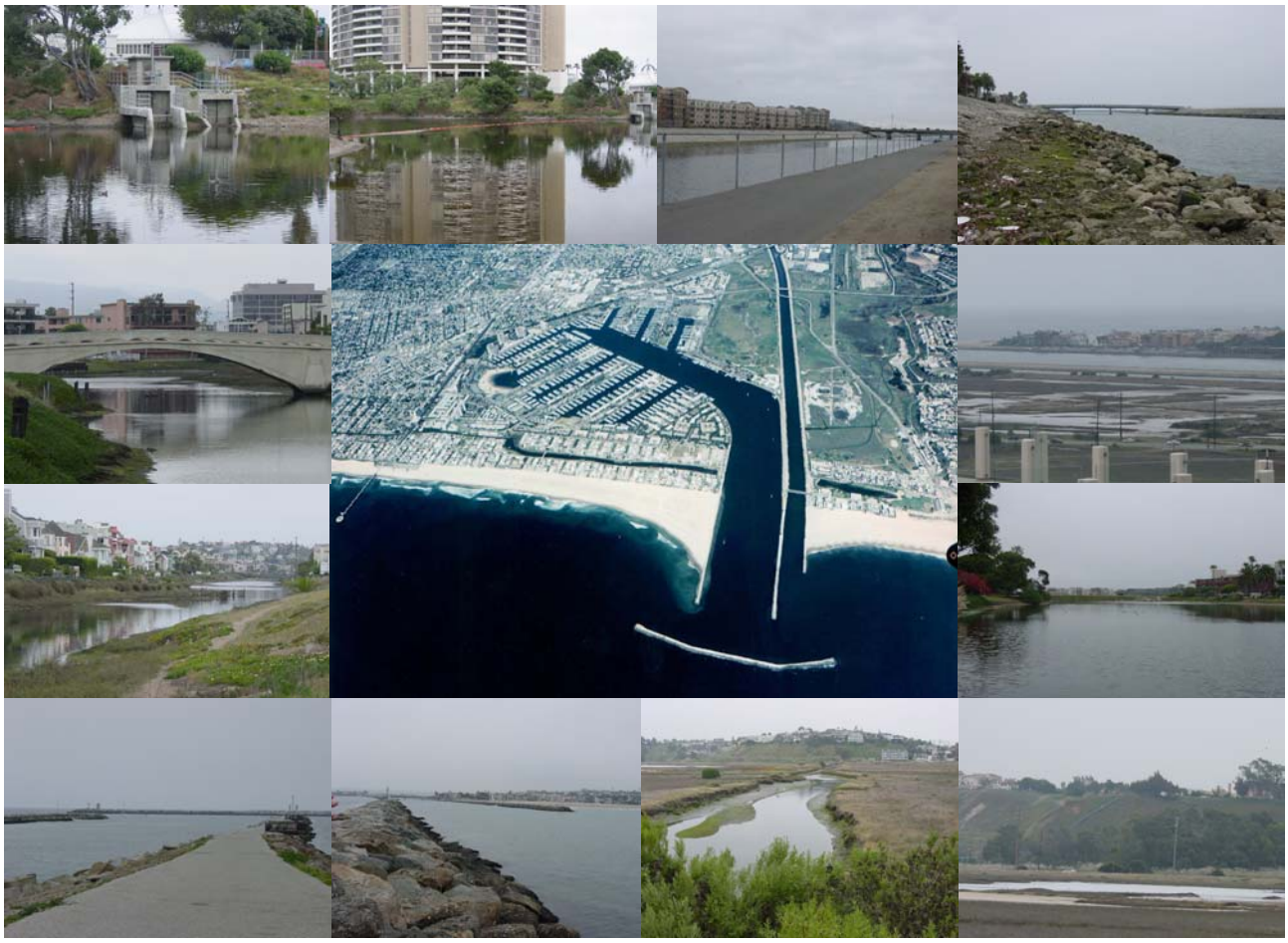
Lower Ballona Creek Watershed Ecosystem Restoration Los Angeles County, California 905(b) Reconnaissance Report



U.S. Army Corps of Engineers,
Los Angeles District
September 2002

LOWER BALLONA CREEK WATERSHED ECOSYSTEM RESTORATION
RECONNAISANCE STUDY

SECTION 905(b) (WRDA 1986) ANALYSIS

1. STUDY AUTHORITY:

a. This 905(b) Analysis was prepared in response to Section 216 of the Flood Control Act of 1970 which states:

> "The Secretary of the Army, acting through the Chief of Engineers, is authorized to review the operation of projects the construction of which has been completed and which were constructed by the Corps of Engineers in the interest of navigation, flood control, water supply, and related purposes, when found advisable due the significantly changed physical or economic conditions, and to report thereon to Congress with recommendations on the advisability of modifying the structures or their operation, and for improving the quality of the environment in the overall public interest."

supplemented by House Resolution on Public Works and Transportation dated September 28, 1994 which states:

> "The Secretary of the Army is requested to review the report of the Chief of Engineers on Playa del Rey Inlet and Basin, Venice, California, published as House Document 389, Eighty-third Congress, Second Session, and other pertinent reports, to determine whether modifications of the recommendations contained therein are advisable at present time, in the interest of navigation, hurricane and storm damage reduction, environmental restoration, and other purposes at Marina del Rey Harbor, Los Angeles, California, with consideration given to disposal of contaminated sediments from the entrance channel required under the existing operation and maintenance program at Marina del Rey."

b. Funds in the amount of $100,000 were appropriated in fiscal year 2002 to conduct the reconnaissance phase of the study, under the title, Lower Ballona Creek Watershed Restoration Study.

2. STUDY PURPOSE:

The purpose of the reconnaissance phase study is to determine if there is a Federal (Corps) interest in participating in cost shared feasibility phase studies to evaluate water resource and ecosystem restoration opportunities within the lower Ballona Creek watershed. In response to the study authority, the reconnaissance study was initiated March 2002. The reconnaissance study has resulted in the finding that there is a Federal interest in continuing the study into the feasibility phase. The purpose of this Section 905(b) (WRDA) analysis is

to document the basis for this finding and establish the scope of the feasibility phase. As the document that establishes the scope of the feasibility study, the Section 905(b) (WRDA) Analysis is used as the chapter of the Project Management Plan (PMP) that presents the reconnaissance overview and formulation rationale.

3. STUDY AREA DESCRIPTION, NON-FEDERAL SPONSOR AND CONGRESSIONAL DISTRICTS

a. Description: The Lower Ballona Creek Watershed Ecosystem Restoration study area lies within Los Angeles County, California and includes areas of Marina del Rey, Culver City, Playa del Rey, and the City of Los Angeles. See Fig 1. The study area, a component of the greater Ballona Creek Watershed, includes the lower reach of the Ballona Creek extending from the 405 freeway in Culver City southwest to the mouth of the creek at the Pacific Ocean in Marina del Rey. Specific features of the lower Ballona Creek watershed including existing and historic wetland areas, the Ballona Lagoon, Del Rey Lagoon, Venice Canal, Grand Canal, the Oxford Drain and the Ballona Channel tributaries and storm drains are addressed in this study.

The greater Ballona Creek system drains a watershed of approximately 329 square kilometers (81,300 acres) and is the largest drainage tributary to the Santa Monica Bay. Ballona Creek collects runoff from several partially urbanized canyons on the south slopes of the Santa Monica Mountains as well as from intensely urbanized areas of West Los Angeles, Culver City, Beverly Hills, Hollywood and parts of Central Los Angeles. The urbanized areas account for 80 percent of the watershed area, and the partially developed foothills and mountains make up the remaining 20 percent. The watershed boundary is shown in Figure 2 and includes the Santa Monica Mountains on the north and the unincorporated area known as Baldwin Hills and the City of Inglewood on the south.

The Lower Ballona Creek Watershed Ecosystem Restoration study footprint's southern boundary is defined by the Westchester Bluffs, from Lincoln Blvd to Nicholas Blvd. The western boundary is defined by the Pacific Ocean and to the east by the I405 Freeway (see figure 2). Tributaries of Ballona Creek include Centinela Creek, Sepulveda Canyon Channel, Benedict Canyon Channel and numerous storm drains.

The lower Ballona Creek watershed ecosystem has been altered by intense land modification, encroachment of non-native plants, trash accumulation and attempts at bank protection along the creek using rock and concrete. Though an important function of the Ballona Creek is as a flood control channel, the lower watershed is still an important resource for both recreational uses and for fish and wildlife habitat. Further impairment could potentially jeopardize this remaining habitat. This study will evaluate opportunities for habitat restoration (including wetland and riparian habitat), improvements to water quality, trash mitigation, and recreation and related purposes along the lower reach of the Ballona creek.

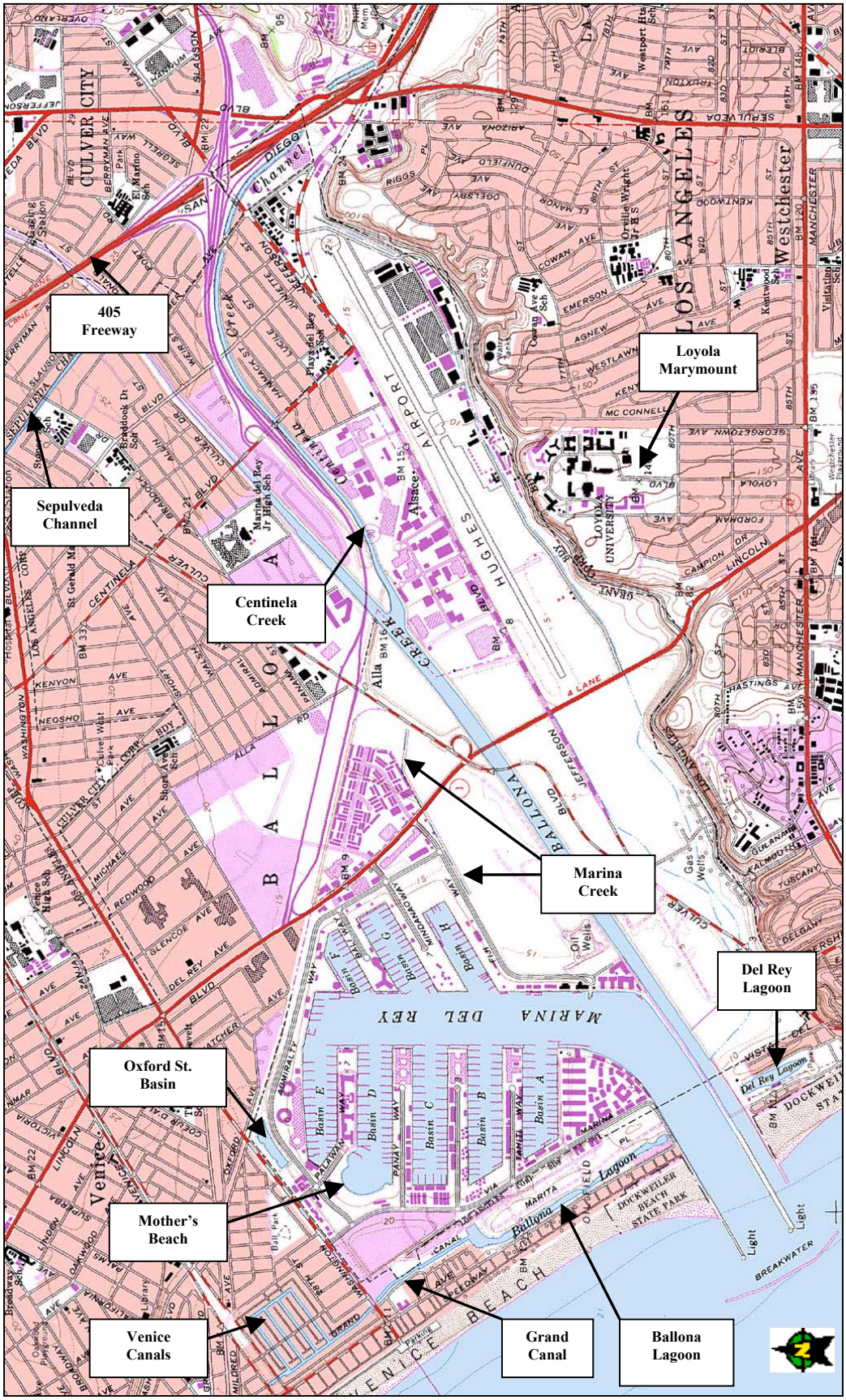


Figure 1. Study Area

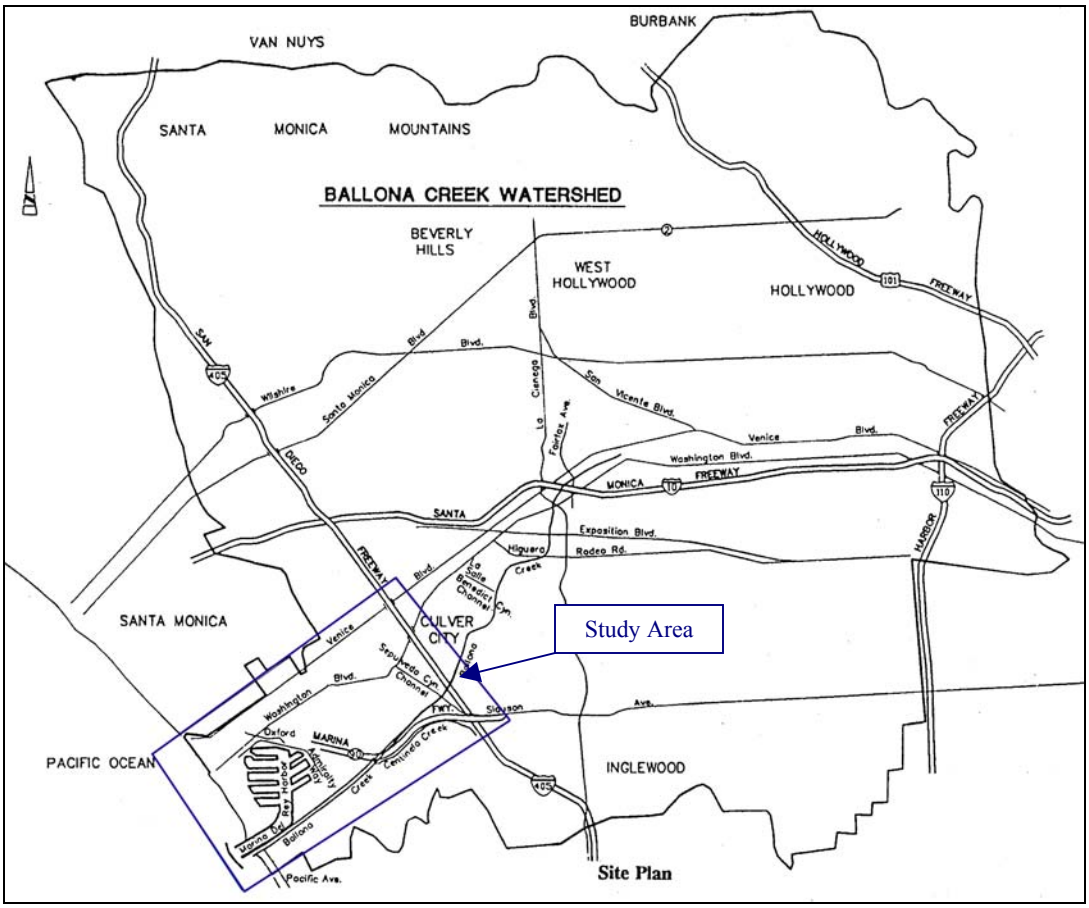


Figure 2. Ballona Creek Watershed Boundary

Areas of interest for potential restoration located in the Lower Ballona Creek Restoration study footprint are defined in the following passages:

Note: This document is not intended to be utilized as a basis for wetland delineation. References to wetlands for the purpose of this document will be in accordance with the federal definition per the "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

> "*Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soils conditions. Wetlands generally include swamps, marshes, bogs, and similar areas*".

The largest salt water and fresh water marsh system in the Santa Monica Bay area existed here historically before development altered their condition. The marshes extended south to the El Segundo Sand Dunes and Westchester Bluffs, north beyond the Ballona Lagoon and Venice Canals and east as far as the confluence of the Ballona and Centinela Creeks. The historic marsh system area included the present Ballona Lagoon, Del Rey Lagoon and the Venice Canal system. The marshes were filled over time for the development of the Venice area and construction of the Marina del Rey small craft harbor.

Within the study footprint approximately 152 acres of isolated and degraded wetlands remain within an undeveloped area of two square kilometers (500 acres). The Ballona and Playa del Rey Lagoons lie on the western edge. For ease of reference, major remaining undeveloped upland, riparian and wetland areas along Ballona creek will be referred to in this report using the Area A, B, and D designations established by the current property owner Playa Capital Company LLC (Playa Vista). Area C has been transferred to a trust for the state of California. Naming conventions as used herein, are not intended to imply perceived value of the properties and may change in the future. This is also true for use of the terms "ditch" and "degraded".

The majority of remaining open areas along the Lower Ballona is as yet undeveloped because they were privately owned and devoted to industrial uses until the late 1970s. The area is presently the site of the Playa Vista real estate development project. Sections of the originally planned development either have been transferred or are being negotiated for transfer to a state trust for public land.

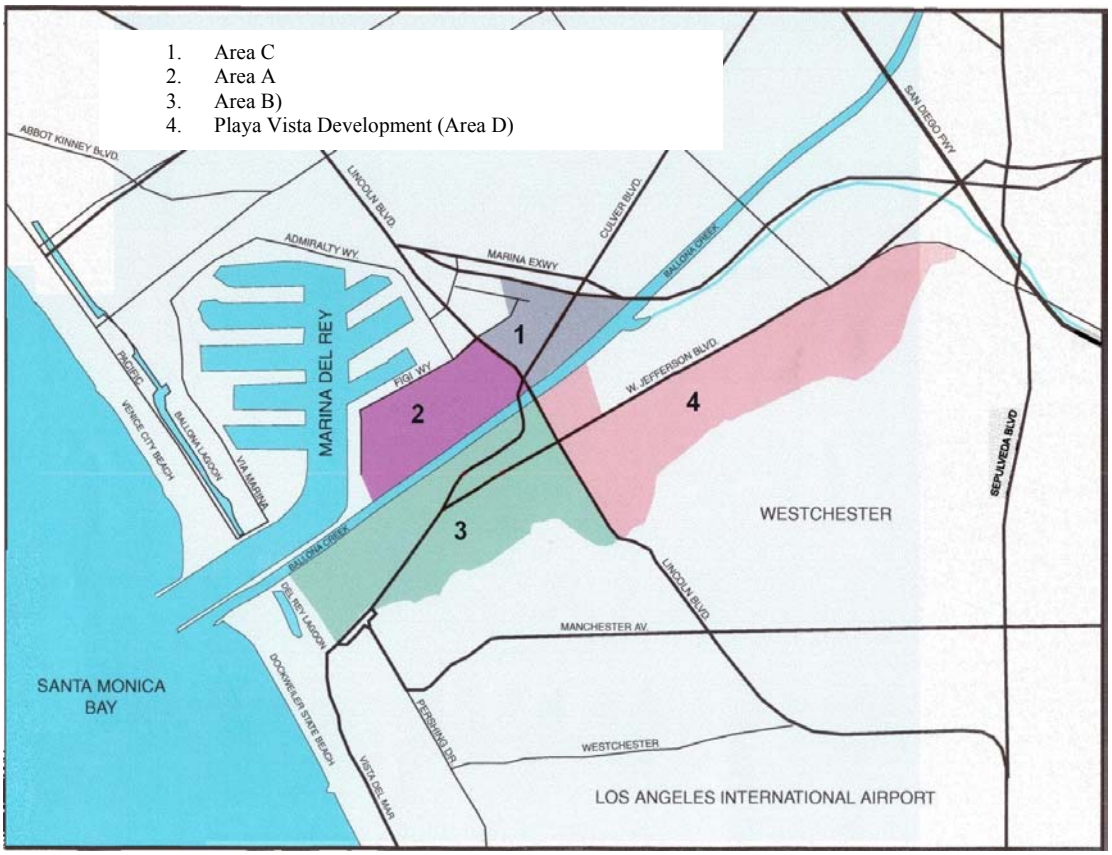


Figure 3

Area A covers 0.6 square kilometers (139 acres) and is located south and east of Marina del Rey harbor. It is bordered by Fiji Way to the north and west, Lincoln Blvd to the east and Ballona Creek to the south. It is largely undeveloped except for some isolated gas platforms at its westernmost extent. Dredge material excavated during construction of the flood control channel in the 1930's and later construction of Marina del Rey Harbor was placed in Area A and Area C (described below).

A small waterway named the Marina Ditch (covering .3 acres) runs through Area A from Marina del Rey harbor to Area C through a culvert under Lincoln Blvd. Area A supports 125.1 acres of upland habitat including both native and non-native species, 9.9 acres of high marsh with pickleweed dominated flats, 0.3 acres of subtidal (ditch), 3 acres of riparian habitat (mulefat) and 0.3 acres of scrub habitat. Although there are 9.9 acres of pickleweed, some areas did not exhibit the required indicators for wetlands hydrology and, as a result, officially only 8.8 acres of federal jurisdictional wetlands occur in Area A. Negotiations to transfer this property to the state Trust for Public Land are in process.

Area C is bounded by Lincoln Blvd and Fiji Way to the west, the Marina Expressway to the northeast and Ballona Creek to the southeast commercial and condominiums border to the north. Dredge material was excavated and placed here during construction of the flood control channel in the 1930's and later construction of Marina del Rey Harbor resulting in an elevation increase of more than 20 feet. Some of this area was later graded for construction of baseball diamonds. According to the functional assessment performed here by the U.S. Army Corps of Engineers (Corps) in materials provided by Playa Capital, Area C supports 0.5 acres of pickleweed flats, 0.6 acres of seasonal and perennial emergent marsh habitat and 0.1 acres of mulefat scrub, with the area being dominated by 67.7 acres of native and non-native scrub (Baccharis pillularis or coyote bush) habitat. The salt marsh supports native species such as *Salicornia virginica* (pickleweed) *and Frankenia grandifolia* (alkali heath) and may contain some fish spawning habitat.

Marina Ditch passes through a culvert beneath Lincoln Boulevard providing a hydraulic connection between Area C and Area A. This link provides minimal tidal flushing, an avenue for migration of brackish fish species, and supports an assemblage of native flora. A headwall within the culvert impedes flow. The area also includes a swath of sandy soil where sand dune species including native arthropods such as butterflies feed and reproduce. Area C is presently owned by a trust on behalf of the state and is being considered for transfer to a state natural resources agency.

Area B is bounded by Ballona Creek to the north, Lincoln Blvd to the east and the Westchester Bluffs to the west. It is currently an undeveloped parcel but for a few exceptions. There are approximately 142.6 acres of historic wetlands fed by freshwater sources including precipitation and local area runoff. Development in Area B is limited to a natural gas storage facility near the center of the salt marsh with associated above ground infrastructure. The area is dominated by pickleweed (Salicornia virginica) and also supports marsh heather (Frankenia grandifolia) and salt grass (Distichilis spicata). Tidal circulation from Ballona Creek to Area B has recently been improved by the installation of self-regulating flapgates. The improved flapgates will increase inundation levels and expand the wetland community from a previous 3.5 acres to a projected final 13.5 acres of improved wetland (USACE Ecosystem Restoration Report Section 1135 Ballona Creek Wetlands Restoration 2000). Among other benefits this action is anticipated to improve conditions conducive to supporting cordgrass (Spartina foliosa), which is presently absent from this area.

A freshwater marsh restoration project is currently being conducted at the eastern 8 acres of Area B of which 26 acres is wetlands restoration and of which 18 acres are complete.

The restoration project is being conducted by the Playa Vista in coordination with the Friends of Ballona Wetlands. A 3.8-acre section at the northeast edge of Area B had been slated for residential development however negotiations are currently underway to transfer the property to a state trust.

Portions of the Playa Vista development area (Area D), located between Lincoln and Jefferson Boulevards and the Westchester Bluffs, are currently being developed for residential and commercial use. The property contained approximately 3.5 acres of isolated degraded wetlands that were permitted to be filled pursuant to Corps Section 404 permit 90-426-EV. A 25-acre riparian corridor and the 26-acre freshwater marsh will be constructed as mitigation. Area D (east of Lincoln) has ongoing construction activities as well as existing development.

b. The non-Federal Sponsor for the feasibility phase of the study is the County of Los Angeles. The local sponsor, expressed support for the study in August 2001, understands the two-phase planning process and is willing to participate in 50-50 cost sharing of feasibility phase study.

c. The Study area lies within the jurisdiction of the 36th Congressional District of Congresswoman Jane Harman.

4. PRIOR STUDIES, REPORTS AND EXISTING PROJECTS:

a. Prior Studies and Reports: Numerous reports concerning Ballona Creek and the Marina del Rey harbor have been produced since the 1950's. A bibliography is provided at the end of this document.

b. Existing Corps Projects:

1) Ballona Creek Flood Control Channel

The Emergency Flood Control Act of 1935 and the Flood Control Act of 1936 authorized the existing Federal Flood Control Project along Ballona Creek. The main flood control channel was constructed by the Corps and the Los Angeles County Flood Control District (LACFCD), between 1935 and 1939. Between 1959 and 1965, in response to the 1941 Flood Control Act, the Corps and the LACFCD modified the existing channel to provide a higher level of protection. Modifications consisted of dredging silt deposits, raising walls and levees, and grouting levee facing.

Ballona Creek is concrete lined upstream beginning just south of La Salle Avenue. Within the study area, below the San Diego Freeway, the channel has an earth invert with quarry stone backfill and grouted stone side slopes. All of its tributaries are either concrete channels or covered culverts. Runoff from the watershed is discharged from the channel into Marina del Rey's South Entrance channel and Santa Monica Bay at the mouth of Ballona Creek, which is located immediately down coast of the Marina harbor.

The Benedict Canyon system channels (including Higgins and Coldwater Canyon Channels), tributaries to Ballona Creek, were constructed between December 1962 and January 1964. A major length of channel consists of covered box culverts. The confluence

of Benedict Canyon Channel with the main channel of Ballona Creek is located at Madison Avenue just east of La Salle Avenue in Culver City.

The Sawtelle-Westwood system Ballona Creek tributary channels were built between March 1950 and February 1960. The channels are covered box culverts along most of the system. The confluence with Ballona Creek Channel is located near Slauson Avenue west of San Diego Freeway.

Centinela Creek Channel, a tributary, was constructed between 1960 and 1962. It is an open, concrete-lined, rectangular channel except for an approximately 800-meter (0.5 mile) reach east of the Marina Freeway. The confluence with the Ballona Creek Channel is located about 800 meters (0.5 mile) upstream from Lincoln Boulevard crossing.

There are two sections of Ballona Creek that are maintained by Corps. These areas are seaward of Pacific Avenue (near the mouth) and between La Cienega Boulevard and La Salle Avenue (upstream). The Los Angeles County Department of Public Works (LACDPW) maintains other portions of the creek.

2) Marina del Rey harbor

Marina del Rey harbor is located adjacent to and north of the mouth of Ballona Creek. The construction of Marina del Rey harbor (formerly Playa del Rey Inlet and Harbor) was authorized by Act of Congress, Public Law 780, Eighty-third Congress, Second Session, approved 3 September 1954, in accordance with a plan published in House Document 389, Eighty-third Congress, Second Session. The plan of improvement was modified by the Chief of Engineers in 1956 and 1963.

The existing Federal navigation features at Marina del Rey harbor consist of two entrance jetties and an offshore breakwater, and include an entrance channel and a main channel that, when combined, extend approximately 3.7 kilometers (2.3 miles) to the "back harbor." Eight non-Federally maintained lateral basins are located on the sides of the main channel. The entrance channel consists of two entry points located adjacent to the upcoast and downcoast sides of the detached breakwater. These entry points are commonly referred to as the North and South Entrance Channels. The middle and north jetties at the harbor entrance (both completed in 1959) extend approximately 610 meters (2,000 feet) into Santa Monica Bay. The breakwater, built in 1965, is about 710 meters (2,330 feet) in length-oriented parallel to the shore and located approximately 183 meters (600 feet) offshore of the tips of the entrance jetties. The major navigation features for the harbor are shown in Figure 4. Currently the harbor provides anchorage for an estimated 6,000 small-craft vessels and land-storage facilities for 2,000 trailer-mounted vessels.

The Corps performs periodic maintenance dredging in the North and South Entrance Channels, the Main Entrance Channel, and at the mouth of Ballona Creek to maintain navigable depth.

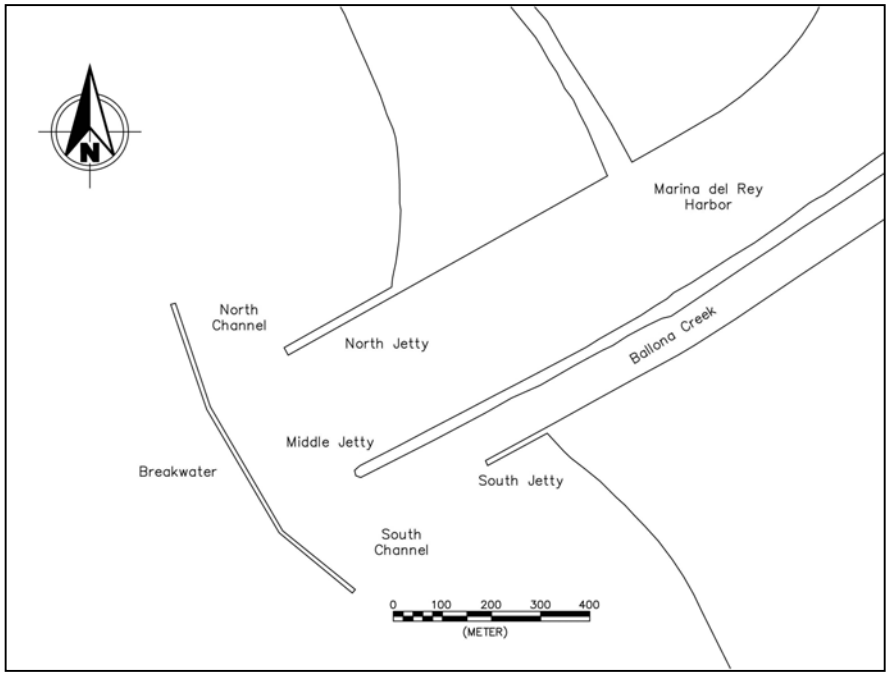


Figure 4. Navigation Features of Marina del Rey Harbor

c. Current Corps Study: Marina del Rey and Ballona Creek Sediment Control Management Plan Feasibility Study: This study evaluates alternatives to resolve the problem of the shoaling of contaminated sediments at the North Entrance Channel of the Marina del Rey harbor. Alternatives being evaluated include an in-stream sediment basin in Ballona Creek and modification of the middle jetty.

d. Corps Planned Projects

The 1135 Action Project Modifications Ballona Wetlands Restoration project to modify the existing tidegate system at the northwest section of the Southwest Wetland area (Area B) of the Ballona Wetlands, is due to begin construction in the fall of 2002. The objective of this restoration project is to increase the existing tidal exchange and inundation level in a portion of the Ballona Wetlands. The project entails increasing inundation levels to the western portion of the wetlands by modifying the existing tidal control system from three flapgates to two self-regulating tidegates and one new flapgate. This modification will allow inundation levels to the wetlands to be increased or decreased to achieve the most beneficial habitat levels. This restoration action is expected to expand the Ballona Wetland from its existing 14,164 square meters (3.5 acres) to an estimated 54,633 square meters (13.5 acres) of restored habitat.

e. Projects by Others

Existing Projects

1) Oxford Street Basin

The Oxford Street Basin drains into Basin E of Marina del Rey harbor. A tide gate controls the flow from Oxford Basin into Basin E of Marina del Rey harbor. A number of storm drains feed into the Oxford Street Basin. Storm drains maintained by the Los Angeles County Flood Control District (LACFCD) in the vicinity of the harbor are also shown below.

Combined with $2 million in funding assistance from the State Regional Water Quality Control Board (Prop 13), the County of Los Angeles is progressing with a project to further analyze the water and sediment and plans to implement needed water quality Best Management Practices and bring cleaner water into Basin D and improve the basin's circulation. Additionally, the County plans to utilize the open space character of the Oxford Basin to improve the perimeter and develop meandering sidewalks and trails, decorative fencing, interpretive signage, to extend the usable open space without compromising the principal flood retention functions of the Basin.

2) Ballona Lagoon Marine Preserve:

The California State Coastal Conservancy and the City of Los Angeles have completed restoration actions at the Ballona Lagoon in Venice, one of the last remaining tidal wetlands in Southern California. The project included: expansion of an island at the northern end of the lagoon to provide additional mud flat areas for birds to forage and nest; planting of native vegetation, such as buckwheat and pickleweed, in place of existing exotic plants growing along the eastern banks of the lagoon; a new fence to separate an existing walkway from the lagoon to keep people and pets off the banks; the removal of a large concrete oil platform left after drilling along the lagoon more than 50 years ago; a deep pool dredged at the lagoon's southern end to help circulate water and flush away debris and other contaminants; and a public overlook platform, accessible from a ramp winding down the lagoon bank from the public path. A third phase of this project is presently being negotiated that will address the west bank of the lagoon. It will include: removal of exotic vegetation and replacement with native plants, and placement of interpretive signs.

3) Playa Vista Development, Playa Capital Company LLC

The Playa Vista Development project area originally encompassed approximately 4.4 square kilometers (1,087 acres) in Marina del Rey bounded by Fiji Way to the north, Jefferson Blvd to the north and east, the Playa del Rey/Ballona Sand Dune to the west and the Playa del Rey/Westchester Bluffs to the south. The project was broken into subunits designated as the Areas A B, C, and D (Fig. 3). Construction of a mixed commercial and residential community at Area D is currently underway. For a more in depth description of the status of these parcels see Section 3, *Study Area Description,* above. Playa Vista has granted an option to the Trust for Public Land to purchase Area A. Negotiations to arrive at a fair market value are presently ongoing. A similar option to purchase has been granted to

the Trust for Public Land for 0.2 square kilometers (54 acres) at the upper northwest corner of Area B. Assessment of fair market value is currently being negotiated.

Area C covers 0.3 square kilometers (73 acres) and is currently held in trust for the State of California. A portion of the site houses recreational ball fields with the remainder open and undeveloped. Legislation is being initiated that will transfer Area C to the State Park system.

Other facets of the Playa Vista Development project include the Playa Vista Freshwater Marsh and Riparian Corridor the Friends of Ballona Wetlands Dune Restoration and Promenade Park on the Ballona Channel.

Planned Projects

1) Ballona Creek and Trail Focused Special Study (BCTFSS) and Environmental Impact Statement Culver City: Prepared by City of Culver City and funded by California State Coastal Conservancy

The BCTFSS goals are to: 1) better define the potential for enhancing the creek and trail's use as a recreational resource, 2) assess the general condition and appearance of the channel and bike path, access and use, water and air quality, security and safety, noise, habitat, and fragmented jurisdictional control, 3) establish goals and objectives of Ballona Creek and Trail, 4) propose various programs, actions, uses, activities, and developments for achieving the recommended goals.

2) Ballona Foundation- BOLD Project and Ballona Bike Path

3) Baldwin Hills Park:

The Baldwin Hills Conservancy was created and charged with developing and coordinating an integrated program of resource stewardship to achieve optimum recreational and natural resource value for the Baldwin Hills area. Objectives include acquiring open space and restoration of natural habitat in the Baldwin Hills area and improving regional recreation, education and cultural experiences. This project area is located east of the Ballona Channel.

4) Ballona Creek and Trail Focused Special Study:

This study, being conducted by the City of Culver City and funded by the California State Coastal Conservancy, covers a 6.4 kilometers (4-mile) stretch of the Ballona Creek located within the City. The objective of this study is to improve Ballona Creek and trail use as a recreational resource and improve the conditions and appearance of the channel.

5) Del Rey Lagoon Improvements Project:

The City of Los Angeles will remove invasive plants and replant native vegetation on the east and west banks of the lagoon.

6) Grand Canal Restoration:

The City of Los Angeles planned on restoring the Grand Canal to include new storm drains, native vegetation, improved water quality and fenced, safe walkways. This $1.5-Million project, which would be funded by residents through an assessment program, had been in the works for almost 10 years. The 305 meter (1,000-foot) long Grand Canal is the last piece of a restoration project that would include the Venice Canal network north of Washington Boulevard and the Ballona Lagoon, which feed into Marina del Rey. The City of Los Angeles envisioned transforming the Grand Canal into something closer to the Venice Canal and its tributaries, whose neatly manicured mostly concrete banks rarely overflow. Varying options are currently being negotiated.

5. PLAN FORMULATION:

During a study, the six planning steps that are set forth in the Water Resource Council's Principles and Guidelines are used to focus the planning effort and eventually to select and recommend a plan for authorization. The six planning steps are: 1) specify problems and opportunities, 2) inventory and forecast conditions, 3) formulate alternative plans, 4) evaluate effects of alternative plans, 5) compare alternative plans, and 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 step of specifying problems and opportunities 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 SPD Planning Conference. This information will be refined in 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 statues, 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 Corps has added a second national objective for Ecosystem Restoration in 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 have been identified during discussions with Ballona Watershed Task force members, City of Culver, City of Los Angles

and County of Los Angeles officials, the Ballona Creek Watershed Task Force and environmental groups. The public concerns that are related to the establishment of planning objectives and planning constraints include, but are not limited to the following:

1) Remaining wetlands along Ballona Creek are degraded and fragmented.
2) Portions of the area of land bordered by Ballona Creek, Culver Blvd and the Marina Expressway (Northeast Wetland area or Area C), historically a wetland area, has been filled with dredged sediment.
3) The water and sediment quality of Ballona Creek is impaired.
4) Sideslopes of Ballona creek are hardlined, impeding natural water exchange to adjacent wetlands.
5) Important remaining coastal wetland habitat, which supports endangered species such as the snowy plover and the California least tern and Elegant tern is threatened by human disturbance.
6) The recreational potential for contact/noncontact recreation along the Ballona is underutilized.
7) The flood control function of the Ballona Channel must be maintained.
8) Stormwater/urban runoff and resultant contaminant/trash discharge to Ballona creek and wetlands.
9) There is an absence of water retention structures to help regulate water supply, storing during flood flows and releasing during dry periods.
10) An inventory of discharges/dischargers to the Ballona Creek has not been created.
11) Natural oil and gas seeps occur in the vicinity of the Ballona wetlands
12) Illegal dumping occurs along the Ballona Channel.
13) Deposition of air pollutants to the Ballona wetlands and creek contributes to pollutant loading and degradation of water and sediment quality
    Remaining remnant wetlands are fragmented. Wetland fauna is isolated in these pockets and migration between parcels leads to increased mortality because travel over roadways is necessary.
14) Wetland fisheries are degraded. Pacific halibut no longer frequent the Ballona Wetlands for purposes of spawning.
15) Invasive plant species are present in the Ballona wetlands.
16) Fences or other obstructions are needed to prevent destructive human access to wetland habitats
17) Wetland habitat needs to be protected and restored to support existence of rare, threatened, endangered species.
18) Native plant species need to be restored, such as pickleweed to enable nesting recovery, restoration of native species.
19) The present configuration of the Ballona channel acts as a seawater barrier to Area C and Northwest (Area A) Wetlands.
20) Streams feeding Ballona are concrete lined and covered.
21) Public education regarding the importance of riparian and wetland habitat is needed.
22) Old unused abutments and pipes are not removed from the Ballona Channel.
23) Storm drains are poorly located.

24) Transportation flow across Ballona needs to be maintained but impacts of transportation linkages need to be understood.
26) There is presently poor lateral coastal access.

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 problems and opportunities that can be addressed through water and related land resource management. Problems are related to environmental degradation and water quality. For each problem and opportunity, the existing conditions and the expected future conditions are described below. A general problem and opportunity statement for the lower Ballona Creek watershed ecosystem is provided below followed by a listing of problems and opportunities identified at specific locations within the watershed.

General Problem Statement: At least 90 percent of historic coastal wetlands in California have been lost due to filling, dredging, flood control and intensive development. Within the Lower Ballona Creek Watershed, remaining fragmented wetland areas have been degraded due to diminished hydraulic function, poor water quality and introduction of exotic plants and animals. While functioning wetland systems and riparian habitat remain, they are stressed.

- Channelization of the Ballona Creek and filling of historic wetland and riparian areas has contributed to degradation and loss of habitat due to impeded tidal exchange and circulation
- Contaminated stormwater runoff and trash loading has degraded Ballona Creek water quality.
- Habitat alteration and loss has decreased biodiversity and overall ecological health threatening the survival of native endangered species such as the California least tern (Sterna antillarum brown), snowy plover (Charadrius alexandrinus) and the Belding's Savannah Sparrow (Sandwichensis belding).
- The current design of the Flood Control channel has resulted in a lack of recreational opportunities and is considered aesthetically unpleasant.
- At present there is no broadly integrated approach and partnership amongst stakeholders to resolve lower Ballona Creek in-stream and wetland degradation issues which has led to uncoordinated and sometimes redundant efforts being taken.

General Opportunity Statement: Restore previously filled wetlands and improve the quality of remaining existing wetland remnants and riparian habitat.

Creating healthy wetland ecosystems will provide important coastal wetland habitat for threatened and endangered species and can also aid in enhancing Ballona Creek water quality. Wetlands can be restored by increasing the tidal exchange and circulation that has been impeded as a result of installation of impermeable flood control structures roadways by managing invasive species and restoring native vegetation. Creating subtidal habitat and increasing the tidal prism will improve fisheries habitat for typical wetlands estuarine fish such as the California halibut, diamond turbot, anchovies, topsmelt and staghorn sculpin.

General Measures: •Perform an assessment of the feasibility of removal of impervious surfaces from the Ballona Channel. •Regrade and remove fill, reintroduce a water source and establish native plants to restore previously filled wetlands. •Develop a hydraulic model of the lower Ballona system to aid the evaluation of restoration options that would include hydrologic improvements and remnant wetland re-linkage to best improve the Ballona ecosystem habitat. •Develop a Geographic Information System (GIS) database of the Lower Ballona Creek watershed ecosystem to store and display data collected in the Lower Ballona Creek watershed. •Establish a programmatic, synergistic approach to coordinate activities and catalyze joint ventures to restore and improve the lower Ballona Creek ecosystem. •Develop a Restoration and Management Plan to optimize and manage resources. •Form a joint powers authority or other agreement with stakeholder groups to coordinate, develop, implement and manage study and restoration actions in an integrated and comprehensive way.

Constraints: Although it is possible to perform an assessment of the potential for removal or replacement (with a penetrable surface) of impervious surfaces along the Ballona Channel, the flood control function of the Ballona Channel must be maintained to protect the surrounding population and infrastructure.

Large amounts of material (several million cubic yards) would need to be removed and transported elsewhere to restore tidal inflow to areas A and C.

Transportation routes through the Ballona wetlands would need to be maintained. Any proposed modifications to roadways would need to be coordinated and approved by the Department of Transportation. An assessment of impact to existing infrastructure would need to be performed for any alteration of the existing flow regime of the Ballona Creek.

The lower Ballona Creek and watershed spans several communities including Marina del Rey, Playa del Rey, City of Culver City, the City of Los Angeles and an unincorporated section of Los Angeles County. Coordination with local entities would be required.

Playa Capital owns Ballona Channel adjacent Area D.

Stakeholder groups will need to formulate and agree to terms of, and commit to formation of a joint powers authority for the Lower Ballona Creek watershed ecosystem restoration initiative.

Area Specific Problems and Opportunities:

1) Area C

Problem: See general problem statement. Area C was a historic coastal brackish marsh but has been filled above grade with dredge spoils from the channelization of the Ballona Creek and the construction of Marina del Rey boat harbor. There are currently poor hydraulic connection with Ballona Creek and the Marina. Culver Boulevard bisects the Area isolating riparian and wetland remnants.

Opportunity: See general opportunity statement. 1) Improve hydraulic connection and riparian, fresh and saltwater marsh habitat. 2) Improve water quality 3) Improve recreational opportunities 4) Improve stormwater cleansing

Measures: •Remove fill and regrade the area to support wetland restoration. •Reestablish a hydraulic connection with Ballona creek. •Divert dry weather flow from Ballona Creek to the reestablished wetland to aid in improving Ballona Creek water and sediment quality. •Construct a detention structure to capture water during high flows for utilization during low flow periods. •Implement a water treatment system such as sand filtration or other treatment method to improve quality of inflow if necessary. •Replant native riparian and wetland foliage to create habitat for native fauna. •Raise Culver Blvd or construct culverts beneath. •Construct a detention structure to capture water during high flows. •Construct filtration or other treatment system to remove contaminants.

Constraints: About a seventh of the property is utilized as ball fields and is a recreational resource to the local community. Recreational use of this land may need to be maintained or an alternate location identified prior to any restoration activities moving forward at this site.

The limited size of this area would limit the effectiveness of use of this land for filtration of storm water runoff and Ballona Creek water for the improvement of water quality especially during high flows. The inflow to this area would need regulation.

The parcel is bisected by a roadway and loop. Impacts of any proposed alterations to this parcel on surrounding infrastructure would need to be assessed and appropriate measures taken to protect it. Alternatively the infrastructure could be raised above grade or otherwise altered. Coordination with DOT would be necessary.

This parcel is currently held in trust for the State of California pending legislation to transfer Area C to an appropriate State Resource Agency. It is currently unknown which

state agency will ultimately be responsible for the property. The Parcel lies within the City of Los Angeles and is within the Coastal Zone, any activity would require approval by the Coastal Commission.

2) Area A:

Problem: See general problem statement. Also Area A is intersected by Culver Boulevard, which segregates a section of the parcel from what would be naturally contiguous wetland and riparian habitat.

Opportunity: 1) Improve wetland and riparian habitat and fisheries at Area A. 2) Restore a more natural hydraulic process. 3) Improve recreational opportunities 4) Restored a healthy marsh that would act as a natural filter enhancing Ballona Creek water and sediment quality, which would in turn have a positive impact on Santa Monica Bay water quality.

Measures: •Increase tidal prism. •Divert a regulated flow of water from the Ballona creek, or a freshwater flow channeled from Area C, should a diversion of flow from Ballona to this area be deemed feasible, to act as a fresh water source to the marsh. •Introduce saltwater by creating a regulated connection to the Marina del Rey Harbor main entrance channel. Brackish conditions important to a healthy wetland could thus be created. •Remove invasive species. •Restore native flora such as pickleweed and cord grass. A mixed tidal area created by the inflow of fresh and salt water would support the growth of pickleweed and cord grass. Cord grass provides habitat for the clapper rail, a former resident of the Ballona Wetlands. •Restore riparian habitat through stream bank improvements and reestablishment of native plants. •Divert dry weather Ballona Creek flows to alleviate excessive sediment and contaminant loading and enhance water quality. •Install pretreatment facilities for inflows to remove trash, contaminants and excessive sediment loading. •Culver Boulevard could be raised above grade to increase the tidal prism, increase water circulation and enable wildlife migration and enable the entire parcel to be restored as a contiguous wetland. •Alternatively, culverts could be constructed beneath Culver Boulevard to improve tidal circulation to the Area A or Culver Boulevard could be rerouted. •Additional culverts could be installed to improve hydraulic connection between Areas A and C or a section of Lincoln could be raised to allow circulation. Feasibility of alteration or removal of the bulkhead present in the existing culvert connecting Areas A and C can be explored. •Freshwater flow from Area C could be introduced should a hydraulic connection with Ballona Creek be deemed feasible there. •Recreational improvements along Areas A and C could include bike pedestrian trails and observation posts and a Marine education center. •Parking facilities could be provided to improve public access at an already existing paved area located at the southwest corner of the parcel. Use of pervious pavement at the parking area would aid in preventing additional surface runoff to the creek and marina.

Constraints: The Trust for Public Land has been granted an option over the property from Playa Capital, LLC however transfer of this parcel has not yet occurred. Activities will not progress at this location until the transfer has taken place.

The parcel lies in unincorporated Los Angeles County and jurisdiction is within the Coastal Zone, but is not within the area covered by the approved Marina del Rey Local Coastal Plan. Any activities at this location would require approval by the Coastal Commission.

3. Marina (Fiji) Ditch

Problem: The Marina Ditch is a feature of Area A and Area C that connects to Marina del Rey harbor at Boat Basin H. There is currently poor circulation resulting in poor water quality, stagnation, and impacts to fish and wildlife. This feature provides deepwater habitat and tidal flushing to Area A but is impeded by a bulkhead that narrows the culvert aperture as the creek passes beneath Lincoln Boulevard and constricts flow into Area C.

Opportunity: 1) Optimize marine circulation. 2) Improve fishery and opportunity for movement of marine fishes to Area C.

Measure: •Remove the bulkhead at the Culvert beneath Lincoln Blvd.
• Improve circulation by providing an outflow from Area C to Area A and providing a connection to Ballona Creek •

Constraints: For stormwater flood control, need to ensure flow continues to Basin H. Parallel bicycle and pedestrian trail development is necessary adjacent to the Marina Creek between Lincoln Blvd. and Admiralty Way (northeast corner) due to utility and right-of-way constraints along Fiji Way in Marina del Rey.

The Trust for Public Land has been granted an option over Area A from Playa Capital, LLC however transfer of this parcel has not yet occurred. Activities could not progress at this location until transfer has taken place.

4. Area B, saltmarsh

Problem: See general problem statement. Culver Boulevard and Jefferson Boulevard bisect Area B, and segregate a section of the parcel from what would be a naturally contiguous wetland. Raised areas created as conduits and roads also act as barriers between the east and west portions of Area B. There are presently inadequate passive recreational activities available.

Opportunity: See general opportunity statement. 1) Improve wetland and riparian habitat. 2) Improve hydraulic connectivity to and throughout Area B. 3) Establish access points for passive recreation and educational opportunities.

Measures: •Remove remnants of the old Pacific Electric Railroad bed. •Install new tidal channels and culverts installed under Culver Blvd to create more submerged wetlands at

higher tide levels. •Explore opportunities to remove unused Southern California Gas Company facilities and roads along the south bluff to further improve water circulation.

West End: Problem: Historic dune habitat has been degraded. Native vegetation is stressed or nonexistent impairing its functions as habitat for birds and mammals, and sand erosion control.

Opportunity: Restore and revegetate dune habitat.

Measure: Provide additional resources toward restoring dune habitat on available land located between the shore and salt marsh.

A dune restoration project is underway by the Friends of Ballona Wetlands. Coordination to integrate and enhance efforts would be necessary.

All of Area B is presently owned by Playa Vista but negotiations are in process to transfer at least portions to a public trust. Activities will not progress at location until the transfer takes place.

.

Southern California Gas Company may have an easement on the south parcel of Southwest Wetland (Area B). Reservoirs for natural gas storage currently underlie the parcel. There may be a potential for land subsidence to occur if the reservoirs are discontinued. For the purposes of this study, it will be assumed that the gas reservoirs will remain in operation for the foreseeable future.

5. Areas A, B and C:

Problem: Currently Area A, Area C and Area B occur as isolated remnant wetlands due to bifurcation by roadways impeding tidal circulation and isolating wetland faunal populations.

Opportunity: Create habitat linkages to connect the wetland and riparian areas.

Measure: •Evaluate existing infrastructure for opportunities to modify to establish linkages between wetland areas. •Construct culverts to establish hydraulic connections between wetland areas.

Constraints: Any proposals for modifications to existing infrastructure would need review and concurrence by relevant stakeholder agencies. Easements may be necessary for construction of culverts.

Other Areas of Interest

6. Del Rey Lagoon:

Problem: No hydraulic connection currently exists between Del Rey Lagoon and Area B to improve natural tidal circulation resulting in poor water quality and degraded habitat.

Opportunity: Improve tidal circulation

Measure: •Construct a conduit between the Lagoon and Area B along Ballona Creek or through an easement on property located east of the lagoon. •Evaluate the potential to enlarge the south end of the lagoon and restore the lagoon's historic outlet at the south end.

Constraint: Private residential property exists to the east of the Lagoon while the north end of the lagoon is privately owned therefore options may be limited. Negotiations and easements may be necessary to provide an avenue for linkage to Area B. The South end of the lagoon is a city park adjacent to an active playing field.

7. Dockweiler Beach

Problem: The beach and associated dune area was historically contiguous to the southwest wetland area but are now separated by residential development and roadways. Natural dune habitat has been destroyed or degraded due to development and human activities.

Opportunity: Restore dune habitat.

Measure: Reestablish and revegetate dune area bordering Dockweiler beach.

Constraints: This is presently a high use recreational area. Picnic, promenades, and volleyball courts presently exist at the site. In addition, the South Bay Bicycle Trail runs along the entire length of the State Beach. Recreation usage will need to be maintained while improving habitat.

.

9. Sepulveda Drain

Problem: Stormwater emptying from the Sepulveda drain to Ballona Creek is contaminated by urban runoff.

Opportunity: Improve water quality

Measures: •Treat stormwater to help improve Ballona Creek water quality and improve wetland habitat. •Perform a siting analysis for building constructed wetlands to filter stormwater in the Sepulveda Drain sub-watershed. Alternatively dry weather flow can be diverted through the Northeast Wetland area (Area C) assuming restoration of wetland occurs in that Area.

10. Grand Canal

Problem: Water circulation is poor due to improperly functioning existing tide gates resulting in poor water quality and degraded habitat.

Opportunity: Improve circulation

Measures: Reengineer the tide gates to improve circulation and therefore habitat.

11. Venice Canals

Problem: Water circulation to the Ballona Lagoon is poor in part due to malfunctioning tide gates. As a result water circulation to the Venice Canals is poor, water stagnates in this area, and wetland habitat is degraded. There is also high nutrient and possibly bacterial loading from domestic animals and standard surface runoff from streets.

Opportunity: Improve tidal circulation and water quality

Measure: •Repair or redesign existing tide gates and conduct benthic surveys to assess the feasibility and necessity of modification of lagoon bathymetry to allow a more active tidal prism. •Explore the possibility of automating the existing tide gates and connecting to the City of Los Angeles' SCADA system operated out of the Hyperion Treatment plant. •Provide connections to this system from the Marina, possibly the Oxford Flood Control Basin and possibly the ocean through a conduit or a salt water pumping system at the northern end. •Remove invasive species and restore native varieties

Structural and nonstructural best management practices such as catch basin inserts and public education can be utilized to eliminate loading of trash and contaminants to Ballona Creek which will aid in achieving newly mandated TMDL for Ballona Creek.

12. Ballona Channel

Problem: A major stretch of the Ballona Channel is concrete and/or grouted riprap lined or riprap lined. The smooth surface is important for allowing flood flow to travel more quickly through the channel to empty out to the ocean. Rougher surfaces, e.g. natural bottom, may retard flow to a degree that would create a higher water surface level and possibly lead to flooding. The use of impervious lining in the channel does, on the other hand, lead to degradation of the surrounding riparian and wetland habitat. The surfaces are also considered unnatural and unsightly.

Opportunity: An evaluation of the existing flood control structure can be performed to assess opportunities for improving hydraulic connectivity and circulation with adjoining riparian and wetland habitats and improving instream habitat while maintaining the flood control function of the channel. Opportunities for modification or removal of concrete and daylighting culverts can be assessed. Recreational opportunities along the Ballona Channel can be enhanced.

Measures: •Perform an engineering evaluation to assess the feasibility of removal of impervious surfacing along Ballona Creek. This would include the possibility of removing concrete and or replacing with a more permeable, low friction surface. An updated hydrologic and hydraulic investigation of the entire system would be necessary, including a study of all feeder culverts.

•Consider alternative or ancillary methods of flood control such as off line water storage facilities or adjacent "flood parks" to assist in flood control function. These can be used to mitigate any impacts to the flood flow levels that may result from alteration of channel surfacing. The use of instream sacrificial wetlands to provide instream habitat and filtration could be explored.

•Reconfigure the area between the Centinela Channel and Ballona Creek at their confluence, to improve estuarine habitat, improve aesthetics, provide recreational benefit, and provide natural filtration of Ballona Creek waters and sediments. Estuarine habitat at this location could be improved by removing the V where the creeks come together to expand the estuary.

•Construct bike and walking trails along the Ballona Channel including a connection to the Baldwin Hills Park to Playa project.

13. Ballona Creek Tributaries

Problem: Tributaries to Ballona Creek are channelized in underground culverts preventing the tributaries from functioning as natural habitat.

Opportunity: Restore tributaries as habitat and quality feeders to Ballona Creek. Provide recreational opportunities.

Measures: •Construct bike trails and a walking trail along the Sepulveda and Centinela channels. •Daylight concrete culverts where deemed feasible

Constraint: The flood control function of the Ballona Channel and tributaries is primary. A hydrologic and engineering assessment would need to be performed to evaluate viability of such a project and assess impacts to the flood control function of the channel and tributaries.

14. Ballona Lagoon

Problem: The currently existing tidegates, which supply tidal circulation to the Ballona Lagoon from the Marina del Rey main channel, are currently malfunctioning and

not optimally designed. Although water circulation to the lagoon is good it is not optimal. High nutrient loading from domestic animals and standard surface runoff from streets also contributes to degradation of water quality and habitat.

Opportunity: Improve tidal flow and improve habitat.

Measures: •Repair the existing tidegate to allow a more active tidal prism. •Create a hydraulic connection between Ballona Lagoon and Basin B or C in Marina del Rey harbor. This would improve the water quality in the lagoon and the Marina Boat Basin. This could be done along public rights of way using a culvert to avoid need for an easement. •Remove invasive species (plant and aquatic) in order to improve habitat and restore native flora and fauna. •Implement structural and nonstructural best management practices, such as catch basin inserts and education programs to maintain improved habitat.

Constraints: The City of Los Angeles is currently undertaking restoration actions at the Ballona Lagoon. Actions taken at this location would need to be coordinated with the City. Existing infrastructure would need to be protected or altered.

15. Washington Tidegate

Problem: The Washington tidegate is currently improperly functioning preventing adequate water circulation to the Venice canals and creating a flooding problem.

Opportunity: Repair or redesign the tidegate to improve water circulation.

16. Oxford Flood Retention Basin

Problem: Water quality of runoff into the Marina from the Oxford Basin is poor. The basin empties into Basin E, thus degrading water quality in the northern reaches of the Marina. Basin E is north of the only water contact recreation area in the Marina, at Marina (Mother's) Beach, Basin D, where circulation is also poor.

Opportunity: Improve water quality

Measures: •Explore reconfiguration of the basin to provide better water treatment capability. •Install continuous deflector system (CDS) units on all drains emptying to Oxford Basin would solve the trash problem. •Link the basin to the Grand Canal as well as the Marina to improve water quality at Mother's Beach and Grand Canal.

Constraint: Los Angeles County is currently undertaking storm drain modifications to improve flushing and implementing best management practices to reduce pollutant loading from adjacent parking lots. Activities at the basin area will need to be coordinated with the County's efforts.

17. Lincoln Boulevard Storm Drains

Problem: Storm water from Lincoln Boulevard, which drains to Marina del Rey harbor Basin H, is currently untreated. This increases pollutant loading into the Marina harbor.

Opportunity: Improve water quality

Measures: •Divert flow to Area A and/or Area C to create a freshwater flow and cleanse the street runoff prior to its emptying into the Marina or Ballona Creek. Water input would help improve habitat at Areas A and Area C. •Construct stormwater treatment facilities to treat stormwater runoff prior to diversion

Constraint: There may be a preference by some government agencies and community groups to restore Area A as a saltwater marsh and therefore resistance to inputting freshwater flow to Area A and/or Area C. There may also be resistance to use of wetlands as a filter for stormwater runoff. Additionally substantial fill removal and regrading would be necessary.

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 in the without project conditions. The planning objectives, to be evaluated over a 50-year period of analysis, are specified as follows:

- Formulate an integrated comprehensive plan to restore the Lower Ballona Creek Watershed ecosystem

- Increase the quantity of suitable habitat for threatened, endangered, and sensitive species such as the California least tern and Belding's savannah sparrow in the Lower Ballona Watershed.

- Restore processes of tidal and freshwater inundation in Areas A, B, and C, the Del Rey and Ballona Lagoons and the Venice Canal system
- Increase the quantity and quality of wetland and riparian habitats in the Lower Ballona Creek watershed

- Restore intertidal estuarine fishery

- Reduce the presence of the exotic/invasive species, e.g., Calerpa taxifolia in marine habit and restore native vegetation

- Reduce concentrations of metals, pesticides and pathogens in Ballona Creek and restore beneficial uses designated by the Water Regional Water Quality Control Board

- Increase noninvasive passive recreation and environmental interpretation opportunities within the lower Ballona Watershed particularly at the wetland areas

- Increase noninvasive passive and active recreation opportunities along Ballona channel

- Improve the aesthetic conditions in flood control channels

- Educate the public on watershed related issues

- Passive recreation improvements

e. Planning Constraints: Unlike planning objectives that represent desired positive changes, planning constraints represent restrictions that should not be violated. The planning constraints identified in this study are as follows:

- Channel rights-of-way

- Land availability and cost for potential offline detention basins and ecosystem restoration features

- Maintaining channel conveyance and capacity, particularly flood control capacity

- Permits

- Threatened and endangered species, including the California least terns and western snowy plover and Beldings Savannah Sparrow

- Coastal Commission suitability determination requirements

- Property rights

f. Measures to address Identified Planning Objectives: A management measure is a feature or activity at a site, which address 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. A summary of the results of the study team screening is presented below. More detailed measures can be found in the Specific Opportunities section of this report:

- No Action. The Corps is required to consider the option of "No Action" as one of the alternatives. 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 alternative plans are measured.

- Revegetation/planting at Area C, Area A and Area B wetland and riparian areas
- Regrade/remove fill and reestablish wetland at Area C and A

- Water Diversion for habitat/water quality improvements at the wetland areas
- Improve tidal circulation at the wetland areas and Ballona Lagoon, Venice Canals and Del Rey Lagoon
- Remove invasive species at the wetland and riparian areas and restore native vegetation conducive to wetland and upland habitat for native species
- Install trash/debris collection facilities
- Install water filtration devices at storm drain inflows to wetland areas and Ballona Creek
- Acquire rights of way at Del Rey Lagoon
- Establish marine and wetland education center
- Construct and upgrade recreational features such as bike paths, walkways, and observation areas along restored areas
- Create a GIS database for displaying and interpreting data collected in the lower Ballona Creek watershed

g. Conclusions of the Preliminary Screening: The preliminary screening of measures indicate that alternative plans to address the full array of watershed problems and opportunities lead to the conclusion that a Lower Ballona Creek Ecosystem Restoration and Watershed Management plan is the appropriate study output. This plan will form the basis for identification of specific projects that can be brought forward as discrete construction efforts but will ensure that their planning and implementation will occur from a broad watershed management perspective. 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. Future screening and reformulation will address four formulation criteria of Effectiveness, Efficiency, Completeness and Acceptability.

6. FEDERAL INTEREST

There is strong Federal interest in conducting a feasibility study to develop a Lower Ballona Creek Ecosystem Restoration and Watershed Management Plan. This plan would focus on the lower Ballona Creek watershed as defined herein.

This feasibility study includes investigations related to high priority mission areas including flood control and ecosystem restoration, in addition to other outputs such as recreation, and water quality which also have a Federal interest. The primary product of the feasibility studies are a Lower Ballona Creek Ecosystem Restoration and Watershed management plan, which include identification of potential site-specific spin-off studies that could lead to implementation. The ecosystem restoration and watershed management plan does not constitute decision documents for Congressional authorization.

7. PRELIMINARY FINANCIAL ANALYSIS

As the local sponsor, XXX, is willing to provide 50 percent of the cost of the feasibility phases. The local sponsor may provide up to 100% of its share in the form of in-kind services. A letter of intent from the local sponsor stating a willingness to pursue a restoration and watershed management plan and to share in its costs is necessary. The local

sponsor will form partnerships and take the lead in coordination with local cities, agencies, State and Federal agencies, foundations, local nonprofits and other interested stakeholders.

8. ASSUMPTIONS, EXCEPTIONS AND QUALITY OBJECTIVES:

The following critical assumptions will provide a basis for the development of a comprehensive watershed management plan:

a. Assumptions:

1) The Ballona restoration and watershed management project will be implemented.

2) Existing development will remain, population will continue to increase in the area with its resultant impacts.

3) Areas A and B will be acquired by the state

4) NEPA and CEQA documentation will not be prepared as part of these studies.

5) A Coordination Act Report (CAR) will be prepared by the U.S. Fish and Wildlife Service in support of the plan formulation activities.

6) An incremental analysis will be performed as part of the evaluation of ecosystem restoration alternatives.

b. Policy Exceptions and Streamlining Initiatives: The study will be conducted in accordance with the Principles and Guidelines and the Corps of Engineers regulations. No exceptions to established guidance have been identified at this time

c. Quality Objectives: Feasibility Phase studies for a comprehensive plan will be accomplished to meet the following quality objectives:

1) Information developed will be adequate for the local sponsor to make appropriate water resource planning decisions.

2) The potential for initiation of project specific Corps of Engineers feasibility studies will be identified as they may be consistent with the comprehensive plans.

3) Compliance with Quality Control LADOM 1100-1-2

9. FEASIBILITY PHASE MILESTONES (FOR PROPOSED RESTORATION STUDY)

Milestone	Description	Duration (mo)	Date
Milestone F1	Initiate Study	0	Oct-03
Milestone F2	Public Workshop/Scoping	2	Dec-03

Milestone F3	Baseline Conference	12	Dec-04
Milestone F4	Alternative Review Conference	10	Oct-05
Milestone F4A	Issue Resolution Conference	5	Mar-06
Milestone F5	Draft Feasibility Report	5	Aug-06
Milestone F6	Final Public Meeting	2	Oct-06
Milestone F7	IRC	1	Nov-07
Milestone F8	Final Report to SPD	3	Feb-07

10. FEASIBILITY PHASE COST ESTIMATE

WBS#	Description	Cost
JAA00	Feas - Surveys and Mapping except Real Estate	$ 215,000
JAB00	Feas - Hydrology and Hydraulics Studies/Report (incl. Coastal 50k)	$ 300,000
JAC00	Feas – Geotechnical Studies/Report	$ 300,000
JAE00	Feas – Engineering and Design Analysis Report	$ 225,000
JB000	Feas – Socioeconomic Studies	$ 200,000
JC000	Feas - Real Estate Analysis/Report	$ 87,000
JD000	Feas – Environmental Studies/Report (Except USF&WL)	$ 300,000
JE000	Feas - Fish and Wildlife Coordination Act Report	$ 50,000
JF000	Feas - Geographic Information System Development	$ 300,000
JG000	Feas - HTRW Studies/Report	$ 10,000
JH000	Feas - Cultural Resources Studies/Report	$ 40,000
JI000	Feas - Cost Estimates	$ 80,000
JJ000	Feas - Public Involvement Documents	$ 80,000
JK000	Feas - Plan Formulation and Evaluation	$ 250,000
JL000	Feas - Final Report Documentation	$ 88,000
JMD00	Feas - Technical Review Documents	$ 65,000
JPA00	Project Management and Budget Documents	$ 100,000
XXXXX	Sponsor Project Management	$ 80,000
JPB00	Supervision and Administration	$ 100,000
JPC00	Contingencies	$ 330,000
Total		$ 3,200,000

11. VIEWS OF OTHER RESOURCE AGENCIES

Because of the funding and time constraints of the reconnaissance phase, only limited and informal coordination has been conducted with State and Federal resource agencies, including the California Coastal Conservancy, California Department of Fish and Game, National Oceanographic and Atmospheric Administration and the Regional Water Quality Control Board. Generally, these agencies are supportive of other Corps of Engineers watershed studies in southern California. They recognize the merits of a regional approach to addressing water resource problems and opportunities and advocate the development of watershed management plans.

12. POTENTIAL ISSUES AFFECTING INITIATION OF FEASIBILITY PHASE

a. Continuation of this study into the cost-shared feasibility phase is contingent upon an executed FCSA. Failure to achieve an executed FCSA within 18 months of the approval date of the Section 905(b) Analysis will result in termination of the study. There are no issues that have been identified that will impact the initiation of the feasibility phase for the studies.

b. The schedule for signing the Feasibility Cost Sharing Agreement (FCSA) is October 2003. Based on the schedule of milestones in Paragraph 9, completion of the Lower Ballona Creek Restoration and Watershed Management Plan would be in February 2007.

13. RECOMMENDATIONS

I recommend that the Lower Ballona Creek Ecosystem Restoration study proceed into the feasibility phase to develop an ecosystem restoration and watershed management plan for the lower Ballona Creek watershed.

___30Sep02__
Date

//s//
John V. Guenther
Lieutenant Colonel,
Corps of Engineers
Acting District Engineer

ATTACHMENT

Previous Corps Studies:

- "Marina del Rey and Ballona Creek Sediment Control Management Plan Feasibility Study Draft Baseline Conditions (F3) Report", USACE, Los Angeles District, June 1999.
- "Marina del Rey and Ballona Creek Sediment Control Management Plan Feasibility Study Detailed Analysis of Alternatives (F4), USACE, Los Angeles, in progress, July 2002.
- "Playa del Rey Inlet and Basin, Venice, California." House Document 389, 83rd Congress, Second Session, May 1954.
- "Marina del Rey, Venice, California: Design Memorandum No. 1, General Design." U.S. Army Corps of Engineers, Los Angeles District, November 1956.
- "Marina del Rey, Venice, California: Design Memorandum No. 2 (Revised), General Design." U.S. Army Corps of Engineers, Los Angeles District, May 1963.
- "Collection and Analysis of Sediment, Water, and Elutriate Samples from Marina del Rey and the Mouth of the Los Angeles River, California." Prepared by ERCO/A Division of ENSECO, Inc. for the U.S. Army Corps of Engineers, Los Angeles District, May 1986.
- "Technical Evaluation of Environmental Impact Potential for Proposed Ocean Disposal of Dredged Material from Marina del Rey." Prepared by ToxScan, Inc. for the U.S. Army Corps of Engineers, Los Angeles District, 1991.
- "Marina del Rey Boat Traffic Analysis, Final Report." Prepared by Moffatt and Nichol Engineers for the U.S. Army Corps of Engineers, Los Angeles District, February 1992.
- "Marina del Rey Sediment Testing Results." U.S. Army Corps of Engineers, South Pacific Division, 1993.
- "Feasibility Study for a Capped Dredged Material Disposal Site in Santa Monica Bay." Prepared by Moffatt and Nichol Engineers for the U.S. Army Corps of Engineers, Los Angeles District, 1993.
- "Final Environmental Assessment, Marina del Rey Maintenance Dredging and Contained Aquatic Disposal Demonstration Project." U.S. Army Corps of Engineers, Los Angeles District, October 1994.
- "Marina del Rey and Ballona Creek, California, Final Reconnaissance Report." U.S. Army of Engineers, Los Angeles District, September 1995.
- "Physical and Chemical Test Results for Marina del Rey (October 1997)." Prepared by ToxScan for the U.S. Army Corps of Engineers, Los Angeles District, October 1997.
- "Draft Environmental Assessment: Marina del Rey Harbor Maintenance Dredging, Los Angeles County, California." U.S. Army Corps of Engineers, Los Angeles District, 1998.
- "Report of Testing of Sediments Collected from Marina del Rey Harbor, California." Prepared by EC Analytical Systems, Inc., for the U.S. Army Corps of Engineers, Los Angeles District, March 1998.
- "Marina del Rey and Ballona Creek Geographic Information System (GIS) Phase I Implementation." Data Collection Draft Report. DACA09-07-D-0017. Delivery

Order 0006. June 9, 1998.
- "Marina del Rey and Ballona Creek Feasibility Study Dredged Material Management Plan Baseline Conditions (F3) Report." April 1998.
- "Marina del Rey and Ballona Creek Feasibility Study Dredged Material Management Plan Alternatives Analysis (F4) Report." April 2000.
- "Marina del Rey and Ballona Creek Feasibility Study Sediment Control Management Plan Baseline Conditions (F3) Report." June 1999.
- "Marina del Rey and Ballona Creek Feasibility Study Sediment Control Management Plan. Contaminated Sediment and Debris Control Analysis Baseline Conditions (F3) Supplemental Report." February 2000.