

Eastshore Park Project

# RESOURCE SUMMARY



*Prepared for*  
California Department of Parks and Recreation  
East Bay Regional Park District  
California State Coastal Conservancy

*Prepared by*  
Wallace Roberts & Todd, LLC  
LSA Associates, Inc.  
Subsurface Consultants, Inc.  
Philip Williams & Associates, Ltd.

**June 2001**





**EASTSHORE PARK PROJECT  
RESOURCE SUMMARY  
TABLE OF CONTENTS**

	<b>PAGE</b>
<u>INTRODUCTION</u> .....	RS-1
 <u>HABITAT ISSUES</u>	
PLANT LIFE .....	RS-13
ANIMAL LIFE .....	RS-15
MARINE LIFE .....	RS-17
 <u>RECREATION, SCENIC, AND CULTURAL RESOURCES</u>	
RECREATION .....	RS-20
SCENIC RESOURCES .....	RS-21
CULTURAL RESOURCES .....	RS-22
 <u>ENVIRONMENTAL CONDITIONS</u>	
HYDROLOGY AND TOPOGRAPHY .....	RS-23
CLIMATE/AIR QUALITY .....	RS-27
GEOLOGY/SOILS .....	RS-28
NOISE.....	RS-29
HAZARDOUS MATERIALS .....	RS-30
 <u>LAND USE, TRAFFIC/CIRCULATION, AND UTILITIES</u>	
LAND USE.....	RS-31
TRAFFIC/CIRCULATION .....	RS-32
UTILITIES/PUBLIC SERVICES.....	RS-32

FIGURES

FIGURE 1: Regional Location.....6  
FIGURE 2: Project Site.....7  
FIGURE 3: Project Site (North).....8  
FIGURE 4: Project Site (Central) .....9  
FIGURE 5: Project Site (South).....10  
FIGURE 6: Project Site (Features).....11

## INTRODUCTION

### PURPOSE

The Eastshore Park Project, commonly referred to as Eastshore State Park, is a collaborative effort between the California Department of Parks and Recreation (DPR), the East Bay Regional Park District (EBRPD), and the Coastal Conservancy (Conservancy), to plan for a park of statewide significance along the shoreline of San Francisco Bay. At present the park shall be referred to as Eastshore Park Project, until it is officially classified by the State Park and Recreation Commission, when it will officially become a unit within the State Park system.

The purpose of the Eastshore Park Project Site Resource Summary is to provide a concise but thorough summary of the unit's natural, cultural, aesthetic and recreational resources. This summary is based on the completed Draft Resource Inventory (April 2001), which can be viewed online<sup>1</sup>. The summary includes information on all resources but emphasizes the most significant resources. It provides the necessary resource information for the classification of the park and to establish a basis for the decision process related to acquisition, facility development, recreation, interpretive, and resource management objectives of the park.

The attached Resource Summary follows the *Guidelines for Resource Documents* prepared by the California Department of Parks and Recreation, Resource Protection Division (September 1991). Information is organized by major subjects such as geology, climate and plant life within the following major headings: Habitat Issues; Recreation, Scenic and Cultural Issues; Environmental Conditions; and Land Use, Circulation, Utilities.

This document does not include recommendations. Specific recommendations that might result from an analysis of the information included in the Resource Inventory and the Resource Summary will be included in the Resource Element to be prepared as the next step in this planning process.

### BACKGROUND

Eastshore Project is a partnership of the California Department of Parks and Recreation (Department), East Bay Regional Park District (District) and California State Coastal Conservancy (Conservancy). Public Resource Code Section 5003.3 as summarized below, describes the extent of the shoreline park, clarifies the participating agency roles and outlines the initial planning sequence in which a planning document will be presented to the Department by the District:

*.....The state park project shall consist of a contiguous shoreline park and bay trail along the east shore of the San Francisco Bay from the Bay Bridge to the Marina Bay Trail in Richmond, serving as a recreational facility within its natural setting developed in concert with a public planning process agreeable to the state and the East Bay Regional Park District..... For the purpose of the acquisition, planning, and development of the shoreline park, the district shall act as agent for the state and, as the state's agent, shall have the authority to exercise all of the district's powers for the purposes of acquiring, planning, and developing the shoreline park.....The district, in consultation with the affected cities and their citizens, shall develop, in accordance with its master plan process, a land use development plan for the shoreline park, which, upon completion, shall be submitted to the department for approval.....*

---

<sup>1</sup> Website address is <http://www.eastshorestatepark.com>

## PROJECT DESCRIPTION

The Eastshore Park Project extends approximately eight and a half miles on the bay-shoreline along the eastern shoreline of Central San Francisco Bay (Figure RS-1), extending from the Bay Bridge to the Shoreline Trail in Richmond. The project site could draw from a regional San Francisco Bay Area population of 4.5 million, and a more local population of 2.4 million from Alameda and Contra Costa Counties. With 1800 acres, including 185 acres of upland, this stretch of San Francisco Bay represents a significant portion of the Emeryville, Berkeley and Albany waterfront. Portions of Oakland and Richmond are also included.

Figure RS-2 shows the different parcels purchased by the State, which comprise the Project Site, including a majority of Bay or submerged lands. Figures RS-3, RS-4, and RS-5 provide an enlarged aerial view of the North, Central and South segments of the project site. The study area addressed in the Resource Inventory and Resource Summary includes the entire project site and some specific adjacent lands.

## PROJECT SITE

### Regional Setting

The San Francisco Bay region extends across a portion of the Coast Ranges in the central portion of the State and into the west edge of the Central Valley. The project site is located in Contra Costa and Alameda Counties along the shoreline from the southern portion of the City of Richmond to the northernmost portion of the City of Oakland. The San Francisco Bay borders the site on the west and generally Interstate Highways 80 and 580 border the site on the east. The project site is adjacent to city-owned lands in five different municipalities: Richmond, Albany, Berkeley, Emeryville, and Oakland.

### Site Description

The upland portion of the project site is comprised of approximately 1,800 acres of land (some discontinuous parcels) that are owned by the California Department of Parks and Recreation and managed by East Bay Regional Park District. The project site is comprised of open water, tidal marshlands, and relatively flat lowland areas that form the San Francisco Bay depression (USGS 1979). Approximately 185 acres of land is dry upland with the remainder being wetlands and subtidal areas. Most of the project site is underlain by artificial fill placed over decades of development. Nine local creeks drain into the project site: Baxter Creek, Central Creek, Cerrito Creek, Codornices Creek, Schoolhouse Creek, Strawberry Creek, Potter Creek, Derby Creek, and Temescal Creek.

The San Francisco Bay is the continuous linking element to the project site. The park includes a variety of environments and distinctive landmarks (see Figure RS-6). The environments within the park include subtidal and intertidal flats, tidal marshes, mudflats, stream channel systems, and open water.

Historic filling that occurred through the late 1970s changed historic shallow subtidal and intertidal flats and tidal marsh to the current shoreline, characterized by extensive reaches of engineered rock revetment and non-engineered dumped construction debris. Much of the park shoreline is more than 1,000 feet west of its historic location. Shoreline conditions comprise rock revetment, construction debris, gravel beach, sand beach, mudflats, and tidal marsh including the more prominent site features listed below as they occur from north to south.

## PARK PROJECT SITE FEATURES

*Water, Underwater or Subtidal* areas comprise ninety percent of the project site or 1,615 acres of the total 1,800 acre Eastshore Park Project.

*Outer Hoffman Marsh*, a southwest facing shoreline consists of gravel beaches in the southern sections and tidal marsh to the north behind the seawall. The Hoffman Marsh is a remnant of the former marsh area where several creeks converged near San Pablo Avenue to the southwest of the El Cerrito Plaza Building along the Contra Costa and Alameda County border. Much of this area was filled at various times to create the current I-580 Freeway alignment and existing Point Isabel fill. Eastshore Park project includes two discontinuous parcels within Hoffman Marsh (see Figure RS-6.)

*North Point Isabel*, formerly called Battery Point, is located adjacent to Point Isabel and separated by a channel

*Albany Mudflats* consists of broad mudflats, a tidal marsh and the outfall for Cerrito and Codornices Creeks to the north and east of the Albany Plateau. Portions of this area were restored by Caltrans as part of the mitigation required for the I-80 Improvements.

*Albany Bulb* is a large and isolated landfill area with edges steeply sloped from the Bay to upland areas. The shoreline is armored with concrete debris around the entire perimeter of the landfill.

*Albany Plateau* is located to the north of Golden Gate Fields near the Buchanan Street Interchange at Interstate 80 (I-80). The plateau is part of a peninsula fill that extends westward out to the *Albany Bulb*. The *Albany Neck* connects the plateau with the Golden Gate Fields parking lot. The *Albany Beach* is located at the southwest portion of the *Albany Plateau*.

*North Basin Strip* shoreline is defined by a steep, gravel beach, semi-protected from the Bay with Schoolhouse Creek outfalling through a large culvert at the southern end. The North Basin Strip is a rectangular shaped area bound by Gilman Street to the north, Virginia Street to the south, West Frontage Road and I-80 to the east, and the San Francisco Bay to the west. The site is relatively level and was created by filling open water and tidal marsh areas. A narrow shoreline strip extends north to Gilman Street.

*Berkeley Meadow* is a trapezoidal shaped area bound by the North Basin waterfront and North Basin Strip to the north, University Avenue to the south, West Frontage Road to the east, and Marina Boulevard/Berkeley Marina to the west. The Meadow is a relatively level site created by placing fill over mud flats and open water and has north and south shorelines with rock revetment and concrete debris, protected to the north by Cesar Chavez Park and exposed to the Bay to the south adjacent to University Avenue.

*Brickyard* is a large irregular shaped peninsula area of bay fill extending south into the Bay, with an outer west face armored with concrete debris and an eastern edge consisting almost entirely of bricks that protects a large mudflat and sand beach. The Brickyard area is located to the south of University Avenue and west of I-80 and West Frontage Road. The San Francisco Bay and tidal mud flats lie adjacent to its other boundaries.

*Berkeley Beach* is straight and narrow, armored with rock revetment and faces the Bay across from the Golden Gate. At lower tides a long strand beach is exposed and is a popular recreation area.

*Emeryville Frontage* along the Frontage Road and Bay trail is constructed rock revetment and semi-protected from the Bay.

*Powell Street Shoreline* is southfacing and armored with rock revetment

*Emeryville Crescent* is a distinctive, highly visible, tidal marsh, with extensive mudflats and the outfall for Temescal Creek. Tidal marsh and mudflats continue around to the south toward the Bay Bridge Toll Plaza and Radio Beach. The Emeryville Crescent is a horseshoe shaped area along the I-80 corridor stretching from the Bay Bridge Toll Plaza at its southwest extent to the Powell Street Interchange and Emeryville Peninsula at its northernmost extent. This area was restored by Caltrans as part of the mitigation required for the I-80 Improvements.

Freshwater *creeks* flow from the coastal hills of Richmond, El Cerrito, Albany, Berkeley, Emeryville and Oakland and enter the Bay through the Project Site, linking the East Bay Hills to the flatlands and the Bay. Most of these nine creeks have been piped and culverted underground with local storm drain networks. A description of each of these creeks can be found in the Eastshore Park Project Site Resource Inventory.

#### ADJACENT LANDS INCLUDED IN STUDY AREA

The areas described in this section are not currently part of the park project site, but are linked through proximity or related physical processes and may play an important role in the ultimate structure or management of the park project. These areas were included in the Resource Inventory.

*Point Emery* is a peninsula constructed of bay fill, highly exposed to wave action on the north and west edges, and protected with rock revetment and concrete debris.

*Fleming Point* is defined by an outcropping of bedrock, west facing and exposed to the Bay with small tide pools and two sand beaches to the north. The Fleming Point area is located to the west and southwest of the Grandstand area at Golden Gate Fields.

#### ADJACENT LANDS NOT INCLUDED IN THE STUDY AREA

Several other adjacent areas are not part of the park project site. These areas were not formally surveyed in the Resource Inventory, but they were described briefly because of their importance to the Eastshore Park Project:

*Brooks Island* is a natural, exposed bedrock outcropping just off the Richmond shoreline and is an important resource to birds and other wildlife. Brooks Island Regional Preserve is located one half mile from the Richmond shore, consisting of 77 acres, including 45 acres upland. The shoreline includes small areas of tide pools, gravel and sand beaches.

*Point Isabel* is a large developed landfill site including a variety of shoreline conditions such as concrete debris on the west face of the point, coarse gravel beaches and a channel linking Hoffman Marsh with the bay. Point Isabel, in part, was constructed from crushed battery casings sometime in the 1960s and later capped.

*Berkeley Aquatic Park*, made up of three different lagoons is the Bay's historic eastshore, located to the east of Interstate 80. The west edge of the lagoons and the freeway are built on landfill in areas that were open water. Preliminary studies and plans for Aquatic Park, including the City of



Berkeley's Natural Resources Management Plan for Aquatic Park are in progress and provide valuable information.

*Cesar Chavez Park and The Nature Center* is a large open park in the City of Berkeley, built on top of landfill with the eastshore defined by concrete debris with rock revetment along the exposed shoreline to the west. Cesar Chavez Park provides many recreational resources and is host to several large events and festivals.

*Golden Gate Fields* is located to the south of the Albany Plateau and includes the grandstand, racetrack, stables and parking lot areas. The site is relatively level except near Fleming Point, where there is an elevation change of about 60 feet due to outcropping bedrock. The Buchanan Street Extension bounds the site to the north, the North Basin Strip to the south, I-80 to the east, and the San Francisco Bay to the west.

*Interstate 80, (I-80)*, runs in an east-west direction from the Bay Bridge to the MacArthur Maze, where it merges with I-880 and I-580, and heads north along the eastern shore of the San Francisco Bay. The I-80 Freeway was originally filled from 1929 to 1937 for the old Route 69 highway, which later became I-80, between the northern extent of the Powell Street Interchange and University Avenue. During this time, a portion of the bay was closed in creating Aquatic Park, situated to the east of the freeway between Ashby and University Avenues. The widening of the freeway created the bulge at the Ashby Avenue Interchange (Ashby "Bump") and added the Frontage Road along the west side of I-80. The entire stretch of freeway is built upon land reclaimed by filling mud flat areas and open water between the early 1900s up to about the mid 1970s.

*Marinas.* The city-owned Emeryville City Marina and the privately owned Emery Cove Marina are located adjacent to each other on the north side of the Emeryville Peninsula. The Berkeley Marina occupying about 60 acres of upland area and 40 acres of water, is one of the largest marinas in the East Bay, with recreational facilities including: the 3,000-foot Berkeley Pier; the Nature Center, an education and interpretive center; and the Bay Trail. On the Richmond waterfront, the Marina Bay Esplanade and the Point Isabel-to-Marina Bay Trail link the Marina Bay Marina and Boat Launch south to other areas of the Eastshore Park Project.

*The Bay Trail* is well supported by all cities, park agencies (DP&R and EBRPD), bay agencies (ABAG and BCDC), and transportation agencies (Caltrans and MTC). The Bay Trail represents a very important element in linking the non-contiguous parts of the Project Site. Currently, the Bay Trail is not continuous through the planning area (having breaks in Berkeley and Oakland, and a temporary alignment through Albany).

*Radio Point Beach*, a small park owned and operated by the Port of Oakland, is located on the north side of the Bay Bridge just west of the Toll Plaza. The westward facing beach sits adjacent to radio transmission uses including transmission towers, support buildings, and a parking area. Access is provided via a small paved road that exits I-80 near the West Grand off-ramp.

*UC Berkeley Richmond Field Station*, a cluster of research uses operated by the University of California, is located between the Hoffman Marsh and Marina Bay, and abuts Meeker Creek Slough at the north end. Formerly consisting of more industrial and manufacturing uses, the area appears to be transitioning toward cleaner, higher tech uses.

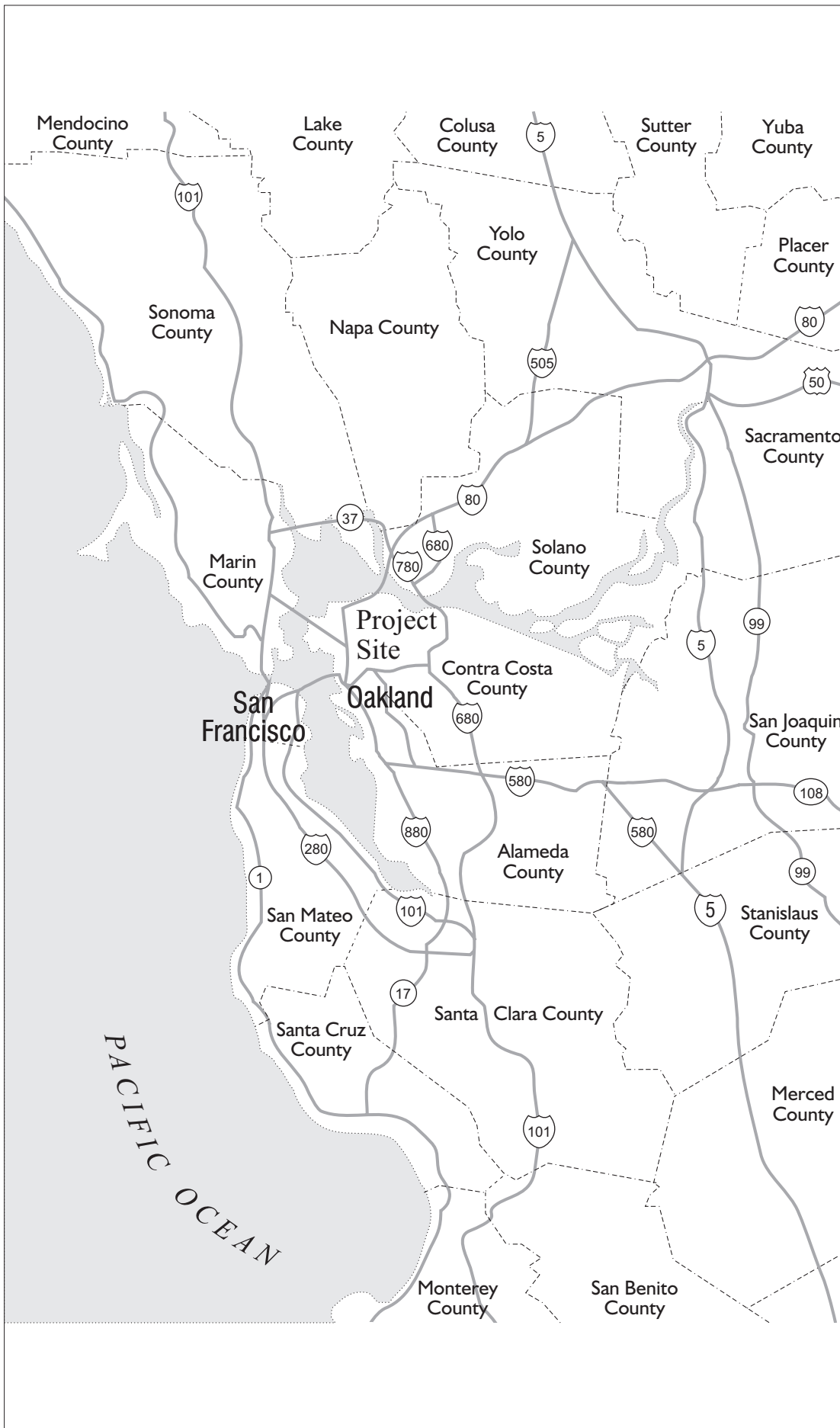
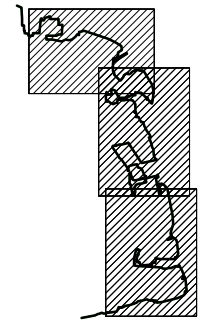


FIGURE  
**RS-1**  
REGIONAL  
LOCATION

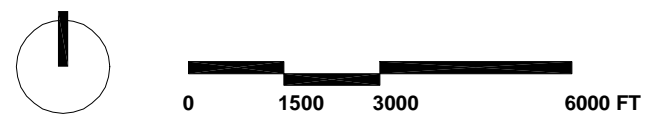
Prepared by LSA Associates, Inc.

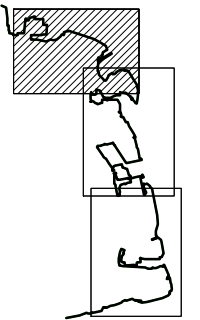


MAP KEY

- PARCEL LINE
- INDEX LINE

FIGURE  
**RS-2**  
PROJECT SITE



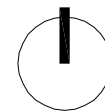


MAP KEY

— PARCEL LINE

FIGURE  
**RS-3**

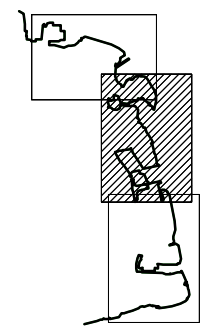
PROJECT SITE  
(NORTH)



0 500 1000 2000 FT



# CENTRAL SECTION



MAP KEY

— PARCEL LINE

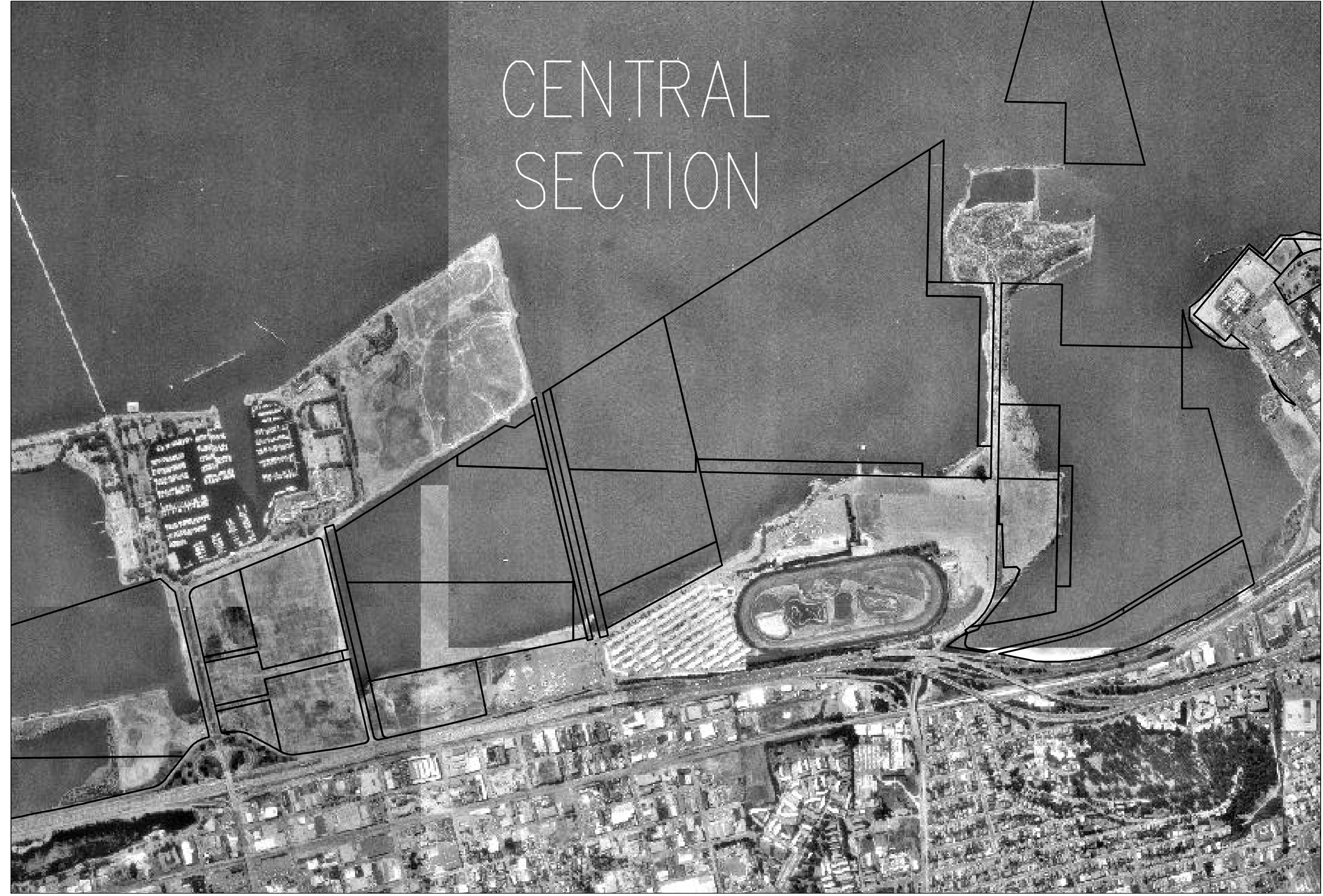
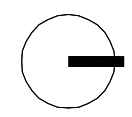
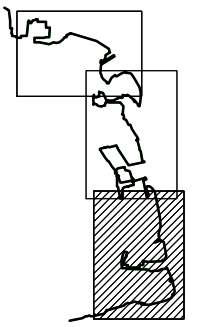


FIGURE  
**RS-4**  
PROJECT SITE  
(CENTRAL)



0 500 1000 2000 FT

# SOUTH SECTION

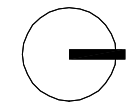


MAP KEY

— PARCEL LINE



FIGURE  
**RS-5**  
PROJECT SITE  
(SOUTH)



0 500 1000 2000 FT

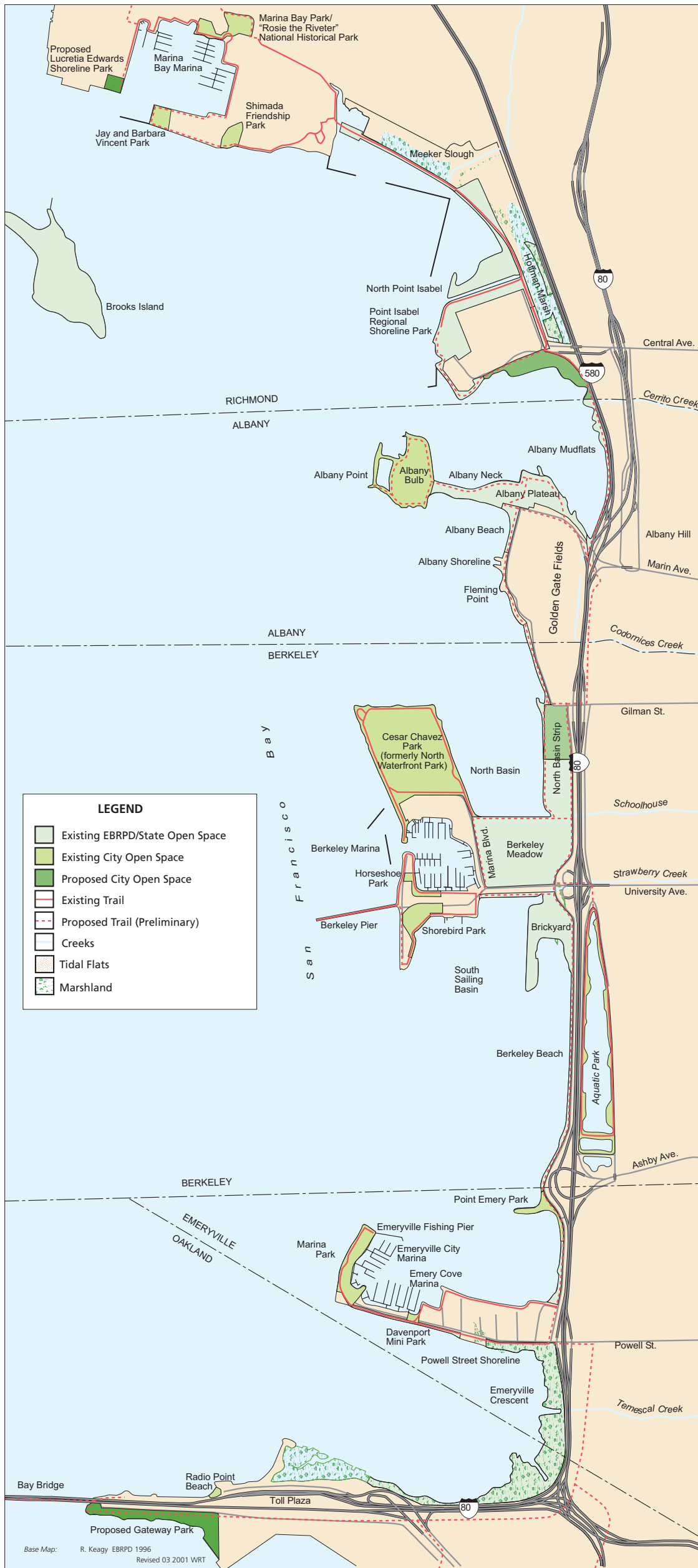
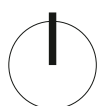


FIGURE  
**RS-6**  
PROJECT SITE  
FEATURES

Prepared by LSA Associates, Inc.



## HABITAT ISSUES

### PLANT LIFE

The *Plant Life* section of the *Resource Inventory* focuses on the uplands and marshes of the Eastshore Park study area, while the *Marine Life and Ecology* section describes the plants of other marine habitats. Historically, extensive salt marshes surrounded San Francisco Bay. Between 75% and 90% of these salt marshes are estimated to have been filled or diked since 1850 (Association of Bay Area Governments 1991). ~~The majority of~~ The uplands and marshes of the study area are mostly located on manmade fill material that has extended the shoreline an average of 1,000 feet into San Francisco Bay. Due to the recent creation of the substrate, little is left of the historic, natural plant communities. Even with these changes, some marsh communities have survived within the Eastshore Park study area, and combined with the newly vegetated fill areas, form valuable shoreline habitats.

Upland and marsh vegetation of the study area is classified into ten plant communities. Species composition within these plant communities reflects climatic and physical conditions of the project region, as well as historical and current human-caused disturbances. The primary plant communities are summarized below.

*Coastal Salt Marsh* is restricted to the upper intertidal zone of protected shallow bays, lagoons, and estuaries. The salt marsh plant community is composed of low-growing plants, ranging in height from a few inches to about three feet. Typically, mudflats are bordered by pure stands of cordgrass that are replaced at the mean high water level by a dense cover of pickleweed. Characteristic species of the upper marsh zone include saltgrass, alkali heath, marsh gumplant, sand-spurrey and other salt-tolerant native and non-native plants. Lower zones of San Francisco Bay salt marshes support mostly native species, but an invasive species, saltwater cordgrass has invaded the Eastshore Park study area and many other portions of San Francisco Bay in the last decade.

*Coastal salt marsh* vegetation is present along the shoreline of the study area. Extensive salt marsh vegetation occurs at the Emeryville Crescent marsh, Hoffman Marsh, and the south Richmond marshes. Smaller salt marshes have formed along the eastern shore of the Albany Bulb, and the entire shoreline of the Albany Mudflat, and at the mouth of Codornices Creek. Historically, salt marshes graded into brackish/freshwater marsh and then into grassland or scrub communities. The majority of the salt marshes within the study area end abruptly at ripped shorelines, dikes or berms.

*Brackish marsh* occurs in shallow, standing or slow-moving water, where fresh water enters an area that is influenced by saline tidal waters. Brackish marsh has formed in a roadside ditch or basin between the eastern portion of the Brickyard and the frontage road to the east. A small brackish marsh was also observed at the northwestern corner of the Albany Bulb and brackish marsh was reported to occur at the Liquid Gold site near Hoffman Marsh.

*Northern foredunes* are typically dominated by perennial grasses and low, often succulent, perennial herbs and shrubs. These plants, which provide a scattered to nearly complete vegetative cover, are adapted to moving sands and salt-laden winds. Typical northern foredunes vegetation with its characteristic native plant associations is absent from the study area. However two stretches of beach with some dune formation (Albany Beach and north of Pt. Emery) support two foredune indicator species: a relatively dense cover of bursage interspersed with sea-rocket, a non-native species. Invasive, non-native species such as rigput brome, iceplant, Kikuyu grass, and a European daisy are present on, or are starting to invade the dunes.



*Sandy beaches* with some dune formation are located at Albany Beach and north of Point Emery. Other sandy areas are present in the study area, but these areas abut riprap along roads, trails, and parking lots, and support little or no dune/beach vegetation. Such sandy beaches are present along the Emeryville and Berkeley shorelines, at the outfalls of Strawberry Creek and Schoolhouse Creek, north of Fleming Point, and other locations. A large sandy beach is present at the south shore of the Brickyard. Both upland and wetland vegetation is present on the beach. Sandy beaches in and near the study area are critical for the recovery of California seablite, a federally endangered species.

*Ruderal Scrub*, is a plant community growing in disturbed areas and consists mostly of non-native shrubs, broadleaved species, and grasses. Coyote-brush is the dominant shrub that occupies large portions of the study area, including the Berkeley Meadow, Albany Bulb, Point Isabel, , and upland areas adjacent to Hoffman Marsh and the south Richmond marshes. Coyote-brush forms an absolute cover ranging from 25% to 75%. French broom, cotoneaster, and other non-native shrubs provide an extensive cover (up to 25%) in some areas.

The Ruderal/Non-native Grassland community is typically composed of a dense cover of annual grasses and broad-leaved plants adapted to colonizing and persisting in disturbed areas. The vegetation is approximately three feet tall. This community is dominated by non-native species, but native grasses and wildflowers are commonly present in varying densities.

As most uplands in the study area are on fill material, it is highly unlikely that native plant species diversity was ever high, except at Fleming Point and Point Isabel (which are remnants of the historic shoreline). Open fields, road- and trail-banks, and other disturbed areas support a dense cover of weedy, non-native grasses, forbs, shrubs, and trees. Because of the relatively recent fill and because these areas have been subjected to repeated disturbance of various kinds, upland communities are weedy in nature.

*Non-tidal Wetland* vegetation occurs in areas where soils remain ponded and/or saturated for a prolonged period of time during the winter season. Two types of non-tidal wetlands were located in the study area: seasonal wetlands and seeps. Seasonal wetlands are present in several areas in the Berkeley Meadow, the North Basin Strip, the Brickyard, and the Albany Landfill. Species known to occur in the Berkeley Meadow include rabbit's-foot grass, Italian wildrye, Mediterranean barley, nutsedge, fathen, cut-leaf plantain, and bristly oxtongue. Most of these plants are non-native species that have invaded wetlands in disturbed areas in California.

The most important botanical resources of the Eastshore Park study area are:

- X The large coastal salt marshes at Emeryville Crescent, South Richmond Marshes, and Hoffman Marsh, and a smaller salt marsh fringing the Albany Mudflat. These marshes are relatively natural plant communities and potentially support two rare or endangered plant species, the soft bird's-beak and Point Reyes bird's-beak.
- X The small area of northern coastal scrub at Fleming Point. This is the only relatively natural upland plant community present in the study area, and Fleming Point is the only remaining portion of the historic shoreline (except for the heavily disturbed Point Isabel).
- § Sandy beaches in and near the study area. These beaches are critical for the recovery of California seablite, an endangered species that has been extirpated from San Francisco Bay as a result of development and other disturbances. The U.S. Fish and Wildlife Service has identified the Eastshore Park shoreline as one of only three locations in San Francisco Bay with beaches that are suitable habitat for restoring California seablite.

## ANIMAL LIFE

The *Animal Life* section focuses on the terrestrial, freshwater, and salt marsh habitats along the Eastshore Park shoreline, while the *Marine Life and Ecology* section describes the wildlife use of the tidal flats and open waters of the Bay. The major terrestrial habitat types within the Eastshore Park study area are coastal salt and brackish marshes, sandy beaches and foredunes, ruderal/non-native grassland vegetation, ruderal scrub, trees, non-tidal wetlands, and manmade habitat features. The wetland habitats include large areas of coastal salt marsh (tidal marsh), scattered seasonal wetlands, a few small seeps, and two small brackish marshes. No creeks are present in the study area, except for their outfalls; nor are there any lakes or permanent ponds.

*Coastal salt and brackish marshes*, commonly referred to as tidal marshes, provide habitat for invertebrates, birds, small mammals, and fish. Tidal salt and brackish marshes provide refuge, forage, and breeding habitat for many different organisms, including a number of threatened and endangered species. Birds are the most conspicuous members and include wading birds such as great blue heron, great egret, and snowy egret; shorebirds such as willet, marbled godwit, and American avocet; and other water birds such as American wigeon, mallard, American coot, and pied-billed grebe. Tidal marshes, particularly the South Richmond Marshes, Hoffman Marsh, and Emeryville Crescent, provide habitat for many different organisms, including special-status species such as California clapper rail, Alameda song sparrow, and saltmarsh common yellowthroat.

*Sandy beaches* are extensions of the marine environment but are not inhabited exclusively by marine species. Various terrestrial insects, especially flies, bees, butterflies, and beetles are often present in these habitats. Reptiles such as garter snakes and western fence lizard, and mammals including several species of mice, black-tailed hare, and raccoon may also be present. Numerous birds such as water pipit, sparrows, gulls, and shorebirds often forage, rest, and preen in these habitats. The sandy beach and foredunes, especially at Albany Beach, Brickyard, and just north of Fleming Point and Point Emery, are rare habitat types in the Bay and, if undisturbed, provide roosting areas that shorebirds require during high tide periods.

*Ruderal/non-native grassland* vegetation provides refuge and foraging habitat for many animal species, although fewer species use the habitat for breeding or nesting. Amphibian and reptile species may include Pacific treefrog, western fence lizard, western terrestrial garter snake, and gopher snake. Birds, foraging primarily on seeds, include white-crowned sparrow, song sparrow, California towhee, and mourning dove. Savannah sparrow and western meadowlark may also nest within this habitat. The vegetation provides good foraging habitat for predatory birds, such as American kestrel, red-tailed hawk, northern harrier, white-tailed kite, and burrowing owl. Numerous mammals inhabit this area including meadow voles, house mice, California ground squirrel, and Botta's pocket gopher.

*Trees*, scattered throughout the study area, provide important perch sites for raptors such as red-tailed hawk, white-tailed kite, and Cooper's hawk, and habitat for a variety of other birds such as songbirds and northern flicker. Trees, particularly the native willows, are important habitat features that enhance the wildlife values of other habitat types. In some cases, trees are not considered a desirable habitat feature; for instance, trees adjacent to tidal salt marsh provide perch sites for raptors that may prey on endangered species such as clapper rails and black rails.

*Ruderal scrub* typically supports a higher diversity of animal species than ruderal grassland because the shrubs increase protective cover and provide potential nest sites for birds, such as northern mockingbird, Brewer's blackbird, red-winged blackbird, Anna's hummingbird, American goldfinch, and lesser goldfinch. Loggerhead shrike, northern harrier, and even white-tailed kite may nest in

ruderal scrub habitat. Birds of prey are most likely to nest at Berkeley Meadow and the Albany Bulb and Neck, where large patches of relatively undisturbed, ruderal scrub habitat are still intact. Additional areas of ruderal scrub occur adjacent to the South Richmond Marshes and Hoffman Marsh, and at the Albany Plateau, North Basin Strip, and the Brickyard.

*Non-tidal wetlands* in the study area consist of numerous seasonal wetlands and several seeps. Seasonal wetlands provide drinking water to birds, raccoons, and other mammals, and foraging habitat for great blue herons and great egrets. Depending on the location and amount of disturbance, mallards and other water birds may rest, forage, and possibly even nest near the seasonal wetlands. Pacific treefrog and western toad probably breed in some of the seasonal wetlands, particularly those that pond water for longer periods of time, such as at the Albany Plateau and Berkeley Meadow. The abundance of smaller or juvenile amphibians and the moist conditions of seasonal wetlands provide suitable habitat for garter snakes. Suitable habitat for similar wildlife may also be present at the isolated seeps, depending on their salinity.

*Manmade features* such as breakwaters, abandoned piers, constructed islands, and remote levees provide important wildlife habitat values along the highly modified, urbanized shoreline of the study area. Water birds use these features as perch sites that are relatively free from disturbance by people, dogs, and other predators. Shorebirds, in particular, require undisturbed roost sites at high tide, when their foraging areas are inundated. California sea lions have also been observed in the offshore portions of the study area and may occasionally haul out on the breakwaters near the northern end of the site. The two islands at the Albany Mudflat, constructed by Caltrans as mitigation for the I-80/I-580 interchange project, were designed as shorebird roost sites and are also used as nest sites for California least terns, American avocets, black-necked stilts, and killdeer. The riprapped shorelines serve as foraging habitat for several shorebird species, including black turnstone, ruddy turnstone, spotted sandpiper, black oystercatcher, and surfbird.

Sixteen species of rare, threatened, or endangered wildlife have been observed, or could occur, in the study area. Seven key resource species deserve special attention. In 2000, the endangered California least tern nested on the manmade islands in the Albany Mudflat, a significant event, as least terns nest in only a few locations in northern California. Three threatened or endangered species, the California clapper rail, California black rail, and salt marsh harvest mouse, are found primarily in tidal marshes. Both the clapper rail and the black rail have been observed at Emeryville Crescent; the clapper rail probably nests in the South Richmond marshes; and the salt marsh harvest mouse is potentially present in the Eastshore Park area. Other key resource species, the burrowing owl, white-tailed kite, and northern harrier, have been observed repeatedly in ruderal scrub and grasslands of the study area.

The Eastshore Park study area supports an abundance and diversity of wildlife species in proximity to an urban setting. The most important wildlife habitats (other than marine habitats) are:

- X Large Tidal marshes at the Emeryville Crescent, South Richmond Marshes, and Hoffman Marsh, which provide habitat for a diversity of animal life including, three threatened or endangered species and many water birds.
- X Upland and seasonal wetland habitats at Berkeley Meadow, Albany Bulb and Neck, the north slope of the Albany Plateau, North Basin Strip, and the Brickyard. Due to their large size, low level disturbance, and proximity to the Bay, these areas support a high diversity of wildlife and are often used by burrowing owls and wide-ranging predators such as white-tailed kites and northern harriers; and harriers nested at Berkeley Meadow in 2001.
- X Manmade islands at the Albany Mudflat, which provide nesting habitat for the endangered California least tern and other water birds, as well as roosting habitat for shorebirds.

- X Other manmade habitat features such as breakwaters, abandoned piers, and remote levees that serve as relatively undisturbed roost-sites for shorebirds and other water birds.
- X Small clumps of trees, particularly native willows, that are scattered throughout the study area and provide important perch-sites for birds of prey and songbirds.

## MARINE LIFE AND ECOLOGY

The *Marine Life and Ecology* section describes the marine environment and associated plant and animal species of the Eastshore Park study area. Seven different marine habitats have been identified in the study area: rocky intertidal, tidal flats, tidal salt marsh, sandy beach, shallow subtidal, piers and breakwaters, and eelgrass beds. A large proportion of the study area is comprised of shallow subtidal (open water) and tidal flats (including mudflats and sand flats).

The *Rocky intertidal zone* is comprised mostly of riprap and occurs along a large portion of the shoreline. In some locations, such as just south of Pt. Isabel, and along the east side of the North Basin, the rocky intertidal zone is strewn with fill debris. The predominant plant species within the rocky intertidal habitat are seaweeds or macro-algae, such as green algae and red algae. The riprap, pebbles, cobbles, and miscellaneous debris also provide substrate and refuges for invertebrate species. Mussels and barnacles were observed throughout the rocky zone along with beach hoppers and shorecrabs. At low tide, birds prey on rocky intertidal invertebrates while nearshore fish prey on these species at high tide. American crow, western gull, black oystercatchers, ruddy turnstones, and black turnstones were observed in the study area foraging among the cobbles and pebbles, feeding on mussels and crabs.

Fleming Point is the only naturally occurring bit of rocky shoreline in the study area, and it supports a diversity of rocky intertidal organisms that is among the highest in the region. Red algae and marine invertebrates such as littorine, snails, bryozoans, polychaete worms, encrusting sponges, and splash zone isopods that are present at Fleming Point were not observed at any other location within the study area.

*Tidal flats* lie between the vegetated tidal marshes (or rocky intertidal) and the permanently submerged subtidal habitat further offshore. Vegetation is usually limited to seasonal blooms of microscopic algae such as diatoms, golden browns, and blue-greens, and scattered patches of green macro-algae. Invertebrates are abundant and include annelid worms, bivalves, tube-dwelling crustaceans, shrimp, crabs, and gastropods.

Tidal flats are a prominent habitat type at low tide and are well-developed at Albany Mudflat, Emeryville Crescent, and along the South Richmond Marshes. Less extensive, yet still important tidal flats also occur in the smaller, protected embayments at the Brickyard and in the North Basin. Collectively, the tidal flats of the study area are valuable, productive areas that support an abundance and diversity of organisms.

At low tides, large concentrations of shorebirds forage on tidal flats during July through early May, and especially during fall and spring migrations. Thousands of western and least sandpipers, dunlins, marbled godwits, willets, curlews, plovers, avocets, and dowitchers forage in the mud for worms, small crustaceans and bivalves. Peregrine falcons (a state endangered species) may occur in the tidal flat areas. Various species of gulls also gather on tidal flats, and wading birds such as snowy egrets and great blue herons search for small fish that occur at the water's edge. During high tides, when the muddy substrate is submerged, birds such as grebes, loons, cormorants, and terns (including

California least tern, a state and federal endangered species) feed on nearshore fish. Diving ducks (goldeneye, bufflehead, scaup, ruddy duck, redhead, and canvasback) and dabbling ducks (mallard, American wigeon, and gadwall) rest or feed on the vegetation and small invertebrates of the tidal flats.

*Tidal salt marshes*, particularly the South Richmond Marshes, Hoffman Marsh, and Emeryville Crescent, are ecologically very important areas because they contribute to the nearshore and coastal ecosystems, and provide habitat for many organisms, including many of the aforementioned shorebirds. More details are provided in the *Animal Life* and *Plant Life* sections.

*Sandy beach* is an intertidal habitat that merges at the upper limit with northern foredunes or rocky, riprap habitat and at the lower limit with shallow subtidal habitat. Invertebrate organisms burrow deeply into the sediment to avoid displacement by passing waves, permanent burial by moving sediment, desiccation, or predation. Crustaceans, especially sand crabs, beach hoppers, sow bugs, polychaete worms, and bivalve mollusks are present. At low tide, foraging shorebirds, such as sanderlings, black-bellied plovers, and willets, prey on intertidal invertebrates. At high tide, nearshore fish prey on intertidal species. The sandy beaches within the Eastshore Park, especially at Albany Beach, Brickyard, just north of Fleming Point, and at Point Emery, are important habitats because of their limited distribution within the East Bay and potential use by roosting shorebirds.

The *shallow subtidal zone* is seaward of the intertidal zone and is continually submerged. Although the subtidal plant community is limited, this habitat harbors a diversity of animal species. Crustaceans, tube-dwelling polychaetes, clams, and gastropods have been collected during benthic sampling. Fish species such as American shad, bat ray, brown rockfish, chinook salmon, leopard shark, striped bass, white croaker, smelt, northern anchovy, shiner perch, starry flounder, and speckled sanddab are present. Subtidal habitats provide foraging and/or resting areas for many birds, including loons, grebes, cormorants, terns, gulls, California brown pelican, scoter, red-breasted merganser, and other diving ducks. Marine mammals, primarily harbor seal and California sea lion, also occur in the shallow subtidal habitat.

*Piers, pilings, and breakwaters* provide substrate for many species of algae and invertebrates. Fish, especially perch, are also members of the “piling community.” Old piers, remnant dock structures, and breakwaters are important roost sites for shorebirds, gulls, and other water birds. California brown pelicans and California sea lions may also occasionally use these offshore structures. The old pilings north of the Albany Neck provide perch sites, often being used by terns and double-crested cormorants.

A few “beds” of *eelgrass* - a rooted, flowering plant - occur in the shallow subtidal and lower intertidal zones of the study area. Eelgrass beds are an important habitat type for a variety of invertebrates and fish.

Six special-status marine species have been observed, or could occur, in the study area (in addition to the species discussed in the *Animal Life* and *Plant Life* sections). The chinook salmon and steelhead are anadromous fish species that may transit through the study area during their seasonal migrations. The tidewater goby, an endangered fish species, could be present, but is thought to be extirpated in San Francisco Bay. The harbor seal and California sea lion have been observed in the study area, and a southern sea otter was observed in January, 2002 near the western tip of the Albany Bulb.

The most important marine resources in the Eastshore Park study area are:

- X The special-status species, including three marine mammals, possibly the chinook salmon, and potentially the steelhead, which may transit through the marine environment on its way to and from the creek mouths in the study area.
- X The great abundance and diversity of shorebirds, particularly at the Albany Mudflat and the Emeryville Crescent mudflat. These two sites provide foraging habitat for about 60% of the shorebirds in North San Francisco Bay, between the Bay Bridge and the Richmond-San Rafael Bridge. Other important mudflats for shorebirds are located northeast of Battery Point and at the south side of the Brickyard.
- X Undisturbed roost-sites for shorebirds at high tides. In this highly urbanized shoreline, suitable undisturbed roost sites appear to be in short supply, and shorebirds often roost on manmade structures such as abandoned piers, remote levees, breakwaters, and manmade islands.
- X The large flocks of diving ducks, including three species B canvasback, redhead, and common goldeneye B that are more common in this area than in most other parts of the Bay.
- X The natural rocky intertidal habitat at Fleming Point, which supports a high diversity of invertebrates and macro-algae.
- § The eelgrass beds, which provide a distinctive habitat for many species of invertebrates and fish and are potential spawning habitat for Pacific herring.

## RECREATION, SCENIC, AND CULTURAL RESOURCES

### RECREATION

The significance of the Eastshore Park Project Site as a recreational resource is exceedingly high. Few urban areas enjoy such a high level of physical and visual access to shoreline open space. The Project Site offers a combination of both upland and aquatic areas with significant recreational value that is rare in the Bay Area. The ability to create a consolidated recreational open space that is over 8.5 miles in length, and offers connections to miles of additional shoreline beyond, is fairly unique. The Project Site also provides a significant opportunity to enhance the public's understanding and appreciation of the Bay ecology while also expanding opportunities for public recreation. Finally, the presence of a diverse range of recreational resources that are outside, but in the immediate vicinity of, the Project Site, provides opportunities to more creatively and sensitively address uses within the Project Site.

Other recreational facilities in the surrounding vicinity include:

- Marinas (i.e., the Richmond Marina Bay, Berkeley Marina, Emery Cove Marina and the Emeryville City Marina);
- Fishing piers;
- Play areas and community parks (i.e., Vincent Park, Shimada Friendship Park and the Rosie the Riveter National Historic Park in Richmond; Cesar Chavez Park, Horseshoe Park, and Shorebird Park in Berkeley, and Marina Park in Emeryville);
- Picnic areas;
- Interpretive centers and exhibits (e.g., the Shoreline Trail signage system and the Shorebird Nature Center in Berkeley); and
- The Bay Trail, which serves to link the discontinuous parcels of the unit.

Although there are currently few recreational improvements within the Project Site, it is frequently used for recreation. Current recreational uses in the upland areas tend to be primarily passive and informal in character, and more individual- than group-oriented. This reflects both the wealth of natural resources to be enjoyed (e.g., bay views, shorebirds) and the absence of facilities for active recreation. The most common upland activities in the Project Site include dog-walking, bird watching, hiking and strolling, and taking in the views.

While on- and off-leash dog use occurs throughout the Project Site, the Pt. Isabel Regional Shoreline, an improved EBRPD facility, and the adjacent North Point Isabel, lying within the Project Site, are intensively used for off-leash dog activities. Point Isabel Regional Shoreline is the largest of only a few off-leash dog parks in the East Bay region. As a result, it experiences a high volume of use. According to estimates from EBRPD and the Point Isabel Dog Owners Association and Friends, Inc. (PIDO), Point Isabel accommodates roughly 900,000 to 1 million visitors annually.

The main areas for bird watching are the Emeryville Crescent, Albany Mudflats, Brickyard Cove and Hoffman Marsh. Other important upland uses include surf fishing (primarily along the Berkeley Beach area) and BMX bike riding (on a volunteer-constructed track) at the southern boundary of the North Basin Strip.

In addition to the upland areas, aquatic areas in the unit are also an important recreation resource. The South Sailing Basin is the most actively used aquatic area in the Project Site, accommodating water-dependent activities such as sailing, windsurfing and kayaking. For the most part, these aquatic activities are only possible because users can access the South Sailing Basin from municipal facilities

in the Berkeley Marina. Generally, the unit's rugged shoreline conditions (e.g., steep slopes, construction rubble) restrict water access throughout much of the Project Site.

The presence of municipal and private recreation facilities in the vicinity is an important factor when considering the recreational resource. Well-used municipal and private recreational facilities such as parks, marinas, interpretive facilities, and support concessions are geographically interspersed along the length of the unit (see Figure RS-6). Opportunities exist for providing more effective recreation services by coordinating uses and facilities.

One such facility is the Bay Trail. Given the linear nature of the Project Site and the limited access from the east due to the freeway, the Bay Trail represents a very important element in linking the non-contiguous parts of the unit and creating a seamless recreational experience. The majority of the Bay Trail (both built and planned) in the vicinity of the Project Site will be in adjoining municipalities, rather than in the unit itself. Only the segment of Bay Trail between Point Isabel and Marina Bay is within the study area. The construction of the Berkeley segment from Ashby Avenue to University Avenue during 2001 (summer/fall), along with the construction of the City's bicycle/pedestrian freeway overpass at University Avenue, will greatly enhance use of the trail and access to the Project Site. Not only will this segment of the Bay Trail create a continuous connection between Emeryville and Richmond, the overpass will create an important link to urban areas east of the freeway.

#### SCENIC RESOURCES

The Project Site's visual resources are a unique and irreplaceable scenic resource of world-class value. The site's most significant visual resources are the dramatic views provided outward from the unit. The unit's shoreline location offers visitors panoramic west-facing views of the San Francisco Bay and the distant skyline, as well as panoramas of the Richmond/Berkeley/Oakland Hills to the east. Numerous distinctive natural and man-made features are visible from the project site, including: Yerba Buena, Alcatraz, and Angel Islands, Mt. Tamalpais and the Marin Headlands, the Oakland Bay Bridge, the San Francisco skyline, and the Golden Gate Bridge.

Since most of the upland area within the unit was created by landfill operations, there are limited scenic features of significance (e.g., dramatic topographic changes, unique geologic formations, or mature stands of trees) in the upland areas within the project site. The most visually distinctive areas inside the unit are the coastal marshes that have established in the Emeryville Crescent, the Albany Mudflats, and the Hoffman Marsh. These marshlands are valuable visual resources that provide an attractive contrast to the Bay views and adjacent urban setting.

Together, the 8.5-mile length of the project site and the varied shoreline created by the numerous peninsulas that punctuate the unit's landscape, provide significant variety in both viewpoint orientation and available views, creating a wealth of viewing conditions and opportunities for the visitor. In fact, while there are some locations that provide extremely high quality views, there are few areas within the project site that do not provide positive viewing experiences. Those areas that provide the highest quality views and panoramas include the Berkeley Beach area, the Brickyard, Albany Beach, and the Bay Trail through the Meeker Slough in Richmond between Hoffman Marsh and Marina Bay. In addition, areas such as the Albany Mudflat and the Emeryville Crescent provide some of the best opportunities for viewing wildlife (i.e., shorebirds) in the Bay Area.

While the scenic quality of visual resources is generally quite high, the urban setting also affords visitors with views of less scenic elements, including elements such as the busy I-80 and 580 freeways, industrial development adjacent to the freeways, and the parking lots at the Golden Gate Fields race track.



## CULTURAL RESOURCES

### Cultural History

The Eastshore Park Project Site's location on the San Francisco Bay shoreline is an area rich in history – a history that began as much as 6,500 years ago. Prehistorically, bay shore resources such as shellfish and waterfowl were used heavily by native peoples, who settled along the shoreline at the mouths of creeks. In the late eighteenth and early nineteenth centuries, Euro-American missionaries, settlers, and gold-seekers settled in northern California, transforming the lives of native people and the landscape they occupied. These new inhabitants developed industrial, shipping, and transportation areas along the shoreline. The intensive prehistoric and historical occupation of the northern East Bay shoreline has left behind a variety of cultural resources.

~~Although few tangible resources are readily visible within the park today,~~ The bay shore area retains traces of the past for interested visitors. From the creek mouths where Ohlone gathered shellfish and plant resources, to the massive piers of the Bay Bridge, to the industrial waterfronts of Richmond, Berkeley, and Emeryville, to the dramatic art objects of the Albany Bulb, the Eastshore's ~~Project Site's~~ cultural heritage connects the bay's past with its present. North of the park, and connected to it by the San Francisco Bay Trail, is the recently designated Rosie the Riveter World War II Home Front National Historical Park, which recognizes America's wartime shipbuilding and industrial achievements.

The Project Site provides a unique opportunity for potential cultural interpretation of topics including Ohlone history and culture, nineteenth century industrial activity, water transportation, bay ferries, and modern activities in the park.

### Descriptions of Cultural Features

Two cultural resources were recorded in the proposed park during the Resource Inventory process. Both resources are piers associated with larger complexes of buildings and structures, which are outside the study area. The first pier, built before 1915, is located west of the pedestrian pathway through Hoffman Marsh in Richmond, south of Shimada Friendship Park and west of the University of California Richmond Field Station. This pier is associated with the California Cap Company, an explosives manufacturer whose plant was purchased by the university in the 1950s. The second pier is at Fleming Point, immediately west of Golden Gate Fields. It appears to have been associated with a water taxi service, which ran between San Francisco and the racetrack. It is at least 44 years old. While these resources may not, in and of themselves, meet the criteria of the National or California Registers of Historic Places, it is possible that they would be eligible for listing as features of the larger resources with which they are associated.

~~Two~~ Several modern cultural features were observed within the study area. These include consist of a round seating and fire pit structure built from concrete blocks, and a large elevated bench made of driftwood, (both located south of the Albany Neck and north of Fleming Point) and a number of art objects installed within the Albany Bulb area.

Six other cultural resources of indeterminate age were also identified within the study area and are discussed in more detail in the Resource Inventory. There is no evidence that these resources, which include a partially submerged boat in the Richmond mud flats and pilings off Fleming Point, meet the criteria of the National or California Registers of Historic Places. If future park plans could effect the

resources, further investigation and evaluation of their potential for listing on the historic registers would be appropriate.

## ENVIRONMENTAL CONDITIONS

### HYDROLOGY

The Eastshore Park Project Site includes the bay-shoreline interface along an eight and a half-mile reach of the eastern shoreline of Central San Francisco Bay. From a resource perspective, San Francisco Bay (Bay) is normally considered to include four subregions: Suisun Bay, the North Bay, the Central Bay, and the South Bay. The Central Bay consists of about 33,000 acres of baylands; the project site is included in what is called the “Berkeley Segment” of the Central Bay (Goals Project, 1999) that consists of 6700 acres.

The project site has limited vertical topography. The elevation of the project site ranges from sea level to a maximum of 50 feet above mean sea level (MSL). Most of the upland portions of the project site are within the elevation range of 5 to 15 feet MSL.

#### Hydrologic Features

The major hydrologic features of the project site are the nearshore zone, which includes subtidal and intertidal flats; the shoreline; the uplands; and the creeks/channels. The project site consists of a complex shoreline fronted by an extensive zone of subtidal and intertidal flats, which include both bay mud (fine-grained clay) and sandy deposits. The direct, western exposure of much of the site to waves propagating through the Golden Gate and wind-waves developed within the Bay create moderately erosive shoreline environments that limit the formation and restoration of tidal marshes to the more quiescent locations as well as protected areas that support a shoreline more resistant to erosion (beaches, dunes, etc.). Inland of the shoreline, nine small east-west flowing streams that drain local watersheds create a gently sloping alluvial plain: Baxter Creek, Central Creek, Cerrito Creek, Codornices Creek, Schoolhouse Creek, Strawberry Creek, Potter Creek, Derby Creek, and Temescal Creek.

Important existing physical features of the nearshore zone include shallow open water and mud and sand flats in the intertidal or subtidal zones that extend bayward from the shoreline to the project site boundaries in the Bay. This boundary along the shoreline edge is highly variable and influenced significantly by tidal fluctuation. The nearshore zone accounts for approximately 85 percent (roughly 1500 acres) of the entire project site.

The shoreline represents the edge or interface between the Bay and uplands, and extends for about eight and a half miles along the project site. Much of the current shoreline was created as a result of fill placement west of the historic shoreline. It includes a diversity of forms, including natural systems such as the tidal marshes in the Emeryville Crescent and fringing the Albany Mudflats, and various treated reaches including both engineered rock revetment and dumped construction debris. In specific areas without armor material, wave action has developed sand and/or gravel beaches at the shoreline. For this Resource Inventory, the shoreline conditions are characterized by the following classifications: Rock Revetment (engineered), Construction Debris, Gravel Beach, Sand Beach, Mudflats/Sandflats, and Tidal Marsh. Please see Figure RS-7 for Shoreline Conditions.

Most of the upland area of the project site was created by the placement of fill along and bayward from the historic shoreline. As a result, a considerable portion of the modern shoreline represents the interaction between the fill (including such characteristics as configuration of fill placement, composition of fill material, subsequent disturbance, etc.) and the hydrologic processes (wave action, stream flows).

The series of small east-west trending watersheds and associated creeks provide drainage for the coastal hills of Richmond, El Cerrito, Albany, Berkeley, Emeryville, and Oakland. As the adjacent urban areas developed, most of the creeks were channelized and culverted through their middle and lower reaches and currently enter the project site in pipes.

### Hydrologic Processes

While the project site “features” are evident to most visitors, it is the ongoing hydrologic, geologic, and climatic processes that act to shape these features and determine habitat functions and quality. The major hydrologic processes of importance to the site include the Bay processes/characteristics (waves, tides and currents), the creek processes, the climatic regime, and groundwater conditions. All of these processes influence the physical characteristics of the project site and determine habitat characteristics and quality, and affect the opportunities for various land uses and human activities in the project site.

Wind and wave action affect the shoreline and directly influence shoreline conditions, protection requirements and applications. The placement and content of fill material are other important factors guiding the determination of appropriate protection measures. Shoreline exposure to wind and wave action are generally classified as follows:

- Protected – Shoreline is not exposed to the open bay and significant wave action. Beach, mudflat, and tidal marsh conditions could be expected to persist in this context.
- Semi-protected – Shoreline is indirectly exposed to the open bay and receives moderate wave action. These areas are more susceptible to erosion and other geomorphic change than the protected areas.
- Exposed – Shoreline is exposed to the open bay and receives significant and consistent wave action. These areas are vulnerable to erosion and impacts from wave action.

Orientation of the shoreline to areas of open water is another critical factor in considering shoreline condition. Together exposure and orientation to areas of open water are major influences, which dictate local wave climate and ultimately shoreline condition.

In the project site, freshwater and seasonal wetlands are generally a result of direct precipitation (climatic regime) and surficial and groundwater flows from the local catchment. While supporting biological resources, the wetlands can also allow groundwater recharge. At certain periods during the year, the Meadow, Point Isabel, and the Brickyard all appear to support significant wetland areas.

Generally, the watersheds of the creeks within the project site have undergone significant change as a result of development, although sections of individual creeks have remained open and in some instances have been daylighted and ‘restored.’ Many of the watersheds, while relatively small, drain significant amounts of storm and urban run-off and, when viewed collectively, represent an important hydrologic element to the project. In addition to freshwater inflow, the creeks are a source of sediment to the wetlands at the shoreline. The creeks are also factors in considering habitat and water quality issues for the project site. The creeks link the picturesque ridgeline of the East Bay Hills to the flatlands and ultimately the Bay itself, functionally and ecologically.

## Water Quality

The San Francisco Bay and the freshwater creeks within the project site represent important environmental and recreational aquatic resources. Existing and potential aquatic habitats and resources are sensitive to changes in water quality. These impacts can be assessed through changes in temperature, salinity, organic, and chemical elements. Similarly, water quality is an important factor in planning and developing water recreation opportunities for park visitors. There have been no ongoing programs to monitor water quality in either the creeks or the portions of the Bay within the project site. Information specific to water quality within the project site is very limited and will be required as park uses and designs are considered.

Periodic occurrences of compromised water quality from sewage discharges and other spills have been documented within the project site, with postings to discourage water contact recreation. Likewise, monitoring of creek water quality in municipalities adjacent to the project site has documented the occurrence of typical urban runoff pollutants. The frequency, duration, location and sources of impacts to water quality are critical parameters for landuse planning and design decisions. Therefore, further investigation on water quality issues is recommended. Coordination with the five municipalities will be necessary to review water quality monitoring programs and priorities.

## Bathymetry

The nearshore project areas consist of intertidal and subtidal mud and sandflats with elevations ranging between -5 and +3 feet NGVD. Bathymetry consists of mapping of subtidal surface conditions of the Bay, including topography, tidal affects on the subtidal surface, and general characterization of the nature of open water areas.

Bathymetric information and conditions will be important factors to consider in the project planning effort. Shoals and other subtidal conditions may directly influence a range of project assumptions and priorities including shoreline protection and recreation opportunities.

Limited bathymetric information is currently available. General characterization of nearshore zone exists, but for design purposes such uses as docks, boating, and shoreline protection, site-specific bathymetric data collection will be required as park uses and designs are considered.

## CLIMATE/AIR QUALITY

The project is located within the Northern Alameda and Western Contra Costa County climatological subregion, which stretches from Richmond to San Leandro. The San Francisco Bay defines its western boundary and the Oakland-Berkeley Hills define its eastern boundary. The Oakland-Berkeley Hills have a ridgeline height of approximately 1,500 feet, a significant barrier to airflow. The most densely populated area of the subregion lies in a strip of land between the bay and the lower hills.

Winds in the unit display several characteristics. During the day, especially in summer, winds are from the southwest and west as air is dispersed throughout the Bay Area. At night especially in winter, an offshore wind develops, blowing from the Central Valley toward the ocean. The prevailing wind distribution results in rapidly ventilating the area in the daytime with clean marine air and corresponding good air quality. The unit's wind is persistent and pervasive and microclimates become a major factor in either seeking shelter or finding those areas with the strongest, most steady breeze. Shelter from the wind, in places with less exposure to the Bay, can include the North Basin, Brickyard or the Albany Mudflats. Enthusiasts of kite flying, sailing or windsurfing find windier

conditions at Cesar Chavez Park, the Berkeley Beach, Marina Bay in Richmond, Berkeley Marina, and Emeryville Marina.

Maximum temperatures in summer average in the mid-70s, with minimums in the mid-50s. Winter highs are in the mid- to high-50s, with lows in the low to mid-40s. The unit typically experiences moderately wet winters and dry summers with Winter rains accounting for about 75 percent of the average annual rainfall. In late spring and summer, the unit has a high incidence of fog. The fog rolls eastward into the unit from the Bay and fluctuates with daily, weekly, and seasonal cycles. These cycles directly affect views, humidity and comfort.

The Eastshore Park Project is subject to the general weather conditions described above, however, areas of the project site allow slightly more protection from prevailing winds than other more exposed areas. Within the project site, this protection can result in warmer temperatures and shelter from cool breezes or exposure to the strong winds and cold air from the San Francisco Bay.

The air pollution potential is lowest for the parts of the unit that are closest to the Bay, due largely to good ventilation and less influx of pollutants from upwind sources. The occurrence of light winds in the evenings and early mornings occasionally causes elevated pollutant levels. The air pollution potential at the northern (Richmond) and southern (Oakland) parts of this unit is marginally higher than the central part of the unit because of the lower frequency of strong winds.

The major pollutants of concern in the San Francisco Bay Area Cozone, carbon monoxide, and particulate matter are monitored at stations in Oakland, San Leandro-County Hospital, and Fremont-Chapel Way. Pollutant monitoring results for the years 1995 to 2000 at these monitoring stations indicate that air quality in the Richmond/Berkeley/Oakland area has generally been good. However, there are a variety of industrial air pollutant sources in the vicinity of the Project Site and frequently congested major freeways also traverse the unit. Traffic congestion and accompanying motor vehicle emissions is increasing with population growth, therefore potential impacts of emissions on potential future park uses would require further investigation.

## REGIONAL GEOLOGY

The site is located in the Coast Ranges Geomorphic Province of California. East of the site, the historic shoreline comprises alluvial fan deposits of the Temescal Formation. At the site, bedrock is locally overlain by marine deposits and sediments of Pleistocene and Holocene age, including artificial fill. The sedimentary deposits include alluvial and colluvial soil deposits, as well as bay and marsh deposits. Subsequent erosion and deposition of sediments from the Berkeley Hills formed the alluvial plain of the East Bay shoreline. The land portions of the site consist primarily of artificial fill placed to the west of the historic shoreline. Filling activities have extended the shoreline as much as 1,000 feet into the bay from its original (1850's) position. In general, the artificial fill comprises sand, gravel, and clay with varying amounts of construction debris and garbage. Artificial fill is underlain by a variable thickness of soft, compressible young Bay Mud. Bay mud generally consists of clayey, sandy silt with shells and other organic material and lenses of fine sand.

In some areas the young bay mud is underlain by remnants of the Pleistocene to Recent Merritt Sand, which is reported to be up to 30 feet thick. The Merritt sand is a silty, clayey fine-grained sand with lenses of sandy clay and clay. The bay mud and Merritt sand are underlain by the Pleistocene Alameda Formation that includes several hundred feet of sediment underlying the bay and bay shore plain and is made up of continental and marine gravels, sands, silts, and clays, with some shells and organic materials. The Alameda Formation is underlain by Mesozoic Franciscan Assemblage bedrock consisting of fractured and sheared arkosic to greywacke sandstone with some shells. The

irregular erosional surface of the bedrock probably occurs at depths in excess of 300 feet below sea level beneath the park and is mapped as an outcrop at Fleming Point and Point Isabel.

The project site, like the rest of the San Francisco Bay Area, is one of the most seismically active regions in the United States. The site's seismic setting is dominated by the Hayward fault, about 2 miles to 3.5 miles northeast from Point Isabel and Emeryville Crescent, respectively, and the San Andreas fault, about 14.5 miles southwest of the site. The Healdsburg-Rogers Creek fault (which may be an extension of the Hayward fault) lies about 18 miles northeast of the site. The Hayward Fault is the closest known active fault. The maximum credible earthquakes for the Hayward, San Andreas, and Healdsburg-Rogers Creek faults are 7.5, 8.3, and 7.2 (Richter Magnitude), respectively. The site could be affected by strong ground shaking due to movement along one of these or any one of a number of other active faults in the region.

The four major hazards associated with earthquakes include fault surface rupture, ground shaking, ground failure, and inundation due to earthquake-generated waves or dam failures. The project is likely to experience ground shaking from a major earthquake within its lifespan. The U.S. Geological Survey has estimated that there is a 70 percent probability that there will be one or more earthquakes of magnitude 6.7 or greater in the Bay Area in the next 30 years.

Liquefaction, or ground failure, is the sudden loss of strength in loose, saturated materials, such as sands, during an earthquake, which results in the temporary fluid-like behavior of these materials. Liquefaction typically occurs in areas where groundwater is shallow, and materials consist of clean, poorly consolidated, fine sands. Liquefaction Susceptibility Maps of the San Francisco Bay Area show that the entire upland portion of the site may have very high liquefaction susceptibility depending on the type of material and placement methods used to create the land fill. The State of California has identified the southern portion of the Emeryville Crescent and the Bay Bridge Approach fills as being a liquefaction hazard zone where the soils have a potential for permanent ground displacements such that mitigation would be required. The State of California has not completed evaluating the liquefaction potential of areas north of Oakland and thus these areas are not currently included in liquefaction hazard zones. Evidence of liquefaction was observed after the 1989 Loma Prieta earthquake along the frontage road south of University Avenue, along the Emeryville Crescent and Bay Bridge Approach, and in Cesar Chavez Park. Specific hazard evaluations for the site are discussed in the Resource Inventory.

## NOISE

Most of the existing noise within the project site is generated from Interstates 80 and 580, that are located in close proximity to much of the eastern edge of the project site. Traffic noise along Interstates 80/580 is relatively loud, with the eastern portion of the project site being exposed to higher vehicular traffic noise than the western portion of the project site. A similar degree of noise disturbance is also present along site areas located near Bay Area Rapid Transit lines. The Golden Gate Fields racetrack, located in the Cities of Albany and Berkeley, is also an existing use that contributes to high noise levels. However, since use is sporadic and the amount of traffic generated by events is not significant, the project site is unlikely to be significantly affected by noise related to horse racing events at Golden Gate Fields.

The five municipalities within the project site area have different noise standards for acceptable noise levels. The Cities of Richmond and Emeryville list normally acceptable noise level limits for open space areas. The City of Berkeley has no noise standards for parks and recreational uses, but its

Municipal Code lists an acceptable minimum noise level. The Cities of Albany and Oakland have no set noise limits for park areas.

According to the freeway noise contour lines depicted in the Resource Inventory, parts of the North Basin Strip, the Berkeley Meadow, and the Brickyard in the City of Berkeley and Radio Point Beach in the City of Oakland fall within the acceptable noise level limit. For the project sites within the City of Berkeley, this noise level would exceed the recommended noise limit set in the City of Berkeley's Municipal Code. These areas in the Cities of Berkeley and Oakland would experience noise levels normally unacceptable for park and recreational uses. Portions of the wetlands adjacent to Interstate 80/580, such as the Hoffman Marsh, Albany Mudflats, Berkeley Beach, Point Emery Park, and the Emeryville Crescent, also exceed the acceptable noise level limits.

## HAZARDOUS MATERIALS

Historical site uses include the placement of fill, municipal waste, and/or construction debris at certain locations within the site. Based on the historical site uses and various filling activities, numerous environmental investigations have been conducted throughout the site. At certain locations, remediation efforts have been completed in accordance with Regional Water Quality Control Board (RWQCB) requirements. Landfill gases were also of concern at the former landfill areas, including the Albany Plateau, North Basin Strip, and the Berkeley Meadow. Details regarding the historical uses, investigation, and remediation activities are described in the Resource Inventory.

In 1998, under the terms of the March 1997 land transfer agreement between Catellus Development Corporation (Catellus), EBRPD, and the California Department of Parks and Recreation, the RWQCB issued Order No 98-072 (July 1998), which indicated that sediment, soil and groundwater at the listed sites were adequately investigated and adopted Site Cleanup Requirements for portions of the ESP site, including the Berkeley Brickyard, Berkeley Meadow, Berkeley North Basin, Albany Plateau, Point Isabel, and Hoffman Marsh. The RWQCB issued Order No 97-069 (May 1997) adopting Site Cleanup Requirements for the Emeryville Crescent Property.

As part of the transfer agreement, Catellus completed remediation work at 19 locations, where detected chemicals of potential concern (COPCs) in shallow soil exceeded site-specific action levels established for the planned project site. Typically, COPCs included elevated concentrations of lead and, to a lesser degree, arsenic, zinc, extractable lead, PCBs, and petroleum hydrocarbons resulting from fill materials, slag, refuse, used battery casings, and/or aerial deposition of vehicular emissions. Accordingly, certain contaminated soils were remediated by excavating the upper 1 to 1.5 feet of soil for off-haul, as well as by placing a 2-foot cap to reduce potential exposure to the area. The RWQCB issued a Certificate of Completion for the remediation activities completed at the project site. The RWQCB's Certification is subject to ongoing risk management measures that include annual inspection of the remediation areas and notification should site change to non-recreational uses.

COPCs in offshore sediments include petroleum hydrocarbons, PCBs, DDT, and several metals. Results of previous studies concluded that sediments at the project site were typical of sediments encountered in the San Francisco Bay and did not present a probable risk to potential biological receptors.

Currently, some areas of the shoreline are lined with non-engineered revetments consisting of construction debris. See Figure RS-7 for Shoreline Conditions. Debris and extruded fill materials can pose public safety risks if there is increased access to the Project Site. These potential risks would need to be investigated further.



## LAND USE, TRAFFIC/CIRCULATION, AND UTILITIES

### LAND USE

The urban setting for the project presents a complex mosaic of land uses that extends over eight and a half miles of shoreline and includes land within five different cities. The project site, while being largely undeveloped, is non-contiguous and thus interspersed with lands under different ownership and uses of varied compatibility. In several instances, the project site's relatively undeveloped condition is in sharp contrast to adjacent urban development.

Within the site proper, the primary existing land use is best described as recreation (see section on Recreation). There are, however, a couple of other uses within the unit that are conducted by short-term leaseholders. In the Brickyard Cove area, the flat upland area near the University Avenue/West Frontage Road intersection, is currently leased for two different uses. The largest part of this area is used as a site for the temporary storage of clean construction fill material. Activities include the hauling and dumping of off-site excavations onto the property. The material is stored until a suitable fill location is found. Heavy trucks enter the area on a regular basis and heavy earthmovers are continually moving soil around. The second use is the Seabreeze Market, which is both a produce market and café. Through its years of existence it has established itself as a popular destination and support facility for waterfront visitors and as a convenient rest stop for travelers on I-80. The temporary facility consists of several large storage container units assembled into a single cluster. Picnic tables provide outdoor seating in the front of the market. Parking and portable restroom facilities are provided at the rear of the market. Other uses in the unit include two commercial concessions that seasonally lease the open area on the North Basin Strip just north of the Virginia Street right-of-way to sell pumpkins and Christmas trees respectively. These operations, which were all in existence prior to DPR ownership of the unit, are maintained as interim uses.

The unit's land use context is not static. The urban area surrounding the project site continues to evolve as the economy of the Bay Area changes. Specific land uses and land use trends within the larger area of influence are likely to have implications for the unit. Generally, the historic industrial and manufacturing land use base that once occupied the westernmost portions of the adjoining communities is changing. Many of these older areas are experiencing an infusion of new retail and commercial uses, as well as new residential and mixed-use development. The master planned residential communities and waterfront parks in the Marina Bay area in Richmond and the high-rise and high-tech development in Emeryville are only the most extreme examples of how historic industrial and institutional uses have yielded to new land use patterns. The redevelopment and re-use of the Oakland Army Base for civilian purposes is likely to significantly change land use patterns and open up public access to the Bay shoreline immediately south of the Project Site.

Due to a number of factors, including its size, its shoreline location in the middle of the unit, and the availability of additional development potential, the Golden Gate Fields (Magna Corporation) properties have the potential to significantly influence the character of the unit. Under the City of Berkeley's General Plan, the privately owned land immediately north of the North Basin can be redeveloped with waterfront-oriented commercial uses. This includes up to 50,000 square feet of waterfront-oriented retail uses (retail and restaurant) and 200 parking spaces on the area south of Gilman Street, and a 165,000 square foot hotel complex, a 10,000 square-foot restaurant, and 360 parking spaces on the area north of Gilman Street (i.e., in the horse stable area). The City's plan also requires the property owner to provide a continuous 100-foot shoreline setback for public access purposes in conjunction with such development.

## TRAFFIC/CIRCULATION

The unit is accessed by Interstate 580 and 80. Interstate 580 and 80 are the same freeway from Buchanan Street to Powell Street to the south. Within the unit, Interstate 580/80 is oriented in a north-south direction and would provide access via interchanges at Central Avenue, Buchanan Street, Gilman Street, University Avenue, Ashby Avenue, and Powell Street. These interchanges intersect the Eastshore Frontage Road, a north-south frontage road immediately west of Interstate 580/80. Some of the interchanges (i.e., Central, Gilman, and Powell) provide direct access from the freeway into the Project Site. Other interchanges (i.e., Buchanan, University, and Ashby) do not provide full, direct access. In most cases, these interchanges require travelling on the Frontage Road to reach a park entrance, and in the case of University, freeway travelers exiting from the north have to make a U-turn to reach the park entrance. On-street parking is limited along the west side of the frontage road. However, off-street parking lots are provided at the major activity areas such as Marina Park, the Berkeley Marina, and the Albany Trail.

Public transportation is currently provided to the vicinity via rapid rail transit and train, and to the site via bus. There are currently no water ferry routes serving the unit, although the Metropolitan Transit Commission has identified the area at the foot of Gilman Street in Berkeley as a potential site for a ferry terminal.

Bicycle and pedestrian access to the unit is currently limited because of its location in relation to the Interstate 80 freeway and is available only at the interchanges of Powell Street, University Avenue and Gilman Street. These east-west connections to the Bay Trail alignment from Albany, Berkeley and Emeryville are difficult and uninviting for pedestrians and bicyclists. West of the Interstate 80, the Bay Trail is a critical north/south bicycle and pedestrian facility for unifying the shoreline and linking the different parcels within the unit.

Existing daily traffic volumes on the State Highways within the unit range from 78,000 to 239,000 average daily trips, with the greater traffic volumes existing in the southern part of the unit. Existing daily and weekday peak commute hour intersection traffic volumes at the unit were analyzed for 21 intersections. According to criteria used for the Resource Inventory study, the Interstate 80 westbound and eastbound ramps, as well as the West Frontage Road/University Avenue intersection, are currently operating at unsatisfactory levels of service during the p.m. peak hour. All other analyzed intersections where data are available currently operate with satisfactory levels of service.

Other future approved roadway and/or intersection improvements may affect future circulation in the vicinity of the project site including: a bicycle/pedestrian overcrossing at I-80 at University Avenue in the City of Berkeley (currently under construction), a Gilman/I-80 traffic roundabout, an Ashby Avenue/Bay Interchange in the cities of Berkeley and Emeryville, construction of high occupancy vehicle lanes on I-80 from the Oakland Bay Bridge to the Contra Costa County line, and interchange modifications at the I-80/Buchanan Street/Eastshore Highway interchange (including bicycle lanes).

## UTILITIES/PUBLIC SERVICES

The unit's utilities and public services are provided by the five municipalities, the East Bay Municipal Water District, the Pacific Gas and Electric Company, and Pacific Bell. Additionally, the Stege Sanitary District also serves the Richmond Annex and parts of the City of Oakland's portion of the unit are also served by Caltrans and the Oakland Base Re-use Authority.

Existing water supply, wastewater, electric and gas, and telephone lines are concentrated in the developed sections of the unit, such as the areas surrounding the Marina Bay of Richmond, Point Isabel, Golden Gate Fields, Berkeley Marina, Emeryville City Marina, the Bay Bridge toll plaza, and the Oakland Army Base. (See Resource Inventory for details on specific locations of utilities.) According to staff representatives of the respective utility districts and companies, the existing utilities in these more developed areas would have capacity to accommodate additional facilities that are typical of regional shoreline parks (e.g., interpretive center, shower and restroom facilities). Recycled water would also be available to the Project Site from the East Bay Municipal Utility District.

Existing storm drains are located along most of the unit. (See Resource Inventory for specific locations.) There are no storm water facilities at the Albany Point/Buchanan Street Extension areas, Point Emery Park, or along Emeryville's portion of West Frontage Road. The existing storm water system would have the capacity to accommodate additional runoff from potential park facilities.

In general, the lesser-developed areas of the unit contain little or no public utilities. Some of these areas include the wetland areas within the City of Richmond, the Albany Point/Buchanan Street Extension area, Berkeley Aquatic Park, areas west of Interstate 80 between University Avenue and the Berkeley-Emeryville city limit, Point Emery Park, Emeryville Crescent, Radio Point Beach, and the areas north of the Bay Bridge toll plaza. Construction of public utilities infrastructure in this area of the unit could be very expensive. In some areas such as the Albany Point/Buchanan Extension, a less expensive alternative would be to connect to the existing private utilities infrastructure that serve Golden Gate Fields. The connection of power lines to proposed park facilities located in areas with no existing service points could also be very expensive because power lines would have to be built under Interstate 80. Since the franchise agreement between Pacific Bell Company and the State of California requires that Pacific Bell provide service to all new developments within the franchise area, the connection of telephone service would not be a major constraint to development.

Police and Fire Protection Services to the unit are provided by the East Bay Regional Park District (police protection for their own District parks) and the respective municipal police and fire departments of each municipality within the unit area.