City of Seaside

Local Coastal Program Appendices

Adopted June 20, 2013

APPENDIX A

CITY OF SEASIDE
LOCAL COASTAL PROGRAM
BIOLOGICAL INVENTORY REPORT

Prepared for:

CITY OF SEASIDE
SEASIDE, CA

Prepared by:

PMC™

585 CANNERY ROW, SUITE 304
MONTEREY, CA 93940

JANUARY 2009

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INTRODUCTION

On behalf of the City of Seaside, PMC conducted a biological resources inventory of the study area located partially within the City of Seaside, Monterey County, California (**Figure 1**). This report identifies the regional setting, local setting, and regulatory framework, in relation to the sensitive biological resources that may be affected from potential site development. This memo has been written to present an overview of potential biological issues and constraints that might be encountered, and that would affect project schedules or cost, if a possible future project is constructed.

STUDY AREA

The approximately 129-acre study area is located partially within the City of Seaside, California in the western portion of Monterey County (**Figure 1**). This location corresponds to the *Seaside, California* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS 1983). Elevation in the study area ranges from approximately zero to 57 feet (zero to 17 meters) above mean sea level. Study area topography varies from the sand-covered shore of the Pacific Ocean up to the sand dunes and down to the relatively flat terrace associated with the Laguna Grande and Roberts Lake. Elevation rises sharply in the southern portion of the study area near the southern edge of Laguna Grande Regional Park.

Land uses within the study area include residential, commercial, and park/open space. The study area is on the Monterey Bay, situated between the cities of Marina and Monterey. Habitats within the study area include the marine, coastal dune scrub, estuarine, emergent wetland, coastal oak woodland, park, urban, and ruderal habitats associated with the residential, commercial and park uses. Highway One separates the coastal dune habitat from the rest of the study area. Del Monte Boulevard and the abandoned Southern Pacific Railroad tracks separate Roberts Lake from Laguna Grande.

PROJECT DESCRIPTION/BACKGROUND

The City of Seaside is mandated by the California Coastal Act of 1976 to prepare a Local Coastal Program (LCP) for the area of the City that lies within the coastal zone boundary. The LCP consists of two major parts: the Land Use Plan (LUP) and the Coastal Implementation Plan (CIP). The LUP designates the kinds, location, and intensity for land and water uses, and presents applicable resource protection and development policies to accomplish the policies of the Coastal Act. The LCP must be adopted by the City, then approved (certified) by the California Coastal Commission. The LCP may be amended in accordance with California Code of Regulations and Public Resources Code.

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Figure 1
Regional Location

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Figure 2

Project Location

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METHODOLOGY

Biological resources within the study area were identified by PMC biologist, Angela Calderaro, through field reconnaissance, a review of pertinent literature, and database queries. The primary sources of data referenced for this report included the following:

- "Federal Endangered and Threatened Species that may be Affected by Projects in the *Seaside, California* 7.5-Minute Topographic Quadrangle and Surrounding Quadrangles" (**Appendix A**; USFWS, 2008a);
- U.S. Fish and Wildlife Service (USFWS) Critical Habitat Online Mapper (USFWS, 2008b);
- California Department of Fish and Game (CDFG) California Natural Diversity Database (CNDDB), Rarefind 3 computer program (**Appendix A**; CDFG, 2008a);
- CNDDB Quickviewer online database (CDFG, 2008b);
- California Native Plant Society (CNPS) online species inventory (Appendix A; CNPS, 2008);
- Ecological Subregions of California (Miles and Goudey, 1997);
- Administrative Draft Environmental Impact Report (EIR) for the Laguna Grande/Roberts Lake Restoration Project (Holton Assoc and Moffatt and Nichols, 1986); and
- West Broadway Specific Plan Biological Resources Assessment (PMC, 2007).

Field Evaluation

General biological surveys of the study area were completed on August 2 and 3, 2008. Surveys included general plant and wildlife surveys and a vegetative community and wildlife habitat delineation. The entire study area was accessible during the surveys. The weather was warm (approximately 60 to 70 degrees Fahrenheit) with sunny to foggy skies, but the weather did not hamper survey efforts. Resources were mapped using Trimble Geo XT Global Positioning System (GPS), aerial photos, and topographic maps at a scale of 1 inch = 100 feet. Habitat types were noted on an aerial photograph and digitized using ArcGIS software (**Figure 3**). General plant and wildlife surveys were completed by walking through all habitats and recording data in a field notebook. Field surveys focused on identifying and delineating habitat for special-status plant and wildlife species, although general habitat conditions were noted and incidental species observations were recorded. A list of plants and wildlife observed during these surveys is shown in **Appendix C**.

The USFWS's National Wetland Inventory (NWI) was also checked for presence of known wetlands and waters. The NWI is an inventory of wetlands identified on aerial photography by vegetation, visible hydrology, and geography, and subsequently classified in general accordance with Cowardin et al. (1979) *Classification of Wetlands and Deep Water Habitats of the United States*. Collateral information used in the NWI mapping effort includes USGS topographic maps and Natural Resources Conservation Service soil surveys. **Figure 4** shows the NWI wetlands and other waters mapped within the vicinity of the study area. A wetland delineation was not conducted within the study area as a part of this survey effort. Additional or fewer features may be uncovered once a wetland delineation is conducted.

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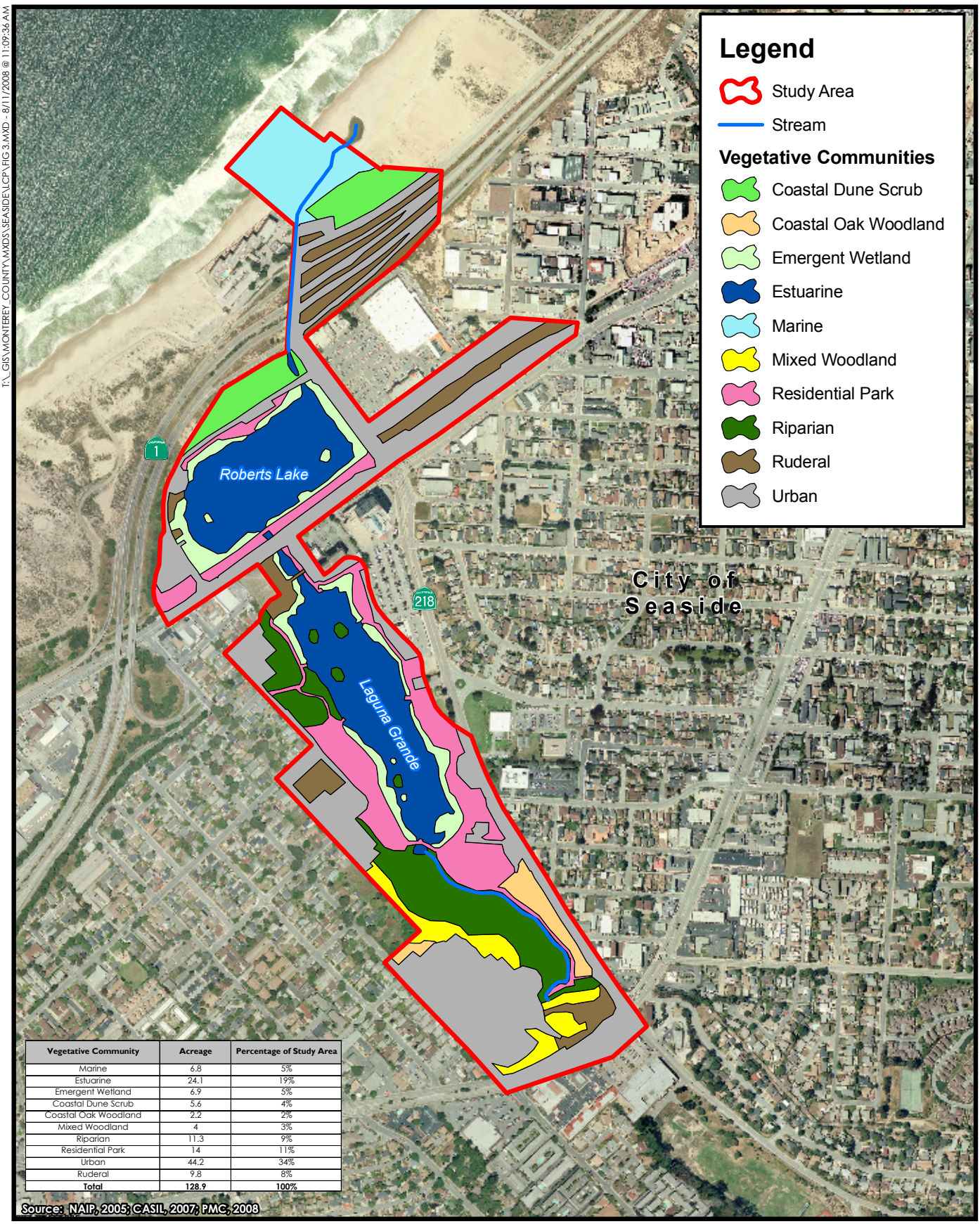

Vegetative Community	Acreage	Percentage of Study Area
Marine	6.8	5%
Estuarine	24.1	19%
Emergent Wetland	6.9	5%
Coastal Dune Scrub	5.6	4%
Coastal Oak Woodland	2.2	2%
Mixed Woodland	4	3%
Riparian	11.3	9%
Residential Park	14	11%
Urban	44.2	34%
Ruderal	9.8	8%
Total	**128.9**	**100%**

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Figure 3

Vegetative Communities within the Study Area

PMC

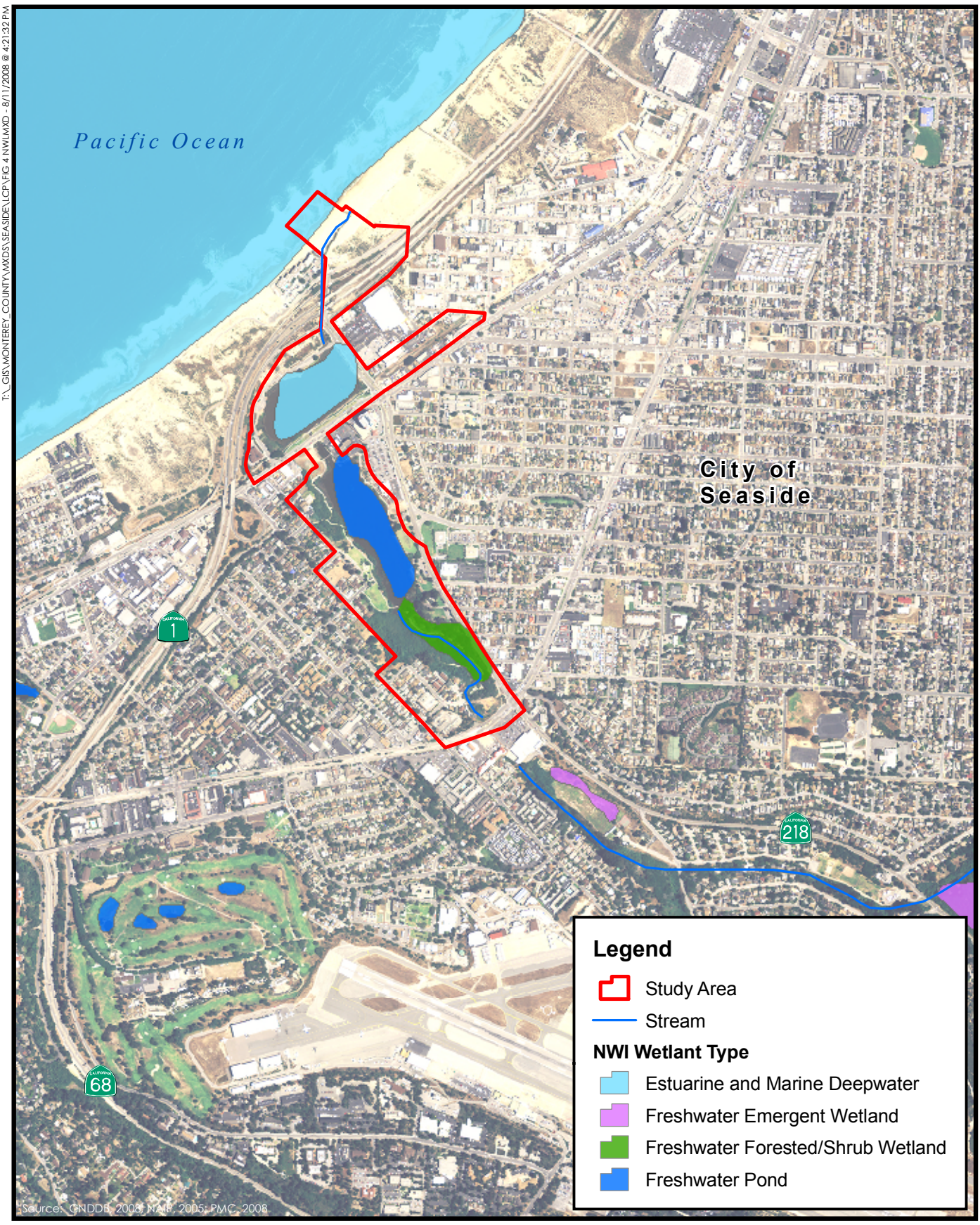

Figure 4

National Wetlands Inventory

PMC

Special-status Species Assessment

Prior to the field visit, a database search for special-status species was conducted for the *Seaside, California* USGS 7.5-minute topographic quadrangle and surrounding quadrangles (*Marina, Salinas, Monterey, Spreckels, Soberanes Point, Mount Carmel,* and *Carmel Valley*). **Appendix A** presents the results of the CNDDB, CNPS, and USFWS queries for special-status species that are known to occur or have the potential to occur within the study area and vicinity.

The CDFG's CNDDB was queried on August 1, 2008 for a list of special-status wildlife, botanical, and fisheries resources previously documented as occurring within the vicinity of the study area (**Appendix A**; CDFG 2008a/b). The database search was performed for special-status species within the USGS 7.5-minute quadrangles listed above. Locations of special-status species occurrences within a one-mile radius of the study area as recorded in CNDDB are shown on **Figures 5** and **6**.

The CNPS inventory was also searched for rare or endangered plants that may occur within the vicinity of the study area. This query was performed for CNPS List 1A, List 1B, List 2, and List 3 special-status plants occurring in the surrounding USGS 7.5-minute quadrangles listed above (**Appendix A;** CNPS 2008). Since CNPS List 4 species are not included in the CNPS online inventory query, the only List 4 species included in this discussion are those species recorded in the vicinity of the study area within CNDDB. List 1A species are presumed extinct in California. List 1B species are considered rare or endangered in California, but are more common elsewhere. List 2 species are rare, threatened, or endangered species in California, but are more common elsewhere. List 3 species lack the necessary information to assign them to a listing status. List 4 species have a limited distribution or that are infrequent throughout a broader area in California.

In addition, the USFWS, Ventura Office was consulted for a list of federally listed or candidate plant and wildlife species that may occur within the region of the study area (USFWS 2008). **Appendix A** includes a copy of the USFWS list and letter.

A special-status species was determined to have the potential to occur in the study area if its documented geographic range from the literature and database searches includes the project vicinity, if there is a known occurrence near the site, and if suitable habitat for the species was identified within or near the study area. A complete list of special-status species from the database searches, their conservation status, general habitat requirements, and rationale for including them in the report is summarized in **Appendix B**. Range and habitat information of special-status plant and wildlife species was obtained from the California Wildlife Habitat Relationships (CWHR) program version 8 (CDFG 2002) as well as other sources. No species-specific or protocol-level surveys for special-status species were conducted for this report.

Critical Habitat

When the USFWS lists a species as threatened or endangered under FESA, areas of habitat considered essential to its conservation and survival may be designated as critical habitat. These areas may require special consideration and/or protection due to their ecological importance. In August 2008, potential critical habitat designations within the general vicinity of the study area were checked using the USFWS Critical Habitat Portal (USFWS, 2008b). **Figure 7** shows the designated critical habitat within the vicinity of the study area.

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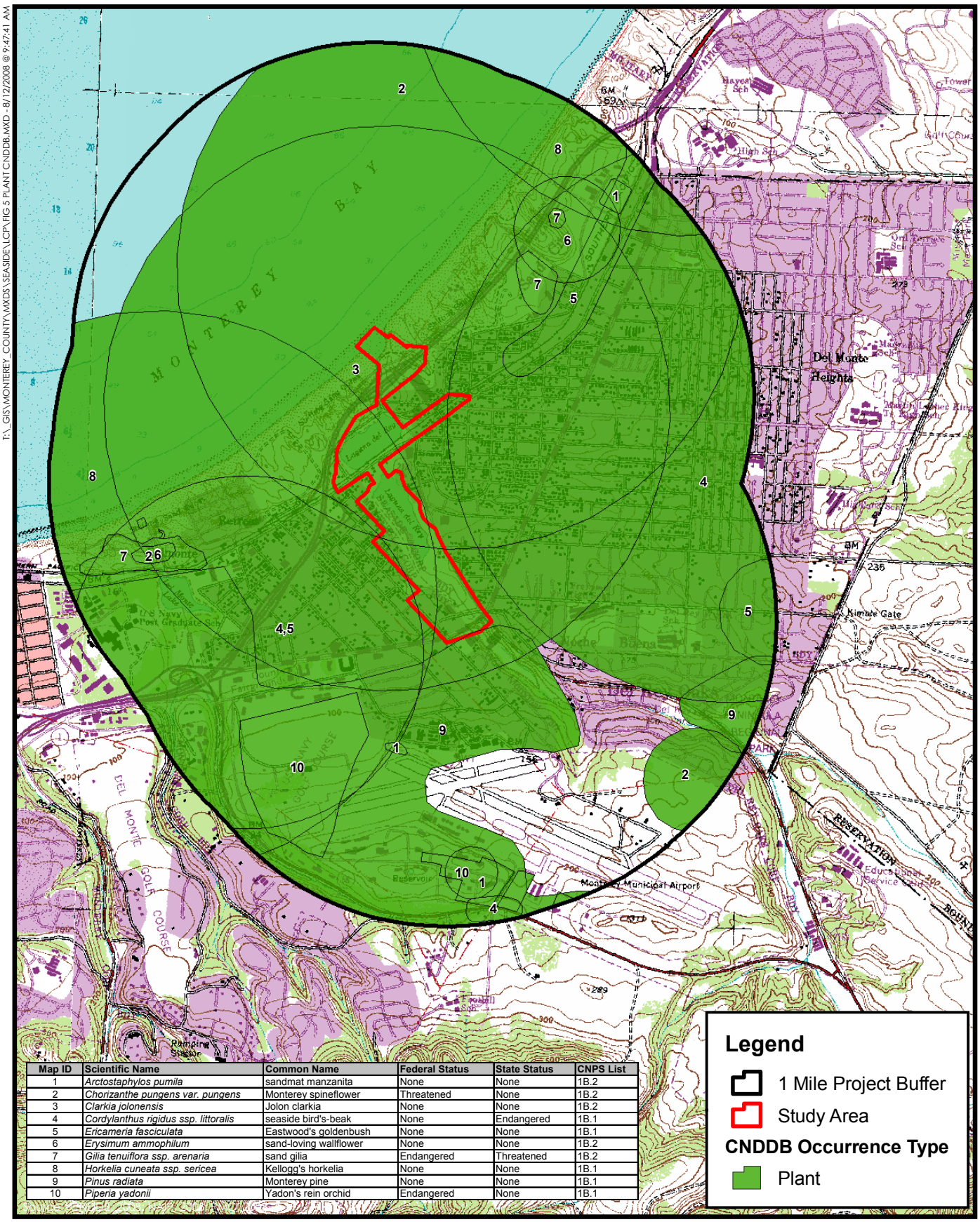

Map ID	Scientific Name	Common Name	Federal Status	State Status	CNPS List
1	*Arctostaphylos pumila*	sandmat manzanita	None	None	1B.2
2	*Chorizanthe pungens var. pungens*	Monterey spineflower	Threatened	None	1B.2
3	*Clarkia jolonensis*	Jolon clarkia	None	None	1B.2
4	*Cordylanthus rigidus ssp. littoralis*	seaside bird's-beak	None	Endangered	1B.1
5	*Ericameria fasciculata*	Eastwood's goldenbush	None	None	1B.1
6	*Erysimum ammophilum*	sand-loving wallflower	None	None	1B.2
7	*Gilia tenuiflora ssp. arenaria*	sand gilia	Endangered	Threatened	1B.2
8	*Horkelia cuneata ssp. sericea*	Kellogg's horkelia	None	None	1B.1
9	*Pinus radiata*	Monterey pine	None	None	1B.1
10	*Piperia yadonii*	Yadon's rein orchid	Endangered	None	1B.1

Legend

1 Mile Project Buffer

Study Area

CNDDB Occurrence Type

Plant

Figure 5

Previously Recorded Special-status Plant Species within a One-mile Radius of the Study Area

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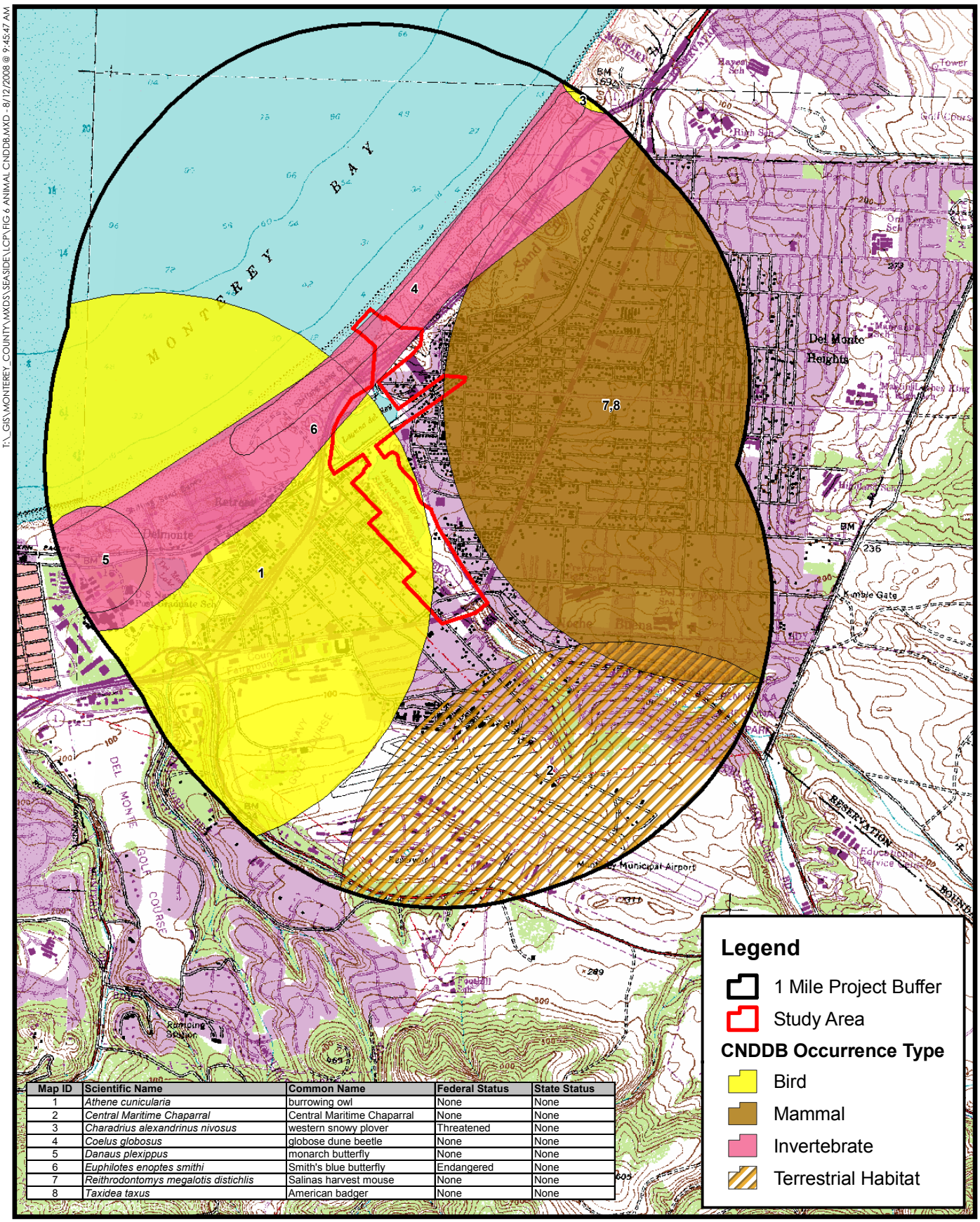

Map ID	Scientific Name	Common Name	Federal Status	State Status
1	*Athene cunicularia*	burrowing owl	None	None
2	*Central Maritime Chaparral*	Central Maritime Chaparral	None	None
3	*Charadrius alexandrinus nivosus*	western snowy plover	Threatened	None
4	*Coelus globosus*	globose dune beetle	None	None
5	*Danaus plexippus*	monarch butterfly	None	None
6	*Euphilotes enoptes smithi*	Smith's blue butterfly	Endangered	None
7	*Reithrodontomys megalotis distichlis*	Salinas harvest mouse	None	None
8	*Taxidea taxus*	American badger	None	None

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Figure 6

Previously Recorded Special-status Wildlife Species and Terrestrial Habitat within a One-mile Radius of the Study Area

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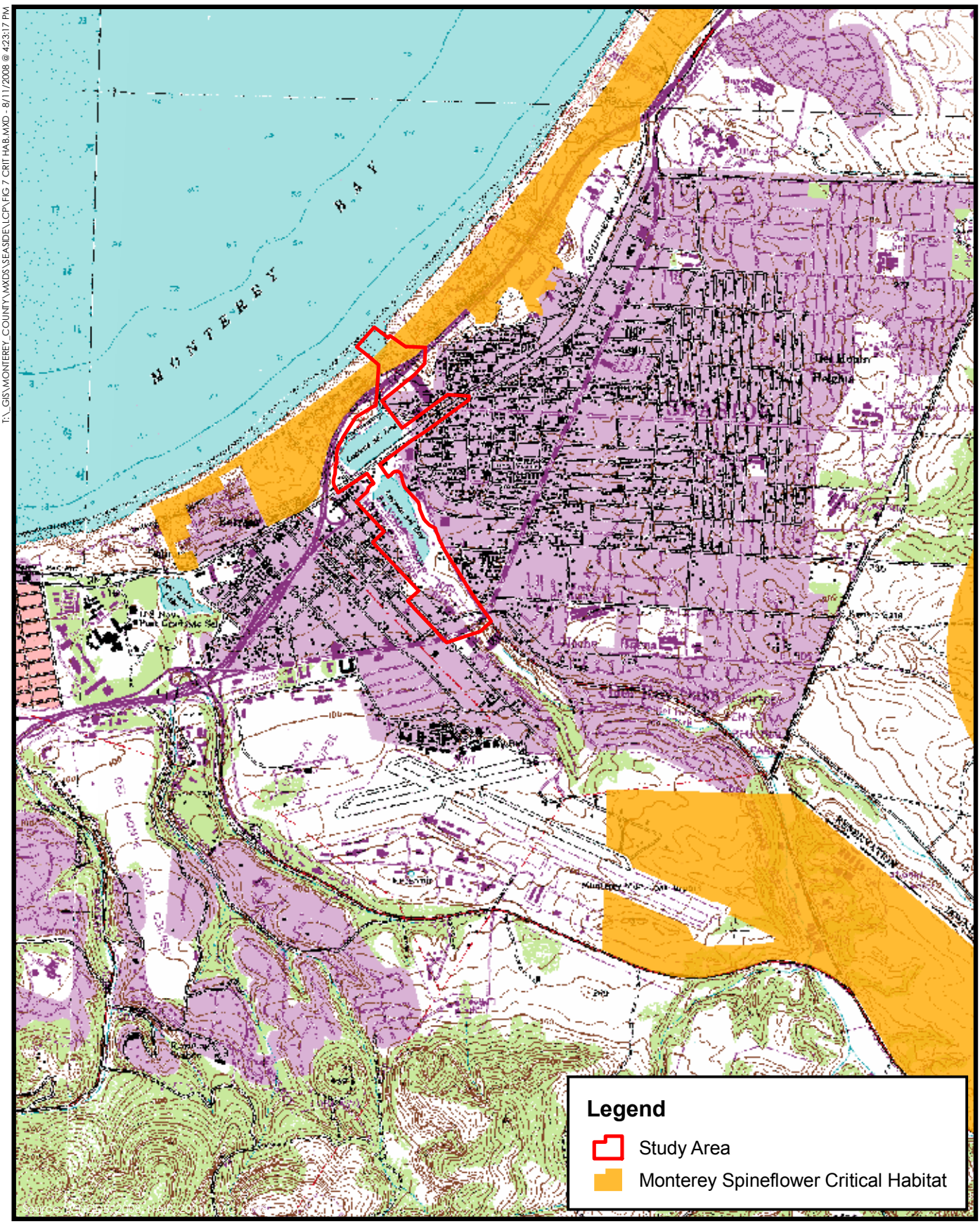

Figure 7

Critical Habitat within and Surrounding the Study Area

REGULATORY SETTING

This section lists specific environmental review and consultation requirements and identifies permits and approvals from local, state, and federal agencies that may be applicable to the proposed project once the project has been established.

FEDERAL

Federal Endangered Species Act

The United States Congress passed the Federal Endangered Species Act (FESA) in 1973 to protect those species that are endangered or threatened with extinction. FESA is intended to operate in conjunction with the National Environmental Policy Act (NEPA) to help protect the ecosystems upon which endangered and threatened species depend. FESA prohibits the "take" of endangered or threatened wildlife species. "The term 'take' means to harass, harm, pursue, hunt, shoot, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (FESA Section 3 [(3)(19)]). Harm is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns (50 CFR §17.3).

Migratory Bird Treaty Act

Raptors (birds of prey), migratory birds and other avian species are protected by a number of state and federal laws. The federal Migratory Bird Treaty Act (MBTA) prohibits the killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of Interior. Section 3503.5 of the California Fish and Game Code states that it is "unlawful to take, possess, or destroy any birds in the order Falconiformes or Strigiformes or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto."

Section 404 of the Clean Water Act

The objective of the Clean Water Act (CWA 1977, as amended) is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters. Discharge of fill material into waters of the U.S., including wetlands, is regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the federal CWA (33 USC 1251-1376). "Discharges of fill material" is defined as the addition of fill material into waters of the U.S., including, but not limited to the following: placement of fill that is necessary for the construction of any structure, or impoundment requiring rock, sand, dirt, or other material for its construction; site-development fills for recreational, industrial, commercial, residential, and other uses; causeways or road fills; fill for intake and outfall pipes and subaqueous utility lines [33 C.F.R. §328.2(f)]. In addition to verifying wetlands for potential jurisdiction, the USACE is responsible for the issuance of permits for projects that propose filling of wetlands. Section 404 permits are required for construction activities in waters of the U.S. Waters of the U.S. include essentially all surface waters such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. Navigable waters of the U.S. are defined as waters that have been used in the past, are now used, or are susceptible to use as a means to transport interstate or foreign commerce up to the head of navigation. Boundaries between jurisdictional waters and uplands are determined in a variety of ways depending on which type of water is present.

Wetlands are defined as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" [33 C.F.R. §328.3(b)]. Presently, to be a wetland, a site must exhibit positive indicators of three wetland criteria: hydrophytic vegetation, hydric soils, and wetland hydrology existing under the "normal circumstances" for the site. The lateral regulatory extent of non-tidal waters is determined by delineating the ordinary high water mark (OHWM) [33 C.F.R. §328.4(c)(1)].

Section 401 of the Clean Water Act

Section 401 of the CWA (33 U.S.C. 1341) requires any applicant for a federal license or permit to conduct any activity that may result in a discharge of a pollutant into waters of the U.S. to obtain a certification that the discharge will comply with the applicable effluent limitations and water quality standards. The Central Coast Regional Water Quality Control Board (CCRWQB) is responsible for enforcing water quality criteria and protecting water resources within its region. The CCRWQB is responsible for controlling discharges to surface waters of the state by issuing waste discharge requirements (WDR) or commonly by issuing conditional waivers to WDR's. The CCRWQB requires that a project proponent obtain a CWA Section 401 water quality certification or waiver for Section 404 permits granted by the USACE. A request for water quality certification (including WDR's) by the CCRWQB and a Notice of Intent (NOI) application for a General Permit for Storm Water Discharges Associated with Construction Activities are prepared and submitted following completion of the CEQA environmental document and submittal of the wetland delineation to the USACE.

STATE

California Coastal Act of 1976

The California Coastal Act (California Public Resources Code sections 30000 et seq.) was enacted by the State Legislature in 1976 to provide long-term protection of California's 1,100-mile coastline. The Coastal Act created a unique partnership between the State (acting through the California Coastal Commission) and local government (15 coastal counties and 58 cities) to manage the conservation and development of coastal resources through a comprehensive planning and regulatory program. Coastal Act policies constitute the standards used by the Coastal Commission in its coastal development permit decisions and for the review of local coastal programs (LCPs) prepared by local governments and submitted to the Commission for approval. These policies are also used by the Commission to review federal activities that affect the coastal zone. Coastal cities and counties must incorporate these policies into their individual LCPs. The policies require numerous **provisions including, but not limited to:**

- Protection and expansion of public access to the shoreline and recreational opportunities and resources; including commercial visitor-serving facilities; and

- Protection, enhancement and restoration of environmentally sensitive habitats, including intertidal and nearshore waters, wetlands, bays and estuaries, riparian habitat, certain wood and grasslands, streams, lakes, and habitat for rare or endangered plants or animals.

The Coastal Commission has various responsibilities including, but not limited to:

- Review and decide permits and appeals on permit decisions for new development in areas where the Commission retains coastal permitting authority;

- Review all amendments to previously approved land use plans prepared by cities and counties, industrial ports, and certain public and private universities located in the coastal zone; and

- Review and act on all federal activities that affect coastal resources, including federally permitted, funded, or initiated projects.

California Endangered Species Act

The State of California enacted the California Endangered Species Act (CESA) in 1984. CESA is similar to FESA but pertains to state-listed endangered and threatened species. CESA requires state agencies to consult with the California Department of Fish and Game (CDFG) when preparing California Environmental Quality Act (CEQA) documents. The purpose is to ensure that the lead agency's actions do not jeopardize the continued existence of a listed species or result in the destruction, or adverse modification of habitat essential to the continued existence of those species, if there are reasonable and prudent alternatives available (Fish and Game Code §2080). CESA directs agencies to consult with CDFG on projects or actions that could affect listed species, directs CDFG to determine whether jeopardy would occur and allows CDFG to identify "reasonable and prudent alternatives" to the project consistent with conserving the species. CESA allows CDFG to authorize exceptions to the state's prohibition against take of a listed species if the "take" of a listed species is incidental to carrying out an otherwise lawful project that has been approved under CEQA (Fish & Game Code § 2081).

CDFG Species of Concern

In addition to formal listing under FESA and CESA, species receive additional consideration by CDFG and lead agencies during the CEQA process. Species that may be considered for review are included on a list of "Species of Special Concern", developed by CDFG. This list tracks species in California whose numbers, reproductive success, or habitat may be threatened.

NON-GOVERNMENTAL ORGANIZATION

California Native Plant Society

The California Native Plant Society (CNPS) maintains a list of plant species native to California that have low population numbers, limited distribution, or are otherwise threatened with extinction. This information is published in the Inventory of Rare and Endangered Vascular Plants of California. Potential impacts to populations of CNPS-listed plants receive consideration under CEQA review. The following identifies the definitions of the CNPS listings:

- List 1A: Plants presumed Extinct in California

- List 1B: Plants Rare, Threatened, or Endangered in California and elsewhere

- List 2: Plants Rare, Threatened, or Endangered in California, but more numerous elsewhere

- List 3: Plants about which we need more information – A Review List

- List 4: Plants of limited distribution – A Watch List

Threat Ranks

- **0.1**: Seriously threatened in California (high degree/immediacy of threat)
- **0.2**: Fairly threatened in California (moderate degree/immediacy of threat)
- **0.3:** Not very threatened in California (low degree/immediacy of threats or no current threats known)

LOCAL

City of Seaside Tree Ordinance

Chapter 8.54 of the City of Seaside Municipal Code provides regulations that control the removal, protection, and preservation of trees within the City. Under Section 8.54.020, trees that are protected by this ordinance include any "woody perennial plant which usually, but not necessarily, has a single trunk and a height of ten feet or more, or has a circumference of twenty inches measured at twenty-four inches above the ground." Under Section 8.54.070, all removed trees must be replaced with a minimum five-gallon approved specimen tree of a species and in an approved location. Section 8.54.080 requires protection of trees during construction activities.

City of Seaside General Plan

The City's goal is to preserve and protect the sensitive habitats and species within the community. In order to do that, the City of Seaside Wetland Management, Enhancement and Restoration Project for Laguna Grande and Roberts Lake (1983) identifies the Laguna Grande, Roberts Lake, beachfront, and the west Del Monte Boulevard frontage, from Canyon Del Rey to Fremont, as critical native vegetation and habitat areas. Additionally, the project provides for the protection of endangered plant communities in these areas through the use of dedicated conservation easements and prohibits use of non-native and non-native compatible plant species in proposed landscapes (City of Seaside General Plan 2004 referencing the City of Seaside Wetland Management Enhancement and Restoration Project for Laguna Grande and Roberts Lake, December 1983 per Diana Hurlbert, pers. communication 1/13/09).

City of Monterey

Chapter 37 of the City of Monterey Municipal Code provides regulations that control the removal, protection and preservation of trees and shrubs of both City and private trees within the City limits. The City regulates the trimming and removal of City trees and requires a permit to remove private trees larger than six inches in trunk diameter. There are currently 15 trees that are designated "Local Landmark Tree", which means they are trees of such unusual size, prominence or health that they are of significant value to the community (Section 37-12).

BIOLOGICAL SETTING

ENVIRONMENTAL SETTING

Regional Setting

The study area is located near Monterey Bay in between Sand City and City of Monterey in the northwestern portion of Monterey County, California (**Figure 1**). The Central California Coast region is characterized by mountains, hills, valleys, and plains in the southern Coast Ranges of California (Miles and Goudey 1997). Watsonville Plain - Salinas Valley subsection is on an alluvial

plain on the east side of Monterey Bay and the alluvial plain of the Salinas Valley. The alluvial plains are mostly gently sloping to nearly level floodplain, stream terraces, and alluvial fans. There are recent dunes along the west side of Monterey Bay and stabilized dunes on the southeast side of the bay near the study area. The climate is modified greatly by marine influence. The mean annual precipitation is about 12 inches in the Salinas Valley up to about 30 inches on the northeast side of Monterey Bay, primarily as rain, although fog is common. Mean annual temperature is about 56° to 58° F. The mean freeze-free period is about 250 to 300 days. All but the larger streams are dry through most of the summer. Natural lakes are absent, although there is temporary ponding behind sand dunes (Miles and Goudey 1997).

Regional natural plant communities in the study area include those that are common to the Watsonville Plain - Salinas Valley subsection of the Coast Ranges (Miles and Goudey 1997). The predominant natural plant communities are valley oak series and needlegrass grasslands in the Salinas Valley and coast live oak series and California oatgrass series on the Watsonville Plain. There are cottonwood woodlands in riparian areas along the Salinas River; the mouth of the Salinas River is north of the study area near the city of Marina. The dunes support a succession of plant communities, from bare dune through herbaceous communities and coyote brush series to California sagebrush - black sage series on stabilized dunes on the southeast side of Monterey Bay. There is some pickleweed series in estuaries.

Vegetative Communities and Wildlife Habitats

Vegetative communities are assemblages of plant species that occur together in the same area. They are defined by species composition and relative abundance. The vegetative community descriptions and nomenclature described in this section generally follow the classification system provided in Sawyer and Keeler-Wolf's *A Manual of California Vegetation* (1995) and Mayer and Laudenslayer's *A Guide to Wildlife Habitats of California* (1988). Estuarine habitat, coastal dune scrub, coastal oak woodland, riparian habitat, and emergent wetlands are the dominant habitat types in the study area (**Figure 4**).

The study area is surrounded by urban habitat. The majority of the study area consists of open space in the form of recreational parkland. Roberts Lake and Laguna Grande Lake are surrounded by natural wildlife habitat such as coastal oak woodland and riparian habitat as well as urban parkland with manicured lawns, picnic tables, and playgrounds. The dominant native vegetation types bordering Laguna Grande include riparian (willow) woodland, as well as emergent wetland. There is a large field of ruderal (weedy) vegetation at the northwest end of the lake, and smaller patches elsewhere. There are also two landscaped park areas with planted lawns, shrubs, and trees, including non-native species such as eucalyptus (*Eucalyptus* sp.), New Zealand flax (*Phormium* sp.), and lily of the Nile (*Agapanthas* sp.). A large stand of tall eucalyptus trees surround the Orthodox Church at the south east corner of the Laguna Grande Lake. Roberts Lake is ringed by a narrow but nearly continuous band of emergent wetlands with some small patches of riparian (willow) woodland. Beyond this narrow wetland-riparian zone, the lake is bordered by coastal dune vegetation with yellow bush lupine (*Lupinus arboreus*), African ice plant (*Carpobrotus edulis*), and other low vegetation. At the southwest end of the lake is a small stand of tall Monterey cypress (*Cupressus macrocarpa*). The study area also includes marine and coastal dune scrub habitat associated with the Monterey State Beach and surrounding land. **Table 1** lists the vegetative communities mapped within the study area as well as the acreages for each. Descriptions of these habitats are provided below.

TABLE 1 – VEGETATIVE COMMUNITIES WITHIN THE STUDY AREA

Vegetative Community	Acreage	Percentage of Study Area
Marine	6.8	5%
Estuarine	24.1	19%
Emergent Wetland	6.9	5%
Coastal Dune Scrub	5.6	4%
Coastal Oak Woodland	2.2	2%
Mixed Woodland	4.0	3%
Riparian	11.3	9%
Residential Park	14.0	11%
Urban	44.2	34%
Ruderal	9.8	8%
Total	**128.9**	**100%**

Source: Results of Field Surveys Conducted in August, 2008.

Marine

Marine habitats extend from the upper limit of the unvegetated shore to the ocean. The shore consists of any barren land between the spray zone to where terrestrial vegetation exceeds 10 percent canopy closure and may vary in width from a few feet to several hundred meters. Vegetation in the open ocean is limited to phytoplankton, which are produced where light is able to still penetrate. Phytoplankton together with the animal component, zooplankton, are the primary food source for filter-feeding fish and many invertebrates which are eaten directly by marine birds and mammals or are forage for fish and invertebrates consumed by marine birds and mammals. Marine habitats receive extensive use by shore and wading birds, gulls, terns, sea ducks, and ospreys (*Pandion haliaetus*). Other species that use marine habitats in varying amounts are island foxes (*Vulpes* sp.), river otters (*Lontra canadensis*), raccoons (*Procyon lotor*), and common ravens (*Corvus corax*). The bald eagle (*Haliaeetus leucocephalus*) feeds on fish taken from the marine habitats.

Estuarine

The location of the saltwater-freshwater transition zone within Roberts and Laguna Grande Lakes may vary depending on water levels and tidal influences. Although the NWI shows Laguna Grande as being a freshwater lake (**Figure 4**), the lake is hydrologically connected to Roberts Lake and Pacific Ocean. The salinity of the lakes may vary depending on tidal flows and freshwater runoff. The drainage system in the Seaside area is part of the Laguna Grande Drainage Basin and consists of a hierarchy of creeks, intermittent streams and other drainage ways that begin south of the study area and end at its connection with the Pacific Ocean (City of Seaside 2002). Estuarine habitats occur on periodically and permanently flooded substrates and open water portions of semi-enclosed coastal waters where tidal seawater is diluted by flowing fresh water (CDFG 2002). This mix of fresh and ocean waters usually forms a horizontal salinity gradient that varies by area and location with seasonal variations in fresh water inflow and tidal action. Laguna Grande and Roberts Lakes are connected via a cement canal under Del Monte Boulevard. There is an outlet on the northeast side of Roberts Lake that leads to the

Pacific Ocean at the end of Canyon Del Rey Boulevard. Although currently sand has built up at the mouth of this outlet preventing water from entering the ocean at the surface, during high tides or storm events saline water may enter Roberts Lake and Laguna Grande through these connections. Although the lakes are connected hydrologically to a creek upstream from the lakes the creek goes underground. Water is conveyed through an underground stormwater drain and enters into the lakes via a cement culvert. Currently the shores of Laguna Grande contain small patches of cattails (*Typha* sp.); cattails tolerate a moderate level of salinity (Barbour, et. al. 1993), whereas Roberts Lake has none. The Laguna Grande/Roberts Lake environment consists of riparian woodland and emergent wetland vegetation (City of Seaside 2002).

Salinity determines species distribution in estuarine habitats. Organisms are primarily marine, except for anadromous fish or wildlife species that can migrate easily to fresh water. Estuarine habitats provide for reproduction, feeding, resting, and cover for many species of mammals and birds. These habitats provide shelter for large numbers of water birds, especially during heavy winter storms when open coastal waters become rough. mosquitofish (*Gambusia affinis*), goldfish (*Carassius auratus*), red shiner (*Notropis lutrensis*), Sacramento blackfish (*Orthodon microlepidotus*), Sacramento perch (*Archoplites interruptus*), and tule perch (Hysterocarpus *traski*), among others, have been reported in Laguna Grande and Roberts Lakes. Sacramento perch and tule perch are the dominant species in the lakes (Holton Associates and Moffatt and Nichols 1986). Clark's grebe (*Aechmophorus clarkia*), pied-billed grebe (*Podilymbus podiceps*), mallard (*Anas platyrhynchos*), graylag (barnyard) goose (*Anser anser*), American coot (*Fulica americana*), barn swallow (*Hirundo rustica*), California gull (*Larus californicus*), Heermann's gull (*L. heermanni*), western gull (*L. occidentalis*), double-crested cormorant (*Phalacrocorax auritus*), Caspian tern (*Sterna caspia*), and ruddy duck (*Oxyura jamaicensis*) were observed wading or foraging in the estuarine habitat.

Emergent Wetland

The emergent wetlands within the study area are dominated by bulrushes (*Scirpus* sp.). Emergent wetlands are characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots to 2 meters (6.6 feet) tall. All emergent wetlands are flooded frequently, enough so that the roots of the vegetation prosper in an anaerobic environment. On the upper margins of emergent wetlands, saturated or periodically flooded soils support several moist soil plant species such as big leaf sedge (*Carex amplifolia*), baltic rush (*Juncus balticus*), and redroot nutsedge (*Cyperus erythrorhizos*). On wetter sites, common cattail (*Typha* spp.), tule bulrush (*Scirpus acutus*), river bulrush (*S. fluviatilis*), and arrowhead (*Sagitaria* spp.) are potential dominant species. The emergent wetlands within the study area generally consist of mostly bulrush with scattered occurrences of common cattails and the invasive giant European reed (*Arundo donax*) along the edges of Laguna Grande. A list of plant species observed within the study area is available in **Appendix B;** this is not a comprehensive list, but rather a list of species observed incidentally during the survey.

Emergent wetlands are among the most productive wildlife habitats in California. They provide food, cover, and water for more than 160 species of birds, and numerous mammals, reptiles, and amphibians. The bald eagle and peregrine falcon (*Falco peregrinus*) use emergent wetlands as feeding areas and roost sites. Tricolored blackbird (*Agelaius tricolor*), a California species of special concern, and yellow-head blackbird (*Xanthocephalus xanthocephalus*) may also use fresh emergent wetlands. Red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), house sparrow (*Passer domesticus*), and black phoebe (*Sayornis nigricans*) were observed within the emergent wetland habitat within the study area.

Coastal Dune Scrub

The coastal dune habitat consists of the tidal zone and the sandy upland area. This habitat contains numerous high dunes covered with a variety of beach grass, low shrubs, and other vegetation. Within the study area, the degradation of the sand dune environment from recreational use has resulted in the loss of dune vegetation and movement of the dunes by the wind, which has caused increased sedimentation and water quality problems within Roberts Lake and Laguna Grande Lake (City of Seaside 2002). Pickleweed (*Salicornia* sp.) and African ice plant are dominant species within most of the sand dune habitat within the study area. The area in between the paved roads along Highway One and other dune scrub habitat adjacent to the urban environment is dominated by African ice plant. The area north of Roberts Lake along the southside of Highway One consists of coastal scrub habitat. Coastal scrub habitat occurs along ridges and hillsides and includes patchy oceanside cover of nearly prostrate subshrubs surrounded by grassland. Either yellow bush lupine or coyote brush (*Baccharis pilularis*) usually dominates the overstory. Other common overstory species are blue blossom ceanothus (*Ceanothus thyrsiflorus repens*), salal (*Gaultheria shallon*), bush monkey flower (*Diplacus aurantiacus*), and wooly sunflower (*Eriophyllum* sp.). This habitat type is often colonized by non-native species such as french broom (*Genista sp.)* and pampas grass (*Cortaderia selloana*). Structure of the plants associations that comprise coastal scrub is typified by low to moderate-sized shrubs with mesophytic leaves, flexible branches, semi-woody stems growing from a woody base and a shallow-root system.

Within Monterey State Beach (California state park land), there is an area of sand dune habitat that has been restored to allow typical native sand dune species to thrive. Species such as yellow sand verbena (*Abronia latifolia*), pink sand verbena (*Abronia umbellate*), beach bur (*Ambrosia chamissonis*), and thrift/sea pink (*Armenia maritima* var. *californica*), European sea rocket (*Cakile maritima*), bluff lettuce (*Dudleya caespitosa*), and coast buckwheat (*Eriogonum latifolium*) were evident in this area. Menzies' wallflower (*Erysimum menziesii*) which is federally and state-listed as endangered and CNPS list 1B.1 was observed within the study area in this restoration area. In addition CNPS list 4.3 Monterey coast paintbrush (*Castilleja latifolia*) was also observed. The coastal dune habitat on the north side of Highway One is designated as critical habitat for Monterey spineflower (*Chorizanthe pungens* var. *pungens)* (**Figure 7**). It is also fenced off and designated as a fragile restoration area for plants.

Little is known about the importance of coastal scrub habitat to wildlife. Though vegetation productivity is lower in coastal scrub than in adjacent chaparral habitats associated with it. Coastal scrub appears to support numbers of vertebrate species roughly equivalent to those in surrounding habitats. The federal and state listed endangered peregrine falcon occurs in coastal scrub habitat. Black legless lizard (*Anniella pulchra nigra*) a California species of special concern, globose dune beetle (*Coelus globosus*) and the federally endangered Smith's blue butterfly (*Euphilotes enoptes smithi*) may also be found in the habitat. The federally threatened western snowy plover (*Charadrius alexandrinus nivosus*) may nest within this habitat. Signs are posted within the State Park land warning people of the sensitive nature of the area.

Coastal Oak Woodland/ Coast Live Oak Series

Coastal oak woodlands are extremely variable. The overstory consists of deciduous and evergreen hardwoods. In many coastal regions including the coastal oak woodland within the study area, coast live oak (*Quercus agrifolia*) is the only overstory species. Other species that may occur within Coastal oak woodland include California bay (*Umbellularia californica*), madrone (*Arbutus menziesii*), tanbark oak (*Lithocarpus densiflorus*), and canyon live oak (*Quercus chrysolepis*). Typical plants in dense coast live oak woodlands are shade tolerant

shrubs such as California blackberry (*Rubus ursinus*), common snowberry (*Symphoricarpos albus*), toyon, and herbaceous plants such as bracken fern (*Pteridium aquilinum*), California polypody (*Polypodium californicum*), fiesta flower (*Pholistoma auritum*), and miner's lettuce (*Claytonia perfoliata*).

Coastal oak woodlands provide habitat for a variety of wildlife species. California quail (*Callipepla californica*), squirrels, and deer may be so dependent on acorns in fall and early winter that poor acorn year can result in significant declines in their populations. Western scrub jay (*Aphelocoma californica*) was observed within the study area.

Mixed Woodland

The mixed woodland within the study area occurs along a sloped embankment in between coastal oak woodland and riparian habitats. The mixed woodland has a mixture of species common to both habitats, including coast live oak, California bay, toyon, western sycamore (*Platanus racemosa*), Himalayan blackberry (*Rubus discolor*), Monterey pine, and eucalyptus.

Wildlife species that occur in coastal oak woodland and riparian habitats would also occur in the mixed woodland habitat.

Riparian Woodland/ Mixed Willow Series

Riparian woodland occurs primarily in the southern portion of the study area with scattered occurrences surrounding Roberts and Laguna Grande Lake. The riparian corridor roughly continues southward along Canyon Del Rey Blvd although water flow is directed underground below the shopping center directly south of the study area (City of Seaside 2004). Common tree species associated with this habitat include Fremont cottonwood (*Populus fremontii*), western sycamore, and valley oak (*Quercus lobata*), with a subcanopy component consisting of black willow (*Salix gooddingii*), box elder (*Acer negundo*), Oregon ash (*Fraxinus latifolia*), and Northern California black walnut (*Juglans californica* var. *hindsii*). Understory vegetation includes sandbar willow (*Salix exigua*), wild grape (*Vitis californica*), and Himalayan blackberry. The herbaceous layer is sparse and more dominant in openings. Typical plants include mugwort (*Artemisia douglasiana*), Santa Barbara sedge (*Carex barbarae*), common bedstraw (*Galium aparine*), telegraph-weed (*Heterotheca grandiflora*), and various introduced annual grasses including green bristlegrass (*Setaria viridis*), Bermuda grass (*Cynodon dactylon*), wild oat (*Avena fatua*), ripgut brome (*Bromus diandrus*), and soft chess (*Bromus hordeaceus*).

Riparian habitat is generally of high value for wildlife. Birds and mammals that occur in these areas typically include white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), wild turkey (*Meleagris gallopavo*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), beaver (*Castor canadensis*), western gray squirrel (*Sciurus carolinensis*), screech owl (*Megascops kennicottii*), great horned owl (*Bubo virginianus*), and California quail. A sharp-shinned hawk (*Accipiter striatus*) was observed within the riparian habitat within the study area.

Urban/Developed Land

A distinguishing characteristic of urban habitats is the mixture of native and exotic plant species. Species richness in these areas depends greatly upon community design (i.e., open space considerations) and proximity to the natural environment. Vegetation in these areas consists primarily of introduced ornamental trees and shrubs and manicured lawns as well as invasive weeds in disturbed areas. Many of the homes and some of the businesses within the study area are surrounded with urban landscaping and trees. Prior to development, the City of Seaside vicinity would likely have consisted of grassland, maritime chaparral, coastal scrub, and oak

woodland communities. Plant species observed within the study area include saltgrass (*Distichlis spicata*), black mustard *(Brassica nigra*), California brome (*Bromus carinatus*), prickly lettuce (*Lactuca serriola*), cheeseweed (*Malva* sp.), and various ornamentals, such as oleander (*Nerium oleander*) and crimson bottlebrush (*Callistemon citrinus*).

Native and introduced animal species that are tolerant of human activities often thrive in urban habitats. Exotic plant species may provide valuable habitat elements such as cover for nesting and roosting, as well as food sources such as nuts or berries. Birds and mammals that occur in these areas typically include introduced species adapted to human habitation, including rock pigeon (*Columba livia*), common raven, American crow (*Corvus brachyrhynchos*), and European starling (*Sturnus vulgaris*).

Residential Park/Open Space

Shade trees and lawns are characteristic of the residential park environment within the study area. Picnic tables and playground structures are also present. Lawns are maintained at a uniform height with continuous ground cover through irrigation and fertilization. The shrub cover is landscaped and maintained with hedges and ornamental plants. The shade trees within the study area are regularly pruned and maintained. Yellow bush lupine, blue blossom ceanothus, and woollyleaf manzanita (*Arctostaphylos tomentosa*) were planted along the trails within the study area. Wildlife species that occur in urban habitats would also occur in the residential parks.

Ruderal (Disturbed)

Ruderal (roadside) communities occur in areas of disturbances such as along roadsides, trails, parking lots, etc. These communities are subjected to ongoing or past disturbances (e.g., vehicle activities, mowing). Human debris and trash was prevalent adjacent to the roadways and within empty lots. Ruderal habitat in these disturbed areas supports a diverse weedy flora, primarily of nonnative herbs and grasses.

Sensitive Habitats

Sensitive habitats include a) areas of special concern to resource agencies, b) areas protected under CEQA, c) areas designated as sensitive natural communities by CDFG, d) areas outlined in Section 1600 of the California Fish and Game Code, e) areas regulated under Section 404 of the federal CWA, f) areas protected under Section 402 of the CWA, and g) areas protected under local regulations and policies. Although eight communities recognized by CDFG as sensitive have been previously recorded within the general vicinity of the study area (CDFG, 2008a/b), only central dune scrub (coastal dune scrub) occurs within the study area. Although Monterey cypress and Monterey pine trees occur in the study area, they are not in such great abundance or in a natural setting to qualify as a forest and therefore a sensitive habitat.

Aquatic habitats are considered by state and federal regulatory agencies to represent a sensitive and declining resource. Riparian areas and wetlands can serve significant biological functions by providing nesting, breeding, foraging, and spawning habitat for a wide variety of resident and migratory wildlife species. Impacts to stream channels with a defined bed and bank are addressed specifically by the California Fish and Game Code (§1600 *et seq*.) and may be regulated under Section 404 of the CWA. The USACE regulates dredging and placement of fill into waters of the U.S., including wetlands, with oversight of permitting decisions by the U.S. Environmental Protection Agency (USEPA). The USFWS and the National Oceanic and Atmospheric Administration, Fisheries Service (NOAA Fisheries Service) has input on permitting decisions by the USACE when an activity could affect water-dependent federally listed species.

The riparian habitat found within the study area is considered a sensitive habitat under these regulations. The typically riparian plant species (willow, valley oak, alder, ash, etc.) adjacent to the drainages and other water sources within the study area would be regarded as riparian habitat, potentially falling under CDFG jurisdiction. Coastal oak woodland, riparian, marine, estuarine and emergent wetland occur within the study area and are considered sensitive habitats. Sensitive natural communities present within the study area include potential wetlands and waters of the U.S. / waters of the State, consisting of the unnamed surface creek through the riparian habitat and emergent wetlands. **Figure 8** shows all the known sensitive habitats present within the study area. None of the remaining plant associations are regarded as being of sensitive.

USFWS defines critical habitat as a specific area that is essential for the conservation of a federally-listed species and which may require special management considerations or protection. The study area contains habitat that is considered USFWS "critical habitat" based on critical habitat maps for federally listed species (USFWS 2008a). Designated critical habitat for Monterey spineflower is within the study area in the coastal dune habitat (**Figure 7**; USFWS 2008a).

Wildlife Corridors

Wildlife corridors refer to established migration and movement routes commonly used by resident and migratory species for passage from one geographic location to another. Corridors are present in a variety of habitats and link otherwise fragmented acres of undisturbed area. Maintaining the continuity of established wildlife corridors is important to a) sustain species with specific foraging requirements, b) preserve a species' distribution potential, and c) retain diversity among many wildlife populations. Therefore, resource agencies consider wildlife corridors to be a sensitive resource.

Habitat loss, fragmentation, and degradation resulting from a change in land use or habitat conversion can alter the use and viability of wildlife movement corridors. According to Beier and Loe (1992), wildlife habitat corridors should fulfill several functions. They should maintain connectivity for daily movement, travel, mate-seeking, and migration; plant propagation; genetic interchange; population movement in response to environmental change or natural disaster; and recolonization of habitats subject to local extirpation.

The suitability of a habitat as a wildlife movement corridor is related to, among other factors, the habitat corridor's dimensions (length and width), topography, vegetation, exposure to human influence, and the species in question (Beier and Loe 1992). Species utilize movement corridors in several ways. "Passage species" are those species that use corridors as thru-ways between outlying habitats. The habitat requirements for passage species are generally less than those for corridor dwellers. Passage species use corridors for brief durations, such as for seasonal migrations or movement within a home range. As such, movement corridors do not necessarily have to meet all of the habitat requirements necessary for a passage species' everyday survival. Large herbivores (*e.g.,* deer and elk) and medium-to-large carnivores (*e.g.,* coyotes and mountain lions) are typically passage species. "Corridor dwellers" are those species that have limited dispersal capabilities, a category that includes most plants, insects, reptiles, amphibians, small mammals, and birds, and that use corridors for a greater length of time. As such, wildlife movement corridors must fulfill key habitat components specific to a species' life history requirements in order for them to survive (Beier and Noss 1998). In general, however, the suitability and/or utility of the landscape, specifically, of the landscape as corridor habitat, is best evaluated on a species-level (Beier and Noss 1998).

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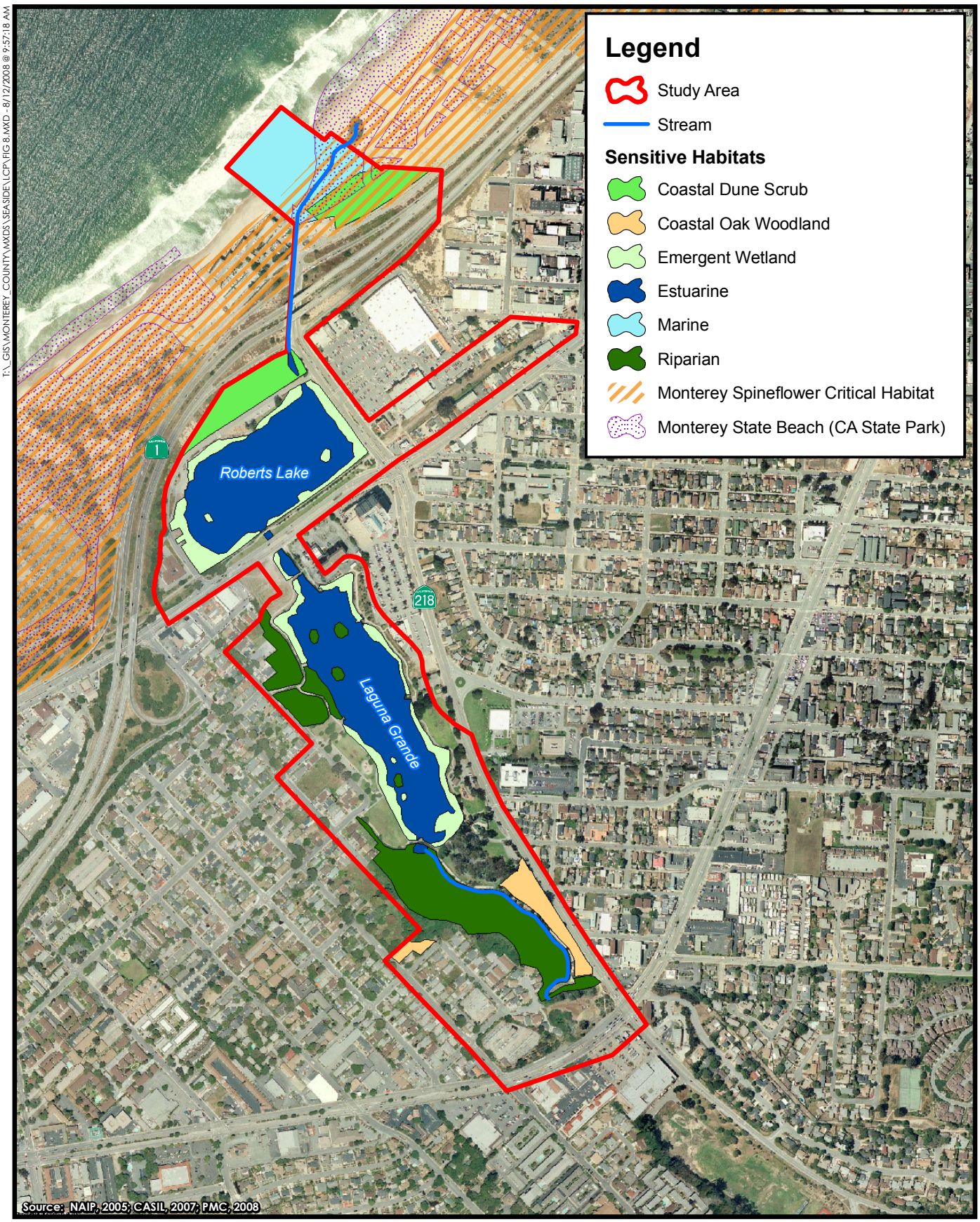

Figure 8

Sensitive Habitats within the Study Area

PMC

The riparian corridor, marine habitat and sand dunes provide suitable habitat for resident wildlife. Based on the surrounding and current land uses and the quality of the habitat onsite, the habitats within the study area have the potential to function as a wildlife movement corridor or aid in the dispersal of fish and wildlife species; however currently manmade structures and natural topography prevents safe and consistent passage. Although not required under law, it would be beneficial for wildlife if there was a more natural connection between the lakes, between the lake and ocean, and between the lakes and the riparian habitat further upstream.

Laguna Grande and Roberts Lakes are connected via a cement canal under Del Monte Boulevard. These culverts may prevent some species from entering the lakes (i.e. bottom dwellers or large marine mammals). There is an outlet on the northeast side of Roberts Lake that leads to the Pacific Ocean at the end of Canyon Del Rey Boulevard. Currently sand has built up at the mouth of this outlet preventing water from entering the ocean at the surface, although during high tides or storm events saline water may enter Roberts Lake and Laguna Grande through this connection. Although the lakes are connected hydrologically to a creek upstream, the creek goes underground. Water is conveyed from the creek through an underground stormwater drain and enters into the lakes via a cement culvert. The riparian corridor roughly continues southward along Canyon Del Rey Blvd although water flow is directed underground below the shopping center directly south of the study area (City of Seaside 2004). **Figure 4** shows the creek interrupted by the shopping center to the south of the study area.

SPECIAL-STATUS SPECIES

A list of special-status plant and wildlife species that have the potential to occur within the vicinity of the study area was compiled based on a background information search for previously documented special-status species within the project vicinity (**Appendix B**). Conclusions regarding habitat suitability and species occurrence are based on a reconnaissance-level assessment conducted by a PMC biologist, as well as existing literature and databases described previously. The potential for each special-status species to occur within the study area was assessed based on known occurrences of the species within a one-mile and five-mile radii of the study area, suitability of habitat within the study area, and professional expertise.

Figures 5 and 6 identify locations of previously recorded CNDDB occurrences within the vicinity of the study area. PMC identified 43 special-status plant species and 25 special-status wildlife species that have the potential to occur within the study area and are described in greater detail below.

Special-status Plant Species

Based on a review of the database searches (USFWS, 2008a; CDFG, 2008a/b; CNPS, 2008), a total of 61 special-status plant species have been recorded in the vicinity of the study area. Eighteen (18) of the plant species were excluded from analysis based on the lack of suitable habitat, range restrictions, local extirpations, lack of connectivity between areas of suitable and occupied habitat, and/or incompatible land use and/or habitat degradation/alteration of on-site or adjacent lands. Five of the target special-status plant species are restricted to playas, valley and foothill grassland, vernal pools, closed-cone coniferous forest, and chenopod scrub, all of which do not occur within the study area. Thirteen (13) were excluded since the known elevation range for the species was outside of the elevation range of the study area (zero to 57 feet [17 meters]) and no suitable habitat was present.

Suitable habitat is present either within or adjacent to the study area for the remaining 43 special-status plant species from the database search and therefore cannot be excluded on the basis of a single site reconnaissance. Four special-status species (Monterey pine, Monterey cypress, Monterey Coast paintbrush and Menzies' wallflower) were observed during the reconnaissance-level site survey (August 2 and 3, 2008). Although only 43 special-status species will be discussed in greater detail, this is not meant to imply that all other special-status species do not occur within the study area. Completion of a focused floristic study is needed to make a determination of presence or absence of special-status plant species within the study area.

A summary of the status, habitat affinities, blooming period, and potential for occurrence within the study area for each of the target plant species is presented in **Appendix B**. **Table 2** lists the special-status plants that are considered in the impact analysis according to the habitat type found within the study area. Only those special-status species that have the potential to occur within the study area based on availability of suitable habitat are discussed in greater detail below.

TABLE 2 – VEGETATIVE COMMUNITIES WITHIN THE STUDY AREA AND ASSOCIATED SPECIAL-STATUS PLANT SPECIES

Vegetative Communities	Special-status Species	
Marine	None	
Estuarine	None	
Emergent Wetland	Hickman's popcorn-flower (List 4)	Hickman's cinquefoil (FE, SE, 1B)
Coastal Dune Scrub	Hickman's onion (1B)	Yadon's wallflower (FE, SE, 1B)
	Little Sur manzanita (1B)	Fragrant fritillary (1B)
	Toro manzanita (1B)	Monterey gilia (FE, ST, 1B)
	Sandmat manzanita (1B)	San Francisco gumplant (1B)
	Ocean bluff milk-vetch (List 4)	Kellogg's horkelia (1B)
	Coastal dunes milk-vetch (FE, SE, 1B)	Beach layia (FE, SE, 1B)
	Monterey Coast paintbrush (List 4)	Coast yellow leptosiphon (1B)
	Monterey ceanothus (List 4)	Large-flowered leptosiphon (List 4)
	Monterey spineflower (FT, 1B)	Small-leaved lomatium (List 4)
	Robust spineflower (FE, 1B)	Tidestrom's lupine (FE, SE, 1B)
	Jolon clarkia (1B)	Carmel Valley bush-mallow (1B)
	Lewis' clarkia (List 4)	Carmel Valley malacothrix (1B)
	San Francisco collinsia (1B)	Marsh microseris (1B)
	Seaside bird's-beak (SE, 1B)	Michael's rein orchid (List 4)
	Branching beach aster (List 3)	Yadon's rein orchid (FE, 1B)
	Hutchinson's larkspur (1B)	Hickman's popcorn-flower (List 4)
	Virgate eriastrum (List 4)	Hickman's cinquefoil (FE, SE, 1B)
	Eastwood's goldenbush (1B)	Maple-leaved checkerbloom (List 4)
	Sand-loving wallflower (1B)	Santa Cruz microseris (1B)
	Menzies' wallflower (FE, SE, 1B)	Pacific Grove clover (CR, 1B)
Coastal Oak Woodland	Monterey cypress (1B)	Monterey pine (1B)
Mixed Woodland	Toro manzanita (1B)	Fragrant fritillary (1B)
	Sandmat manzanita (1B)	Monterey gilia (FE, ST, 1B)
	Monterey Coast paintbrush (List 4)	Large-flowered leptosiphon (List 4)

Vegetative Communities	Special-status Species	
	Robust spineflower (FE, 1B)	Small-leaved lomatium (List 4)
	Jolon clarkia (1B)	Carmel Valley bush-mallow (1B)
	Lewis' clarkia (List 4)	Monterey pine (1B)
	Seaside bird's-beak (SE, 1B)	Michael's rein orchid (List 4)
	Monterey cypress (1B)	Maple-leaved checkerbloom (List 4)
Riparian	Jolon clarkia (1B)	Monterey pine (1B)
	Small-leaved lomatium (List 4)	Maple-leaved checkerbloom (List 4)
Residential Park	Monterey cypress (1B)	Monterey pine (1B)
Urban	Monterey cypress (1B)	Monterey pine (1B)
Ruderal	Monterey cypress (1B)	Seaside bird's-beak (SE, 1B)
		Monterey pine (1B)

Federal status	State status
FE *= Listed as endangered under the Federal Endangered Species Act (FESA)*	***SE*** *= Listed as endangered under the California Endangered Species Act (CESA)*
FT *= Listed as threatened under FESA*	***ST*** *= Listed as threatened under CESA*
	CR *= Species identified as rare by CDFG.*

CNPS Listing

1A *= Plants species that presumed extinct in California.*

1B *= Plant species that are rare, threatened, or endangered in California and elsewhere.*

List 2 *= Plant species that are rare, threatened, or endangered in California, but more common elsewhere.*

List 3 *= Plant species that lack the necessary information to assign them to a listing status.*

List 4 *= Plants that have a limited distribution or that are infrequent throughout a broader area in California.*

Hickman's onion (*Allium hickmanii*) is designated by CNPS as list 1B.2. Hickman's onion is a perennial bulbiferous herb in the lily family (*Liliaceae*). It is found in closed-cone coniferous forest, chaparral (maritime), coastal prairie, coastal scrub, and valley and foothill grassland. This species blooms from March to May. This species' known elevation range is between five and 200 meters. Suitable habitat is present within the study area. There are 13 previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Little Sur manzanita (*Arctostaphylos edmundsii*) is designated by CNPS as list 1B.2. Little Sur manzanita is a perennial evergreen shrub in the heath family (*Ericaceae*). It is found in coastal bluff scrub and chaparral in sandy soils. It is known from fewer than ten occurrences. This species blooms from November to April. This species' known elevation range is between 30 and 105 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Hooker's manzanita (*Arctostaphylos hookeri* ssp. *hookeri*) is designated by CNPS as list 1B.2. Hooker's manzanita is a perennial evergreen shrub in the heath family (*Ericaceae*). It is found in closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub in sandy soils. This species blooms from January to June. This species' known elevation range is between 85 and 536 meters. Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Toro manzanita (*Arctostaphylos montereyensis*) is designated by CNPS as list 1B.2. Toro manzanita is a perennial evergreen shrub in the heath family (*Ericaceae*). It is found in chaparral (maritime), cismontane woodland, and coastal scrub in sandy soils. It is known from fewer than ten occurrences. This species blooms from February to March. This species' known elevation range is between 30 and 730 meters. Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Sandmat manzanita (*Arctostaphylos pumila*) is designated by CNPS as list 1B.2. Sandmat manzanita is a perennial evergreen shrub in the heath family (*Ericaceae*). It is found in closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, and coastal scrub in sandy, openings. It is known from fewer than twenty occurrences. This species blooms from February to May. This species' known elevation range is between three and 205 meters. Suitable habitat is present within the study area. There are 10 previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).

Ocean bluff milk-vetch (*Astragalus nuttallii* var. *nuttallii*) is designated by CNPS as list 4.2. Ocean bluff milk-vetch is a perennial herb in the legume family (*Fabaceae*). It is found in coastal bluff scrub and coastal dunes. This species blooms from January to November. This species' known elevation range is between three and 120 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Coastal dunes milk-vetch (*Astragalus tener* var. *titi*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Coastal dunes milk-vetch is an annual herb in the legume family (*Fabaceae*). It is found in coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic), often vernally mesic areas. It is known from only one occurrence on the Monterey Peninsula. San Diego County occurrences have not been documented since the 1970's, despite rediscovery attempts. This species blooms from March to May. This species' known elevation range is between one and 50 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Monterey Coast paintbrush (*Castilleja latifolia*) is designated by CNPS as list 4.3. Monterey Coast paintbrush is a perennial hemi-parasitic herb in the figwort family (*Scrophulariaceae*). It is found in closed-cone coniferous forest, cismontane woodland (openings), coastal dunes, and coastal scrub in sandy soils. This species blooms from February to September. This species' known elevation range is between zero and 185 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). This species was observed within the study area.

Monterey ceanothus (*Ceanothus cuneatus* var. *rigidus*) is designated by CNPS as list 4.2. Monterey ceanothus is a perennial evergreen shrub in the buckthorn family (*Rhamnaceae*). It is found in closed-cone coniferous forest, chaparral, coastal scrub, in sandy soils. This species intergrades with *C.c.* var. *fascicularis* in San Luis Obispo County. This species blooms from February to April (June). This species' known elevation range is between three and 550 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Monterey spineflower (*Chorizanthe pungens* var. *pungens*) is federally listed as threatend and designated by CNPS as list 1B.2. Monterey spineflower is an annual herb in the knotweed family (*Polygonaceae*). It is found in chaparral (maritime), cismontane woodland, coastal dunes,

coastal scrub, valley and foothill grassland in sandy soils. This species blooms from April to June (July). This species' known elevation range is between three and 450 meters. Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).

Robust spineflower (*Chorizanthe robusta* var. *robusta*) is federally listed as endangered and designated by CNPS as list 1B.1. Robust spineflower is an annual herb in the knotweed family (*Polygonaceae*). It is found in chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub in sandy or gravelly soils. Most populations have been extirpated, and now this species is known from only six extended occurrences. This species blooms from April to September. This species' known elevation range is between three and 300 meters. Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Jolon clarkia (*Clarkia jolonensis*) is designated by CNPS as list 1B.2 Jolon clarkia is an annual herb in the evening primrose family (*Onagraceae*). It is found in chaparral, cismontane woodland, coastal scrub, and riparian woodland. It can be confused with *C. lewisii*. This species blooms from April to June. This species' known elevation range is between 20 and 660 meters. Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

Lewis' clarkia (*Clarkia lewisii*) is designated by CNPS as list 4.3. Lewis' clarkia is an annual herb in the evening primrose family (*Onagraceae*). It is found in broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. This species blooms from May to July. This species' known elevation range is between 30 and 610 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

San Francisco collinsia (*Collinsia multicolor*) is designated by CNPS as list 1B.2. San Francisco collinsia is an annual herb in the figwort family (*Scrophulariaceae*). It is found in closed-cone coniferous forest, and coastal scrub, sometimes in serpentinite. This species blooms from March to May. This species' known elevation range is between 30 and 250 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Seaside bird's-beak (*Cordylanthus rigidus* ssp. *littoralis*) is state-listed as endangered and designated by CNPS as list 1B.1. Seaside bird's-beak is an annual hemi-parasitic herb in the figwort family (*Scrophulariaceae*). It is found in closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, and coastal scrub, on sandy, often disturbed sites. It is known from fewer than twenty occurrences. This species blooms from April to October. This species' known elevation range is between zero and 425 meters. Suitable habitat is present within the study area. There are eight previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).

Branching beach aster (*Corethrogyne leucophylla*) is designated by CNPS as list 3.2. Branching beach aster is a perennial herb in the sunflower family (*Asteraceae*). It is found in closed-cone coniferous forest and coastal dunes. This species is a synonym of *Lessingia filaginifolia* var. *filaginifolia* in The Jepson Manual (Hickman 1993). This species blooms from May to December.

This species' known elevation range is between three and 60 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Monterey cypress (*Cupressus [Callitropsis] macrocarpa*) is designated by CNPS as list 1B.2. Monterey cypress is a perennial evergreen tree in the cypress family (*Cupressaceae*). It is found in closed-cone coniferous forest, chaparral (maritime). It is known from only three native occurrences in the Monterey area. This species' known elevation range is between 30 and 300 meters. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). This species is present within the study area, although it may have been planted.

Hutchinson's larkspur (*Delphinium hutchinsoniae*) is designated by CNPS as list 1B.2. Hutchinson's larkspur is a perennial herb in the buttercup family (*Ranunculaceae*). It is found in broad-leafed upland forest, chaparral, coastal prairie, and coastal scrub. It is known from approximately ten occurrences. This species blooms from Marsh to June. This species' known elevation range is between zero and 427 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Virgate eriastrum (*Eriastrum virgatum*) is designated by CNPS as list 4.3. Virgate eriastrum is an annual herb in the phlox family (*Polemoniaceae*). It is found in coastal bluff scrub, chaparral, coastal dunes, and coastal scrub in sandy soils. This species blooms from May to July. This species' known elevation range is between 45 and 700 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Eastwood's goldenbush (*Ericameria fasciculata*) is designated by CNPS as list 1B.1. Eastwood's goldenbush is a perennial evergreen shrub in the sunflower family (*Asteraceae*). It is found in closed-cone coniferous forest, chaparral (maritime), coastal dunes, and coastal scrub in sandy, openings. It is known from fewer than twenty occurrences in the Monterey Bay area. This species blooms from July to October. This species' known elevation range is between 30 and 275 meters. Suitable habitat is present within the study area. There are nine previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Sand-loving wallflower (*Erysimum ammophilum*) is designated by CNPS as list 1B.2. Sand-loving wallflower is a perennial herb in the mustard family (*Brassicaceae*). It is found in chaparral (maritime), coastal dunes, and coastal scrub in sandy, openings. Previously included in this species is *E. capitatum* ssp. *capitatum*. This species blooms from February to June. This species' known elevation range is between zero and 60 meters. Suitable habitat is present within the study area. There are eight previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).

Menzies' wallflower (*Erysimum menziesii* ssp. *menziesii*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Menzies' wallflower is a perennial herb in the mustard family (*Brassicaceae*). It is found in coastal dunes. It is known from only ten occurrences. It has been nearly extirpated on the Monterey Peninsula. This species blooms from March to June. This species' known elevation range is between zero and 35 meters. Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). This species was observed within the study area.

Yadon's wallflower (*Erysimum menziesii* ssp. *yadonii*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Yadon's wallflower is a perennial herb in the mustard family

(*Brassicaceae*). It is found in coastal dunes. It is known only from six occurrences near Marina on Monterey Bay. This species is included under the state-listed Endangered *E. menziesii*. This species blooms from May to September. This species' known elevation range is between zero and 10 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Fragrant fritillary (*Fritillaria liliacea*) is designated by CNPS as list 1B.2. Fragrant fritillary is a perennial bulbiferous herb in the lily family (*Liliaceae*). It is found in cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, often serpentinite. This species blooms from February to April. This species' known elevation range is between three and 410 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Monterey [sand] gilia (*Gilia tenuiflora* ssp. *arenaria*) is federally listed as endangered, state-listed as threatened and designated by CNPS as list 1B.2. Monterey gilia is an annual herb in the phlox family (*Polemoniaceae*). It is found in chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, sandy, openings. It is known from fewer than twenty occurrences. This species blooms from April to June. This species' known elevation range is between 10 and 45 meters. Suitable habitat is present within the study area. There are 15 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).

San Francisco gumplant (*Grindelia hirsutula* var. *maritime*) is designated by CNPS as list 1B.2. San Francisco gumplant is a perennial herb in the sunflower family (*Asteraceae*). It is found in coastal bluff scrub, coastal scrub, valley and foothill grassland, sandy or serpentinite. It can be difficult to identify. This species blooms from June to September. This species' known elevation range is between 15 and 400 meters Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Kellogg's horkelia (*Horkelia cuneata* ssp. *sericea*) is designated by CNPS as list 1B.1. Kellogg's horkelia is a perennial herb in the rose family (*Rosaceae*). It is found in closed-cone coniferous forest, chaparral (maritime), coastal dunes, and coastal scrub, sandy or gravelly, openings. Historical occurrences need field surveys. A previous occurrence from the Crocker Hills is probably the last remaining location in Sa Francisco Bay. The remaining plants are less distinct from *H.c.* ssp. *cuneata* than those formerly occurring near San Francisco. This species blooms from April to September. This species' known elevation range is between 10 and 200 meters. Suitable habitat is present within the study area. There are 11 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).

Beach layia (*Layia carnosa*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Beach layia is an annual herb in the sunflower family (*Asteraceae*). It is found in coastal dunes and coastal scrub (sandy). This species blooms from March to July. This species' known elevation range is between zero and 60 meters. Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Coast yellow leptosiphon (*Leptosiphon croceus*) is designated by CNPS as list 1B.1. Coast yellow leptosiphon is an annual herb in the phlox family (*Polemoniaceae*). It is found in coastal bluff scrub and coastal prairie. It is known only from one occurrence near Moss Beach. This species blooms from April to May. This species' known elevation range is between 10 and 150 meters.

Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Large-flowered leptosiphon (*Leptosiphon grandiflorus*) is designated by CNPS as list 4.2. Large-flowered leptosiphon is an annual herb in the phlox family (*Polemoniaceae*). It is found in coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland, usually in sandy soils. Many historical occurrences extirpated by development; need status information. This species is a synonym of *Linanthus grandiflorus* in The Jepson Manual (Hickman 1993). This species blooms from April to August. This species' known elevation range is between 5 and 1,220 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Small-leaved lomatium (*Lomatium parvifolium*) is designated by CNPS as list 4.2. Small-leaved lomatium is a perennial herb in the carrot family (*Apiaceae*). It is found in closed-cone coniferous forest, chaparral, coastal scrub, and riparian woodland, in serpentinite. This species blooms from January to June. This species' known elevation range is between 20 and 700 meters Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Tidestrom's lupine (*Lupinus tidestromii*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Tidestrom's lupine is a perennial rhizomatous herb in the legume family (*Fabaceae*). It is found in coastal dunes. It is known from fewer than 20 occurrences. The conservation status includes the supspecies *L. t.* var. *layneae*. This species blooms from April to June. This species' known elevation range is between zero - 100 meters. Suitable habitat is present within the study area. There are seven previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Carmel Valley bush-mallow (*Malacothamnus palmeri* var. *involucratus*) is designated by CNPS as list 1B.2. Carmel Valley bush-mallow is a perennial deciduous shrub in the mallow family (*Malvaceae*). It is found in chaparral, cismontane woodland, and coastal scrub. This species is a synonym of *M. palmeri* in The Jepson Manual. This species blooms from May to August (October). This species' known elevation range is between 30 and 1,100 meters. Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Carmel Valley malacothrix (*Malacothrix saxatilis* var. *arachnoidea*) is designated by CNPS as list 1B.2. Carmel Valley malacothrix is a perennial rhizomatous herb in the sunflower family (Asteraceae). It is found in chaparral (rocky) and coastal scrub. It is known from approximately ten occurrences. This species blooms from (March) June to December. This species' known elevation range is between 25 and 1,036 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Marsh microseris (*Microseris paludosa*) is designated by CNPS as list 1B.2. Marsh microseris is a perennial herb in the sunflower family (*Asteraceae*). It is found in closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. This species is similar to *M. laciniata* spp. *leptosepala*. This species blooms from April to June (July). This species' known elevation range is between five and 300 meters. Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Monterey pine (*Pinus radiata*) is designated by CNPS as list 1B.1. Monterey pine is a perennial evergreen tree in the pine family (*Pinaceae*). It is found in closed-cone coniferous forest and cismontane woodland. Only three native stands in CA, at Ano Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas. Only one-half of the species' historical extent remains undeveloped on the Monterey Peninsula, and forest destruction has been unevenly distributed over different geomorphic surfaces. This species' known elevation range is between 25 and 185 meters. There is one previously recorded occurrence within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008). This species is present within the study area, although some may have been planted.

Michael's rein orchid (*Piperia michaelii*) is designated by CNPS as list 4.2. Michael's rein orchid is a perennial herb in the orchid family (Orchidaceae). It is found in coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Recent surveys in Ventura County have been unsuccessful. It is known from Santa Cruz Island from a single collection in 1968. This species blooms from April to August. This species' known elevation range is between 3 - 915 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Yadon's rein orchid (*Piperia yadonii*) is federally listed as endangered and designated by CNPS as list 1B.1. Yadon's rein orchid is a perennial herb in the orchid family (*Orchidaceae*). It is found in coastal bluff scrub, closed-cone coniferous forest, chaparral (maritime) in sandy soils. This species blooms from (February) May to August. This species' known elevation range is between 10 and 510 meters. Suitable habitat is present within the study area. There are 12 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).

Hickman's popcorn-flower (*Plagiobothrys chorisianus* var. *hickmanii*) is designated by CNPS as list 4.2. Hickman's popcorn-flower is an annual herb in the borage family (*Boraginaceae*). It is found in closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, and vernal pools. This species intergrades with *P.c*. var. *chorisianus*. This species blooms from April to June. This species' known elevation range is between 15 and 185 meters. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Hickman's cinquefoil (*Potentilla hickmanii*) is federally and state-listed as endangered and designated by CNPS as list 1B.1. Hickman's cinquefoil is a perennial herb in the rose family (*Rosaceae*). It is found in coastal bluff scrub, closed-cone coniferous forest, meadows and seeps (vernally mesic), marshes and swamps (freshwater). This species blooms from April to August. This species' known elevation range is between 10 and 135 meters. Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Maple-leaved checkerbloom (*Sidalcea malachroides*) is designated by CNPS as list 4.2. Maple-leaved checkerbloom is a perennial herb in the mallow family (*Malvaceae*). It is found in broad-leafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, and riparian woodland, often in disturbed areas. This species blooms from April to August. This species' known elevation range is between two and 730 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Santa Cruz microseris (*Stebbinsoseris decipiens*) is designated by CNPS as list 1B.2. Santa Cruz microseris is an annual herb in the sunflower family (*Asteraceae*). It is found in broad-leafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, and valley and foothill grassland/open areas, sometimes in serpentinite. It is known from fewer than twenty occurrences. This species blooms from April to May. This species' known elevation range is between 10 and 500 meters. Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Pacific Grove clover (*Trifolium polyodon*) is rare in California and designated by CNPS as list 1B.1. Pacific Grove clover is an annual herb in the legume family (*Fabaceae*). It is found in closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland in mesic soils. It is known from seven occurrences on the Monterey and Point Lobos Peninsulas. A synonym of *T. variegatum* in The Jepson Manual (Hickman 1993), but appears to be distinct. This species blooms from April to June. This species' known elevation range is between five and 120 meters. Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Special-status Wildlife Species

Based on a review of special-status fish and wildlife species in the *Seaside* 7.5-minute quadrangle and surrounding quadrangles (CDFG, 2008a/b; USFWS, 2008a), a total of 32 special-status fish and wildlife species have been recorded from the project region. A summary of the status, habitat affinities, reported distribution, and potential for occurrence within the study area for each of the target fish and wildlife species is presented in **Appendix B**.

Of the 32 special-status species from **Appendix B**, seven of the special-status species were excluded from the analysis based on the lack of suitable habitat, range restrictions, local extirpations, lack of connectivity between areas of suitable and occupied habitat, and/or incompatible land use and/or habitat degradation/alteration of on-site or adjacent lands. Additional protocol-level surveys may be necessary to verify the presence or absence of the remaining special-status species within the study area.

Based on the database searches for special-status wildlife and habitat suitability within the study area, the species listed in **Table 3** have the potential to occur within the study area. A brief discussion of these species is provided below. Migratory birds are not discussed specifically unless appearing on federal or State lists; migratory birds are addressed as a group below.

TABLE 3 – HABITATS WITHIN THE STUDY AREA AND ASSOCIATED SPECIAL-STATUS SPECIES

Vegetative Communities	Special-status Species	
Marine	Tidewater goby (FE) Steelhead south/central California coast (FT)	Southern sea otter (FT) Caspian tern (~) California least tern (FE, SE)
Estuarine	California linderiella fairy shrimp (~) Tidewater goby (FE) Steelhead south/central California coast (FT)	California red-legged frog (FT, CSC) Western pond turtle (CSC) Southwestern pond turtle (CSC) Caspian tern (~) California least tern (FE, SE)

Vegetative Communities	Special-status Species	
Emergent Wetland	California red-legged frog (FT, CSC) Western pond turtle (CSC) Southwestern pond turtle (CSC)	Tri-colored blackbird (CSC) Raptors and other migratory birds - nesting Salinas harvest mouse (~)
Coastal Dune Scrub	Globose dune beetle (~) Smith's blue butterfly (FE) Black legless lizard (CSC) Western snowy plover* (FT, CSC)	Raptors and other migratory birds – nesting Caspian tern (~) California least tern (FE, SE)
Coastal Oak Woodland	Black legless lizard (CSC) California horned lizard (CSC) Two-striped garter snake (CSC) Sharp-shinned hawk* (CSC) Ferruginous hawk* (CSC)	Prairie falcon* (CSC) Raptors and other migratory birds - nesting Hoary bat (CSC) American badger (CSC)
Mixed Woodland	Monarch butterfly (~) Black legless lizard (CSC) California horned lizard (CSC) Two-striped garter snake (CSC) Sharp-shinned hawk* (CSC) Ferruginous hawk* (CSC)	Prairie falcon* (CSC) Raptors and other migratory birds - nesting Hoary bat (CSC) Monterey dusky-footed woodrat (CSC) American badger (CSC)
Riparian	California linderiella fairy shrimp (~) California red-legged frog (FT, CSC) Western pond turtle (CSC) Southwestern pond turtle (CSC) Black legless lizard (CSC) California horned lizard (CSC) Two-striped garter snake (CSC) Sharp-shinned hawk* (CSC)	Ferruginous hawk* (CSC) Prairie falcon* (CSC) Tri-colored blackbird (CSC) Raptors and other migratory birds - nesting Hoary bat (CSC) Monterey dusky-footed woodrat (CSC) Salinas harvest mouse (~) American badger (CSC)
Residential Park	Monarch butterfly (~) Smith's blue butterfly (FE) Sharp-shinned hawk* (CSC) Ferruginous hawk* (CSC) Prairie falcon* (CSC)	Raptors and other migratory birds - nesting Burrowing owl (CSC) Hoary bat (CSC)
Urban	Raptors and other migratory birds - nesting	
Ruderal	Monarch butterfly (~) Burrowing owl (CSC)	Raptors and other migratory birds - nesting American badger (CSC)

Federal status	State status
FE *= Listed as endangered under the Federal Endangered Species Act (FESA)*	***SE*** *= Listed as endangered under the California Endangered Species Act (CESA)*
FT *= Listed as threatened under FESA*	***ST*** *= Listed as threatened under CESA*
~ = No Status	***CSC*** *= California Species of Concern as identified by CDFG*
**Migratory Birds protected under the federal Migratory Bird Treaty Act.*	***CFP*** *= Listed as fully protected under CDFG code*

Invertebrates

Globose dune beetle *(Coelus globosus)* are flightless and quite sessile nocturnal beetles that inhabit sand dune formations, including fore dunes, sand hummocks, sometimes back dunes along immediate coast. Larvae and pupae spend most of the time in the sand. The larvae can also be found under vegetation or accumulated debris. Adults spend the hotter summer months aggregating under vegetation or debris. Adults come to the surface at night and on cool, foggy days. Larvae and adults feed on dead vegetable matter that accumulates on the sand. The dune beetles leave a distinct track on the beach that resembles a labyrinth. Their footprints cannot be seen on the track because the beetle walks below the sand, leaving a collapsed tunnel behind. Suitable habitat is present within the study area. There is one previously recorded occurrence within a one-mile radius of the study area (CDFG 2008).

Monarch butterfly *(Danaus plexippus)* Habitat is a complex issue for this species. In general breeding areas are virtually all patches of milkweed in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats, which are certain high altitude Mexican conifer forests or coastal California conifer or Eucalyptus groves as identified in literature. Coastal regions are important flyways and so nectar (wild or in gardens) is an important resource in such places. However, essential overwintering areas for North American populations are limited to about 100 places in coastal California and the mountains of Mexico. Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

Smith's blue butterfly (*Euphilotes enoptes smithi*) is federally listed as endangered. Smith's blue butterfly is found in scattered colonies in coastal areas of Central California. It uses two habitats, coastal sand dunes and cliff/chaparral, both of which are endangered. Smith's blue butterfly is associated with two species of buckwheat, seacliff buckwheat (*Eriogonum parvifolium*) and seaside buckwheat (*E. latifolium*) in all life stages, and the presence of these plants is a key habitat requirement. These plants are obligate host plants for the larvae and the principle nectar sources for adults. They also provide mating sites. The butterflies generally spend their lifetime within 200 feet of the host plant on which they emerged. Smith's Blues are found in coastal sand dunes and cliff/chaparral areas along the central California coast in Monterey, Santa Cruz, and San Mateo Counties. Suitable habitat is present within the study area. There are three previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

California linderiella fairy shrimp (*Linderiella occidentalis*) inhabits large, fairly clear vernal pools and lakes. The California fairy shrimp is the most common fairy shrimp in the Central Valley. It has been documented on most land forms, geologic formations and soil types supporting vernal pools in California, at altitudes as high as 3,800 feet above sea level. Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Fish

Tidewater goby (*Eucyclogobius newberryi*) is federally listed as endangered. Historically widespread in brackish coastal lagoons and coastal creeks in California from the mouth of the Smith River, Del Norte County, south to Agua Hedionda Lagoon, San Diego County. Naturally absent (due to lack of suitable habitat) between Humboldt Bay and Ten Mile River, between Point Arena and Salmon Creek, and between Monterey Bay and Arroyo del Oso. Suitable

habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Steelhead south/central California coast ESU (*Oncorhynchus mykiss irideus*) is federally listed as threatened. Both anadromous and non-anadromous forms exist. Anadromous forms migrate between freshwater breeding and marine non-breeding habitats; California breeders migrate to non-breeding habitats as far away as Alaska. Marginal habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Amphibians

California red-legged frog (*Rana aurora draytonii*) is federally listed as threatened and a California species of special concern. California red-legged frogs are found in humid forests, woodlands, grasslands, and streamsides with plant cover, but are most common in the lowlands or foothills. They are frequently found in woods adjacent to streams from sea level to 8,000 feet (2,440 meters). Breeding habitat is in permanent or late season sources of deep water; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. This species breeds late December to early April. They are endemic to California and northern Baja California. Ranges along the coast from Mendocino County in northern California south to northern Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to Tulare county, and possibly Kern county. Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Reptiles

Western pond turtle (*Actinemys marmorata*) is a California species of special concern. Western pond turtles inhabit permanent or nearly permanent water in various habitats (e.g. ponds, streams, perennial drainages). Requires basking sites particularly in areas vegetated with riparian habitats. The western pond turtle includes two subspecies, the northwestern pond turtle (*A. m. marmorata)* and the southwestern pond turtle (*A. m. pallida*). The two subspecies range is interconnected within and around the San Francisco Bay Area. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Southwestern pond turtle (*Actinemys marmorata pallida*) is a California species of special concern. Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. They may enter brackish water and even saltwater. From the San Francisco Bay south, along the coast ranges into northern Baja California (where it has disappeared throughout most of its range) from sea level to over 5,900 feet (1,800 meters) in elevation. Isolated populations occur along the Mojave River at Camp Cody and Afton Canyon. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Black legless lizard (*Anniella pulchra nigra*) is a California species of special concern. This species occurs in moist warm loose soil with plant cover. Moisture is essential. This species occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often

indicate suitable habitat. It can often be found under surface objects such as rocks, boards, driftwood, and logs. It can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

California horned lizard (*Phrynosoma coronatum frontale*) is a California species of special concern. Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes. Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains from sea level to 8,000 feet (2,438 meters) in elevation. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads, and frequently found near ant hills. Historically, found along the Pacific coast from the Baja California border west of the deserts and the Sierra Nevada, north to the Bay Area, and inland as far north as Shasta Reservoir, and south into Baja California. The current range is more fragmented. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Two-striped garter snake (*Thamnophis hammondii*) is a California species of special concern. Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest. Ranges continuously from near Salinas in Monterey County south along the coast mostly west of the south Coast Ranges, to southern California where it ranges east through the Transverse Ranges (and into the desert in Victorville) and south through the Peninsular Ranges into northern Baja California at elevations from sea Level to 6,988 feet (2,130 meters).. It also occurs in southern Baja in isolated areas and on Catalina Island. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Birds

CHARADRIIFORMES (shorebirds, gulls)

Western snowy plover (*Charadrius alexandrinus nivosus*) is a federally threatened species and a California species of special concern. Sandy beaches, salt pond levees; needs sandy, gravelly, or friable soils for nesting. Plovers can be found on flat, open coastal beaches in dunes, and near stream mouths. They are well camouflaged and extremely hard to see, often crouching in small depressions taking shelter from the wind. From early spring to mid-fall, plovers nest in loose colonies, often coming back to the same beaches every year. The nests are simple scrapes in the sand with one to three eggs that the male warms at night, while the female does day duty. Eggs hatch in about 27 days, and within hours the chicks are searching for their food of insects and other beach invertebrates. Suitable habitat is present within the study area. California State Parks has designated the Monterey State Beach has snowy plover nesting habitat. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

Caspian tern (*Sterna caspia*) is protected under the MBTA. They nest on sandy or gravelly beaches and shell banks in small colonies inland and along the coast. They are found inland along lakes and fresh-water marshes and also in brackish and salt waters of estuaries and bays. This species was observed within Roberts Lake. Marginal nesting habitat is present within the PSA.

California least tern (*Sternula antillarum*) is a federally and state endangered species and protected as a migratory bird under the MBTA. The bulk of its distribution is along the southern

California coast. The least tern arrives at its breeding grounds in late April. The breeding colonies are not dense and may appear along either marine or estuarine shores, or on sand bar islands in large rivers, in areas free from humans or predators. Nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates. Marginal nesting habitat is present within the PSA. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

FALCONIFORMES (hawks, falcons)

Sharp-shinned hawk *(Accipiter striatus*) is a California species of special concern. A robin- to pigeon-sized woodland hawk. Forest and open woodland, coniferous, mixed, or deciduous, primarily in coniferous in more northern and mountainous portion of range. Young, dense, mixed or coniferous woodlands are preferred for nesting. This species migrates through various habitats, mainly along ridges, lakeshores, and coastlines. Nests usually in tree crotch or on branch next to trunk, most often 3-18 m up, hidden by thick foliage, usually in conifer in north. May build new nest, reuse old one, or modify old bird or squirrel nest. Nests generally seem to be in a stand of dense conifers near a forest opening, though this may reflect observer bias. This species was observed within the study area. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Ferruginous hawk (*Buteo regalis*) is a California species of special concern. Ferruginous hawks are birds of open country. They are found in open habitats, such as grasslands, sagebrush, deserts, shrublands, and outer edges of pinyon-pine and other forests. They select rocky outcrops, hillsides, rock pinnacles, or trees for nest sites. Suitable nesting habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Prairie falcon (*Falco mexicanus*) is a California species of special concern. Prairie falcons are sandy-colored falcons with distinctive white eyebrows and dark wing-pit patches. Prairie Falcons inhabit hills, canyons, and mountains of arid grasslands and shrub-steppes of southwestern Canada, western United States, Baja California, and northern Mexico. They nest primarily on cliffs overlooking large open areas, using a ledge, cavity, crevice, or an abandoned nest of eagles, hawks, or ravens. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

PASSERIFORMES (perching birds)

Tri-colored blackbird (*Agelaius tricolor*) is a California species of special concern and year-round resident. They breed in freshwater wetlands, with tall dense vegetation including tule, cattail, blackberry and rose from April to July. Tri-colored blackbirds forage in grasslands and croplands. Suiitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

STRIGIFORMES (owls)

Burrowing owl (*Athene cunicularia*) is a California species of special concern. Open grasslands and shrublands up to 5,300 feet with low perches and small mammal burrows. Burrowing owls are year-round residents that breed from March to August. Marginal habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

Raptors and Other Migratory Birds

Many bird species are migratory and fall under the jurisdiction of the MBTA. Various migratory birds and raptor species, in addition to those described in detail above, have the potential to inhabit the project vicinity. American kestrels (*Falco sparverius*), northern harriers (*Circus cyaneus*), and white-tailed kites (*Elanus leucurus*) may occur within the vicinity of the study area. Some raptor species, such as red-tailed hawk (*Buteo jamaicensis*) and great-horned owl (*Bubo virginianus*), are not considered special-status species because they are not rare or protected under FESA or CESA; however, the nests of all raptor species are protected under the Migratory Bird Treaty Act and Section 3503.5 of the California Fish and Game Code. Migratory birds forage and nest in multiple habitats such as annual grasslands, oak woodlands, and riparian forests. The nests of all migratory birds are protected under the MBTA, which makes it illegal to destroy any active migratory bird nest. The trees and shrubs found within the study area and in the vicinity provide potential nesting habitat for raptors and migratory birds that occur in the region. Consequently, raptor and migratory bird species are likely to forage and nest in the study area.

Mammals

Southern sea otter (*Enhydra lutris nereis*) is a federally threatened species. Sea otters are marine mammals. They inhabit temperate coastal waters with rocky or soft sediment ocean bottoms less than one kilometer from shore. Kelp forest ecosystems are characteristic of otter habitats. This species is found off the coast of central California. Marginal habitat for southern sea otter is present within the marine habitat within the study area.

Hoary bat (*Lasiurus cinereus*) is a California species of special concern. Basically solitary, except for mother-young association; however, during migration, groups of up to hundreds of individuals may form. Dispersed population allows little chance to obtain density figures. Those migrating through the western U.S. in fall go south at least into Mexico. Typically not attracted to houses or other human structures, they roost 10 to 15 feet up in trees along forest borders. In the summer, hoary bats don't emerge to feed until after dark. Suitable habitat is present within the stud y area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Monterey dusky-footed woodrat (*Neotoma macrotis luciana*) is California species of special concern. The nocturnal dusky-footed woodrats are generally found in dense chaparral, coastal sage-scrub, pinyon-juniper, oak and riparian woodlands, and mixed conifer forest habitats that have a well-developed understory. They seem to favor brushy habitat or woodland with a live oak component. They are highly arboreal, and thick-leaved trees and shrubs are important habitat components. These species at Fort Ord were found in coast live oak woodland and savanna habitat. They require an abundant supply of downed wood, sticks, bark, and miscellaneous plant materials to build stick houses (nests) for protection, food storage, resting, rearing of young, and social communications. Houses are generally constructed in areas that are dark, moist, and cool, and that provide good cover. This species has been known to build stick houses below rocky bluffs, in trees, on the ground, on north-facing hillsides, and on canyon slopes. The species responds favorably to restoration of riparian habitats. Suitable habitat is present within the stud y area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Salinas harvest mouse (*Reithrodontomys megalotis distichlis*) Known from a small area near Monterey Bay. These mice prefer grassy or weedy areas where adequate food and a certain degree of protective cover are available, especially in the vicinity of water. Meadows, marshes, and weed-covered banks of irrigation ditches seem to offer optimum habitat conditions. The

species seldom is found in forested areas. They utilize the runways and underground burrows of other rodents and frequently take over vacated burrows of pocket gophers. The nest usually is placed on the ground or slightly above it under some protective cover such as a board, a clump of lodged grass, or a tangle of weeds. These mice are also known to use the nests of marsh wrens in cattail marshes. They appear to be strictly nocturnal and active throughout the year. They are almost entirely vegetarians and feed on the green parts and seeds of plants. Suitable habitat is present within the stud y area. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

American badger (*Taxidea taxus*) is California species of special concern. Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid- to late summer and give birth between March and April. Marginal habitat is present within the stud y area. There are three previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

SUMMARY

Given the sensitive nature of the area within the study area, development within the study area has the potential to affect sensitive habitats, special-status species, and other protected biological resources. The sand dune habitat within Monterey State Beach is particular sensitive since it contains numerous special-status plant species, is designated critical habitat for Monterey spineflower, and provides nesting habitat for the federally threatened western snowy plover. The vegetation within and surrounding Roberts and Laguna Grande Lakes including the emergent wetlands and riparian habitats are considered sensitive by the state and the City of Seaside. In addition, a total of 43 special-status plant species and 25 special-status wildlife species have the potential to occur within the study area. Since the study area contains numerous sensitive biological resources any further development of the area would require careful planning and compliance with state, federal and local laws and regulations pertaining to these resources.

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APPENDIX A – DATABASE SEARCHES FOR SPECIAL-STATUS SPECIES WITHIN THE VICINITY OF THE STUDY AREA

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
81440-2008-SL-0530

August 20, 2008

RECEIVED BY
AUG 22 2008
PMC

Angela Calderaro
Biologist, PMC
2729 Prospect Park Drive, Suite 220
Rancho Cordova, California 95670

Subject: Species List for the Seaview Local Coastal Program in Monterey County, California

Dear Ms. Calderaro:

This letter is in response to your request, dated August 2, 2008, and received in our office on August 11, 2008, for a list of endangered, threatened, and other special status species that may occur within the Seaview Local Coastal Program (LCP) area in Monterey County, California. The species list will be used to assist in the update of the biological inventory report for the LCP that is intended to provide an environmental baseline for the Land Use Plan and Coastal Implementation Plan.

The U.S. Fish and Wildlife Service's (Service) responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act prohibits the taking of any federally listed endangered or threatened species. Section 3(18) of the Act defines take to mean to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. Service regulations (50 CFR 17.3) define harm to include significant habitat modification or degradation which actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harassment is defined by the Service as an intentional or negligent action that creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species.

Exemptions to the prohibitions against take may be obtained through coordination with the Service in two ways. If the subject project is to be funded, authorized, or carried out by a Federal agency and may affect a listed species, the Federal agency must consult with the Service, pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in the take of a listed animal species, the project proponent should apply for an incidental take permit, pursuant to section 10(a)(1)(B) of the Act. Once you have determined if the proposed project will have a lead Federal agency, we can provide you with more detailed information regarding the section 7 or 10(a)(1)(B) permitting process.

We recommend that you review information in the California Department of Fish and Game's Natural Diversity Data Base. You can contact the California Department of Fish and Game at (916) 324-3812 for information on other sensitive species that may occur in this area.

If you have any questions, please call Chad Mitcham of my staff at (805) 644-1766, extension 335.

Sincerely,

David M. Pereksta
Assistant Field Supervisor

Enclosure

LISTED SPECIES THAT MAY OCCUR IN THE SEAVIEW LOCAL COASTAL PROGRAM AREA IN MONTEREY COUNTY, CALIFORNIA

Mammals		
Southern sea otter	*Ephydra lutris nereis*	T
Birds		
Brown pelican	*Pelecanus occidentalis*	E
California least tern	*Sterna antillarum browni*	E
Western snowy plover	*Charadrius alexandrinus nivosus*	T
Amphibians		
California red-legged frog	*Rana aurora draytonii*	T
California tiger salamander	*Ambystoma californiense*	T
Invertebrates		
Smith's blue butterfly	*Euphilotes enoptes smithi*	E
Plants		
Monterey spineflower	*Chorizanthe pungens* var. *pungens*	T, CH
Robust spineflower	*Chorizanthe robusta* var. *robusta*	E
Menzies' wallflower	*Erysimum menziesii*	E
Monterey gilia	*Gilia tenuiflora* ssp. *arenaria*	E
Contra Costa goldfields	*Lasthenia conjugens*	E, CH
Beach layia	*Layia carnosa*	E
Tidestrom's lupine	*Lupinus tidestromii*	E
Coastal dunes milk-vetch	*Astragalus tener* var. *titi*	E
Yadon's piperia	*Piperia yadonii*	E, CH

Key:
E – Endangered T - Threatened CH - Critical habitat

California Department of Fish and Game
Natural Diversity Database
Selected Elements by Scientific Name - Landscape
Seaview, Coastal Program
Seaside

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
1	Actinemys marmorata pallida	southwestern pond turtle	ARAAD02032			G3G4T2T3Q	S2		SC
2	Agelaius tricolor	tricolored blackbird	ABPBXB0020			G2G3	S2		SC
3	Allium hickmanii	Hickman's onion	PMLIL02140			G2	S2.2	1B.2	
4	Ambystoma californiense	California tiger salamander	AAAAA01180	Threatened		G2G3	S2S3		SC
5	Anniella pulchra nigra	black legless lizard	ARACC01011			G3G4T2T3Q	S2		SC
6	Arctostaphylos edmundsii	Little Sur manzanita	PDERI04260			G2	S2.2	1B.2	
7	Arctostaphylos hookeri ssp. hookeri	Hooker's manzanita	PDERI040J1			G3T2?	S2?	1B.2	
8	Arctostaphylos montereyensis	Toro manzanita	PDERI040R0			G2	S2.1	1B.2	
9	Arctostaphylos pajaroensis	Pajaro manzanita	PDERI04100			G2	S2.1	1B.1	
10	Arctostaphylos pumila	sandmat manzanita	PDERI04180			G2	S2.2	1B.2	
11	Astragalus tener var. tener	alkali milk-vetch	PDFAB0F8R1			G1T1	S1.1	1B.2	
12	Astragalus tener var. titi	coastal dunes milk-vetch	PDFAB0F8R2	Endangered	Endangered	G1T1	S1.1	1B.1	
13	Athene cunicularia	burrowing owl	ABNSB10010			G4	S2		SC
14	Buteo regalis	ferruginous hawk	ABNKC19120			G4	S3S4		
15	Central Dune Scrub	Central Dune Scrub	CTT21320CA			G2	S2.2		
16	Central Maritime Chaparral	Central Maritime Chaparral	CTT37C20CA			G2	S2.2		
17	Centromadia parryi ssp. congdonii	Congdon's tarplant	PDAST4R0P1			G4T3	S3.2	1B.2	
18	Charadrius alexandrinus nivosus	western snowy plover	ABNNB03031	Threatened		G4T3	S2		SC
19	Chorizanthe pungens var. pungens	Monterey spineflower	PDPGN040M2	Threatened		G2T2	S2.2	1B.2	
20	Chorizanthe robusta var. robusta	robust spineflower	PDPGN040Q2	Endangered		G2T1	S1.1	1B.1	
21	Clarkia jolonensis	Jolon clarkia	PDONA050L0			G2	S2.2	1B.2	
22	Coelus globosus	globose dune beetle	IICOL4A010			G1	S1		
23	Collinsia multicolor	San Francisco collinsia	PDSCR0H0B0			G2	S2.2	1B.2	
24	Cordylanthus rigidus ssp. littoralis	seaside bird's-beak	PDSCR0J0P2		Endangered	G5T1	S1.1	1B.1	
25	Cupressus goveniana ssp. goveniana	Gowen cypress	PGCUP04031	Threatened		G2T1	S1.2	1B.2	
26	Cupressus macrocarpa	Monterey cypress	PGCUP04060			G1	S1.2	1B.2	
27	Cypseloides niger	black swift	ABNUA01010			G4	S2		SC
28	Danaus plexippus	monarch butterfly	IILEPP2010			G5	S3		
29	Delphinium hutchinsoniae	Hutchinson's larkspur	PDRAN0B0V0			G2	S2.1	1B.2	
30	Eremophila alpestris actia	California horned lark	ABPAT02011			G5T3Q	S3		
31	Ericameria fasciculata	Eastwood's goldenbush	PDAST3L080			G2	S2.1	1B.1	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
32	Eriogonum nortonii	Pinnacles buckwheat	PDPGN08470			G2	S2.3	1B.3	
33	Erysimum ammophilum	sand-loving wallflower	PDBRA16010			G2	S2.2	1B.2	
34	Erysimum menziesii ssp. menziesii	Menzies' wallflower	PDBRA160E1	Endangered	Endangered	G3?T2	S2.1	1B.1	
35	Erysimum menziesii ssp. yadonii	Yadon's wallflower	PDBRA160E4	Endangered	Endangered	G3?T1	S1.1	1B.1	
36	Eucyclogobius newberryi	tidewater goby	AFCQN04010	Endangered		G3	S2S3		SC
37	Euphilotes enoptes smithi	Smith's blue butterfly	IILEPG2026	Endangered		G5T1T2	S1S2		
38	Falco mexicanus	prairie falcon	ABNKD06090			G5	S3		
39	Fritillaria liliacea	fragrant fritillary	PMLIL0V0C0			G2	S2.2	1B.2	
40	Gilia tenuiflora ssp. arenaria	sand gilia	PDPLM041P2	Endangered	Threatened	G3G4T2	S2.2	1B.2	
41	Horkelia cuneata ssp. sericea	Kellogg's horkelia	PDROS0W043			G4T1	S1.1	1B.1	
42	Lasiurus cinereus	hoary bat	AMACC05030			G5	S4?		
43	Lasthenia conjugens	Contra Costa goldfields	PDAST5L040	Endangered		G1	S1.1	1B.1	
44	Layia carnosa	beach layia	PDAST5N010	Endangered	Endangered	G2	S2.1	1B.1	
45	Linderiella occidentalis	California linderiella	ICBRA06010			G3	S2S3		
46	Lupinus tidestromii	Tidestrom's lupine	PDFAB2B3Y0	Endangered	Endangered	G2	S2.1	1B.1	
47	Malacothamnus palmeri var. involucratus	Carmel Valley bush-mallow	PDMAL0Q0B1			G3T2Q	S2.2	1B.2	
48	Malacothamnus palmeri var. palmeri	Santa Lucia bush-mallow	PDMAL0Q0B5			G3T2Q	S2.2	1B.2	
49	Malacothrix saxatilis var. arachnoidea	Carmel Valley malacothrix	PDAST660C2			G5T2	S2.2	1B.2	
50	Microseris paludosa	marsh microseris	PDAST6E0D0			G2	S2.2	1B.2	
51	Monterey Cypress Forest	Monterey Cypress Forest	CTT83150CA			G1	S1.2		
52	Monterey Pine Forest	Monterey Pine Forest	CTT83130CA			G1	S1.1		
53	Monterey Pygmy Cypress Forest	Monterey Pygmy Cypress Forest	CTT83162CA			G1	S1.1		
54	Northern Bishop Pine Forest	Northern Bishop Pine Forest	CTT83121CA			G2	S2.2		
55	Northern Coastal Salt Marsh	Northern Coastal Salt Marsh	CTT52110CA			G3	S3.2		
56	Oceanodroma homochroa	ashy storm-petrel	ABNDC04030			G2	S2		SC
57	Oncorhynchus mykiss irideus	steelhead - south/central California coast ESU	AFCHA0209H	Threatened		G5T2Q	S2		SC
58	Pelecanus occidentalis californicus	California brown pelican	ABNFC01021	Endangered	Endangered	G4T3	S1S2		
59	Phrynosoma coronatum (frontale population)	coast (California) horned lizard	ARACF12022			G4G5	S3S4		SC
60	Pinus radiata	Monterey pine	PGPIN040V0			G1	S1.1	1B.1	
61	Piperia yadonii	Yadon's rein orchid	PMORC1X070	Endangered		G2	S2.1	1B.1	
62	Plagiobothrys uncinatus	hooked popcorn-flower	PDBOR0V170			G2	S2.2	1B.2	

	Scientific Name	Common Name	Element Code	Federal Status	State Status	Global Rank	State Rank	CNPS	CDFG
63	Potentilla hickmanii	Hickman's cinquefoil	PDROS1B0U0	Endangered	Endangered	G1	S1.1	1B.1	
64	Rana aurora draytonii	California red-legged frog	AAABH01022	Threatened		G4T2T3	S2S3		SC
65	Reithrodontomys megalotis distichlis	Salinas harvest mouse	AMAFF02032			G5T1	S1		
66	Rosa pinetorum	pine rose	PDROS1J0W0			G2Q	S2.2	1B.2	
67	Sidalcea malachroides	maple-leaved checkerbloom	PDMAL110E0			G3G4	S3S4.2	4.2	
68	Stebbinsoseris decipiens	Santa Cruz microseris	PDAST6E050			G2	S2.2	1B.2	
69	Taxidea taxus	American badger	AMAJF04010			G5	S4		SC
70	Thamnophis hammondii	two-striped garter snake	ARADB36160			G3	S2		SC
71	Tortula californica	California screw moss	NBMUS7L090			G2G4	S2.2	1B.2	
72	Trifolium buckwestiorum	Santa Cruz clover	PDFAB402W0			G1	S1.1	1B.1	
73	Trifolium polyodon	Pacific Grove clover	PDFAB402H0		Rare	G1Q	S1.1	1B.1	
74	Trifolium trichocalyx	Monterey clover	PDFAB402J0	Endangered	Endangered	G1	S1.1	1B.1	
75	Valley Needlegrass Grassland	Valley Needlegrass Grassland	CTT42110CA			G1	S3.1		

Inventory of Rare and Endangered Plants

v7-08c 7-09-08

Status: search results - Fri, Aug. 1, 2008, 11:07 b

{QUADS_123} =~ m/366D|344A|344B|365B|365C|343B|366A Search

Tip: Want to search by habitat? Try the **Checkbox and Preset** search page.[all tips and help.] [search history]

Your Quad Selection: Seaside (366D) 3612157, Mount Carmel (344A) 3612147, Soberanes Point (344B) 3612148, Salinas (365B) 3612166, Spreckels (365C) 3612156, Carmel Valley (343B) 3612146, Marina (366A) 3612167, Monterey (366C) 3612158

Hits 1 to 49 of 49

Requests that specify topo quads will return only Lists 1-3.

To save selected records for later study, click the ADD button.

ADD checked items to Plant Press | check all | check none

Selections will appear in a new window.

open	save	hits	scientific	common	family	CNPS
		1	**Allium hickmanii**	Hickman's onion	Liliaceae	List 1B.2
		1	**Arctostaphylos edmundsii**	Little Sur manzanita	Ericaceae	List 1B.2
		1	**Arctostaphylos hookeri ssp. hookeri**	Hooker's manzanita	Ericaceae	List 1B.2
		1	**Arctostaphylos montereyensis**	Toro manzanita	Ericaceae	List 1B.2
		1	**Arctostaphylos pajaroensis**	Pajaro manzanita	Ericaceae	List 1B.1
		1	**Arctostaphylos pumila**	sandmat manzanita	Ericaceae	List 1B.2
		1	**Astragalus tener var. tener**	alkali milk-vetch	Fabaceae	List 1B.2
		1	**Astragalus tener var. titi**	coastal dunes milk-vetch	Fabaceae	List 1B.1
		1	**Callitropsis goveniana**	Gowen cypress	Cupressaceae	List 1B.2
		1	**Callitropsis macrocarpa**	Monterey cypress	Cupressaceae	List 1B.2
		1	**Centromadia parryi ssp. congdonii**	Congdon's tarplant	Asteraceae	List 1B.2
		1	**Chorizanthe pungens var. pungens**	Monterey spineflower	Polygonaceae	List 1B.2
		1	**Chorizanthe robusta var. robusta**	robust spineflower	Polygonaceae	List 1B.1
		1	**Clarkia jolonensis**	Jolon clarkia	Onagraceae	List 1B.2
				San Francisco		List

		1	**Collinsia multicolor**	collinsia	Scrophulariaceae	1B.2
		1	**Cordylanthus rigidus ssp. littoralis**	seaside bird's-beak	Scrophulariaceae	List 1B.1
		1	**Corethrogyne leucophylla**	branching beach aster	Asteraceae	List 3.2
		1	**Delphinium hutchinsoniae**	Hutchinson's larkspur	Ranunculaceae	List 1B.2
		1	**Delphinium umbraculorum**	umbrella larkspur	Ranunculaceae	List 1B.3
		1	**Ericameria fasciculata**	Eastwood's goldenbush	Asteraceae	List 1B.1
		1	**Eriogonum nortonii**	Pinnacles buckwheat	Polygonaceae	List 1B.3
		1	**Erysimum ammophilum**	sand-loving wallflower	Brassicaceae	List 1B.2
		1	**Erysimum menziesii ssp. menziesii**	Menzies' wallflower	Brassicaceae	List 1B.1
		1	**Erysimum menziesii ssp. yadonii**	Yadon's wallflower	Brassicaceae	List 1B.1
		1	**Fritillaria liliacea**	fragrant fritillary	Liliaceae	List 1B.2
		1	**Galium clementis**	Santa Lucia bedstraw	Rubiaceae	List 1B.3
		1	**Gilia tenuiflora ssp. arenaria**	Monterey gilia	Polemoniaceae	List 1B.2
		1	**Grindelia hirsutula var. maritima**	San Francisco gumplant	Asteraceae	List 1B.2
		1	**Horkelia cuneata ssp. sericea**	Kellogg's horkelia	Rosaceae	List 1B.1
		1	**Lasthenia conjugens**	Contra Costa goldfields	Asteraceae	List 1B.1
		1	**Layia carnosa**	beach layia	Asteraceae	List 1B.1
		1	**Leptosiphon croceus**	coast yellow leptosiphon	Polemoniaceae	List 1B.1
		1	**Lupinus tidestromii**	Tidestrom's lupine	Fabaceae	List 1B.1
		1	**Malacothamnus palmeri var. involucratus**	Carmel Valley bush-mallow	Malvaceae	List 1B.2
		1	**Malacothamnus palmeri var. palmeri**	Santa Lucia bush-mallow	Malvaceae	List 1B.2
		1	**Malacothrix saxatilis var. arachnoidea**	Carmel Valley malacothrix	Asteraceae	List 1B.2
		1	**Micropus amphibolus**	Mt. Diablo cottonweed	Asteraceae	List 3.2
		1	**Microseris paludosa**	marsh microseris	Asteraceae	List 1B.2
		1	**Monardella antonina ssp. antonina**	San Antonio Hills monardella	Lamiaceae	List 3
		1	**Pinus radiata**	Monterey pine	Pinaceae	List

						1B.1
		1	**Piperia yadonii**	Yadon's rein orchid	Orchidaceae	List 1B.1
		1	**Plagiobothrys uncinatus**	hooked popcorn-flower	Boraginaceae	List 1B.2
		1	**Potentilla hickmanii**	Hickman's cinquefoil	Rosaceae	List 1B.1
		1	**Rosa pinetorum**	pine rose	Rosaceae	List 1B.2
		1	**Stebbinsoseris decipiens**	Santa Cruz microseris	Asteraceae	List 1B.2
		1	**Tortula californica**	California screw-moss	Pottiaceae	List 1B.2
		1	**Trifolium buckwestiorum**	Santa Cruz clover	Fabaceae	List 1B.1
		1	**Trifolium polyodon**	Pacific Grove clover	Fabaceae	List 1B.1
		1	**Trifolium trichocalyx**	Monterey clover	Fabaceae	List 1B.1

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No more hits.

APPENDIX B – SPECIAL-STATUS PLANT AND WILDLIFE SPECIES

TABLE B-1 SPECIAL-STATUS PLANT SPECIES

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Plants						
Allium hickmanii Hickman's onion	~	~	1B.2	Perennial bulbiferous herb in the lily family (*Liliaceae*). Closed-cone coniferous forest, chaparral (maritime), coastal prairie, coastal scrub, valley and foothill grassland. Blooms: March - May Elevation: 5 – 200 meters	**Yes**	Suitable habitat is present within the study area. There are 13 previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Arctostaphylos edmundsii Little Sur manzanita	~	~	1B.2	Perennial evergreen shrub in the heath family (*Ericaceae*). Coastal bluff scrub and chaparral in sandy soils. Known from fewer than ten occurrences. Blooms: November - April Elevation: 30 – 105 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Arctostaphylos hookeri ssp. *hookeri* Hooker's manzanita	~	~	1B.2	Perennial evergreen shrub in the heath family (*Ericaceae*). Closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub in sandy soils. Blooms: January – June Elevation: 85 - 536 meters	No	Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Arctostaphylos montereyensis Toro manzanita	~	~	1B.2	Perennial evergreen shrub in the heath family (*Ericaceae*). Chaparral (maritime), cismontane woodland, and coastal scrub in sandy soils. Known from fewer than ten occurrences. Blooms: February - March Elevation: 30 - 730 meters	**Yes**	Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Arctostaphylos pajaroensis Pajaro manzanita	~	~	1B.1	Perennial evergreen shrub in the heath family (*Ericaceae*). Chaparral (sandy). Blooms: December - March Elevation: 30 - 760 meters	No	Suitable habitat is not present within the study area. There are three previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Arctostaphylos pumila Sandmat manzanita	~	~	1B.2	Perennial evergreen shrub in the heath family (*Ericaceae*). Closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub in sandy, openings. Known from fewer than twenty occurrences. Blooms: February - May Elevation: 3 - 205 meters	**Yes**	Suitable habitat is present within the study area. There are 10 previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).
Astragalus macrodon Salinas milk-vetch	~	~	4.3	Perennial herb in the legume family (*Fabaceae*). Chaparral (openings), cismontane woodland, valley and foothill grassland, in sandstone, shale, or serpentinite. Blooms: April - July Elevation: 250 – 950 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Astragalus nuttallii var. *nuttallii* Ocean bluff milk-vetch	~	~	4.2	Perennial herb in the legume family (*Fabaceae*). Coastal bluff scrub and coastal dunes. Blooms: January – November Elevation: 3 – 120 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Astragalus tener var. tener Alkali milk-vetch	~	~	1B	Annual herb in the legume family (*Fabaceae*). Playas, valley and foothill grassland (adobe clay), and vernal pools (alkaline). Blooms: March - June Elevation: 1 - 60 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Astragalus tener var. *titi* Coastal dunes milk-vetch	FE	SE	1B.1	Annual herb in the legume family (*Fabaceae*). Coastal bluff scrub (sandy), coastal dunes, coastal prairie (mesic), often vernally mesic areas. Known from only one occurrence on the Monterey Peninsula. San Diego County occurrences have not been documented since the 1970's, despite rediscovery attempts. Blooms: March - May Elevation: 1 – 50 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Castilleja latifolia Monterey Coast paintbrush	~	~	4.3	Perennial hemi-parasitic herb in the figwort family (*Scrophulariaceae*). Closed-cone coniferous forest, cismontane woodland (openings), coastal dunes, and coastal scrub in sandy soils. Blooms: February – September Elevation: 0 – 185 meters	**Yes**	This species was observed within the study area. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Ceanothus cuneatus var. *rigidus* Monterey ceanothus	~	~	4.2	Perennial evergreen shrub in the buckthorn family (*Rhamnaceae*). Closed-cone coniferous forest, chaparral, coastal scrub, in sandy soils. Intergrades with *C.c.* var. *fascicularis* in San Luis Obispo County. Blooms: February – April (June Elevation: 3 - 550 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Centromadia parryi ssp. *congdonii* Congdon's tarplant	~	~	1B.2	Annual herb in the sunflower family (*Asteraceae*). Valley and foothill grassland (alkaline). A synonym of *Hemizonia parryi* ssp. *congdonii* in The Jepson Manual. Blooms: May – October (November) Elevation: 1 – 230 meters	No	Suitable habitat is not present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Chorizanthe pungens var. *pungens* Monterey spineflower	FT	~	1B.2	Annual herb in the knotweed family (*Polygonaceae*). Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, valley and foothill grassland in sandy soils. Blooms: April – June (July) Elevation: 3 – 450 meters	**Yes**	Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).
Chorizanthe robusta var. *robusta* Robust spineflower	FE	~	1B.1	Annual herb in the knotweed family (*Polygonaceae*). Chaparral (maritime), cismontane woodland (openings), coastal dunes, coastal scrub in sandy or gravelly soils. Most populations extirpated, and now known from only six extended occurrences. Blooms: April – September Elevation: 3 – 300 meters	**Yes**	Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Clarkia jolonensis Jolon clarkia	~	~	1B.2	Annual herb in the evening primrose family (*Onagraceae*). Chaparral, cismontane woodland, coastal scrub, and riparian woodland. Can be confused with *C. lewisii*. Blooms: April – June Elevation: 20 – 660 meters	**Yes**	Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Clarkia lewisii Lewis' clarkia	~	~	4.3	Annual herb in the evening primrose family (*Onagraceae*). Broad-leafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, and coastal scrub. Can be confused with *C. lewisii*. Blooms: May – July Elevation: 30 – 610 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Collinsia multicolor San Francisco collinsia	~	~	1B.2	Annual herb in the figwort family (*Scrophulariaceae*). Closed-cone coniferous forest, and coastal scrub, sometimes serpentinite. Blooms: March – May Elevation: 30 – 250 meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Cordylanthus rigidus ssp. *littoralis* Seaside bird's-beak	~	SE	1B.1	Annual hemi-parasitic herb in the figwort family (*Scrophulariaceae*). Closed-cone coniferous forest, chaparral (maritime), cismontane woodland, coastal dunes, and coastal scrub, on sandy, often disturbed sites. Known from fewer than twenty occurrences. Blooms: April – October Elevation: 0 – 425 meters	**Yes**	Suitable habitat is present within the study area. There are eight previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008).
Corethrogyne leucophylla Branching beach aster	~	~	3.2	Perennial herb in the sunflower family (*Asteraceae*). Closed-cone coniferous forest and coastal dunes. A synonym of *Lessingia filaginifolia* var. *filaginifolia* in The Jepson Manual. Blooms: May – December Elevation: 3 – 60 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Cupressus [Callitropsis] goveniana ssp. goveniana Gowen cypress	FT	~	1B.2	Perennial evergreen tree in the cypress family (*Cupressaceae*). Closed-cone coniferous forest and chaparral (maritime). Known from only three native occurrences in the Monterey area. Elevation: 30 – 300 meters	No	Suitable habitat is not present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Cupressus [Callitropsis] macrocarpa Monterey cypress	~	~	1B.2	Perennial evergreen tree in the cypress family (*Cupressaceae*). Closed-cone coniferous forest and chaparral (maritime). Known from only three native occurrences in the Monterey area. Elevation: 30 – 300 meters	**Yes**	This species is present within the study area, although it may have been planted. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Delphinium hutchinsoniae Hutchinson's larkspur	~	~	1B.2	Perennial herb in the buttercup family (*Ranunculaceae*). Broad-leafed upland forest, chaparral, coastal prairie, and coastal scrub. Known from approximately ten occurrences. Blooms: Marsh - June Elevation: 0 – 427 meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).
Delphinium umbraculorum Umbrella larkspur	~	~	1B.3	Perennial herb in the buttercup family (*Ranunculaceae*). Cismontane woodland. Hybridizes with *D. parryi* ssp. *parryi*. Blooms: April – June Elevation: 400 – 1,600 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Eriastrum virgatum Virgate eriastrum	~	~	4.3	Annual herb in the phlox family (*Polemoniaceae*). Coastal bluff scrub, chaparral, coastal dunes, and coastal scrub in sandy soils. Blooms: May – July Elevation: 45 – 700 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Ericameria fasciculata Eastwood's goldenbush	~	~	1B.1	Perennial evergreen shrub in the sunflower family (*Asteraceae*). Closed-cone coniferous forest, chaparral (maritime), coastal dunes, and coastal scrub in sandy, openings. Known from fewer than twenty occurrences in the Monterey Bay area. Blooms: July – October Elevation: 30 – 275 meters	**Yes**	Suitable habitat is present within the study area. There are nine previously recorded occurrences within a five-mile radius of the study area, three of which are within a one-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Eriogonum nortonii Pinnacles buckwheat	~	~	1B.3	Annual herb in the knotweed family (*Polygonaceae*). Chaparral, valley and foothill grassland in sandy soils, often on recent burns. Known from approximately twenty occurrences. Blooms: May – August (September) Elevation: 300 – 975 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Erysimum ammophilum Sand-loving wallflower	~	~	1B.2	Perennial herb in the mustard family (*Brassicaceae*). Chaparral (maritime), coastal dunes, and coastal scrub in sandy, openings. Previously included in this species is *E. capitatum* ssp. *capitatum*. Blooms: February – June Elevation: 0 – 60 meters	**Yes**	Suitable habitat is present within the study area. There are eight previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).
Erysimum menziesii ssp. *menziesii* Menzies' wallflower	FE	SE	1B.1	Perennial herb in the mustard family (*Brassicaceae*). Coastal dunes. Known from only ten occurrences. Nearly extirpated on the Monterey Peninsula. Blooms: March – June Elevation: 0 – 35 meters	**Yes**	Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). This species was observed within the study area.
Erysimum menziesii ssp. *yadonii* Yadon's wallflower	FE	SE	1B.1	Perennial herb in the mustard family (*Brassicaceae*). Coastal dunes. Known only from six occurrences near Marina on Monterey Bay. Included in state-listed Endangered *E. menziesii*. Blooms: May – September Elevation: 0 – 10 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Fritillaria liliacea Fragrant fritillary	~	~	1B.2	Perennial bulbiferous herb in the lily family (*Liliaceae*). Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland, often serpentinite. Blooms: February - April Elevation: 3 - 410meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).
Galium clementis Santa Lucia bedstraw	~	~	1B.3	Perennial herb in the coffee family (*Rubiaceae*). Lower montane coniferous forest, upper montane coniferous forest, granitic or serpentinite, rocky. Blooms: May – July Elevation: 1,130 – 1,780 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Gilia tenuiflora ssp. *arenaria* Monterey [sand] gilia	FE	ST	1B.2	Annual herb in the phlox family (*Polemoniaceae*). Chaparral (maritime), cismontane woodland, coastal dunes, coastal scrub, sandy, openings. Known from fewer than twenty occurrences. Blooms: April – June Elevation: 10 – 45 meters	**Yes**	Suitable habitat is present within the study area. There are 15 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).
Grindelia hirsutula var. *maritime* San Francisco gumplant	~	~	1B.2	Perennial herb in the sunflower family (*Asteraceae*). Coastal bluff scrub, coastal scrub, valley and foothill grassland, sandy or serpentinite. Can be difficult to identify. Blooms: June - September Elevation: 15 - 400 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Horkelia cuneata ssp. *sericea* Kellogg's horkelia	~	~	1B.1	Perennial herb in the rose family. (*Rosaceae*). Closed-cone coniferous forest, chaparral (maritime), coastal dunes, and coastal scrub, sandy or gravelly, openings. Historical occurrences need field surveys. Occurrence from the Crocker Hills probably last remaining location in S.F. Bay. Remaining plants less distinct from ssp. *cuneata* than those formerly occurring near San Francisco. Blooms: April – September Elevation: 10 – 200 meters	**Yes**	Suitable habitat is present within the study area. There are 11 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).
Lasthenia conjugens Contra Costa goldfields	FE	~	1B.1	Annual herb in the sunflower family (*Asteraceae*). Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools, in mesic soils. Many historical occurrences extirpated by development and agriculture. Blooms: March – June Elevation: 0 – 470 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Layia carnosa Beach layia	FE	SE	1B.1	Annual herb in the sunflower family (*Asteraceae*). Coastal dunes and coastal scrub (sandy). Blooms: March – July Elevation: 0 – 60 meters	**Yes**	Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Leptosiphon croceus Coast yellow leptosiphon	~	~	1B.1	Annual herb in the phlox family (*Polemoniaceae*). Coastal bluff scrub and coastal prairie. Known only from one occurrence near Moss Beach. See *L. parviflorus* in The Jepson Manual. Blooms: April – May Elevation: 10 – 150 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Leptosiphon grandiflorus Large-flowered leptosiphon	~	~	4.2	Annual herb in the phlox family (*Polemoniaceae*). Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal dunes, coastal prairie, coastal scrub, valley and foothill grassland, usually in sandy soils. Many historical occurrences extirpated by development; need status information. A synonym of *Linanthus grandiflorus* in The Jepson Manual. Blooms: April – August Elevation: 5 – 1,220 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Lomatium parvifolium Small-leaved lomatium	~	~	4.2	Perennial herb in the carrot family (*Apiaceae*). Closed-cone coniferous forest, chaparral, coastal scrub, and riparian woodland, in serpentinite. Rare in Santa Cruz County. Blooms: January – June Elevation: 20 – 700 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Lupinus tidestromii Tidestrom's lupine	FE	SE	1B.1	Perennial rhizomatous herb in the legume family (*Fabaceae*). Coastal dunes. Known from fewer than 20 occurrences. Includes *L. tidestromii* var. *layneae*. Only Monterey County plants are state-listed Endangered as *L.t.* var. *tidestromii*. Blooms: April - June Elevation: 0 - 100 meters	**Yes**	Suitable habitat is present within the study area. There are seven previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Malacothamnus palmeri var. *involucratus* Carmel Valley bush-mallow	~	~	1B.2	Perennial deciduous shrub in the mallow family (*Malvaceae*). Chaparral, cismontane woodland, and coastal scrub. A synonym of *M. palmeri* in The Jepson Manual. Blooms: May – August (October) Elevation: 30 – 1,100 meters	**Yes**	Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Malacothamnus palmeri var. *palmeri* Santa Lucia bush-mallow	~	~	1B.2	Perennial deciduous shrub in the mallow family (*Malvaceae*). Chaparral (rocky). A synonym of *M. palmeri* in The Jepson Manual. Blooms: May – July Elevation: 60 – 360 meters	No	Suitable habitat is not present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Malacothrix saxatilis var. *arachnoidea* Carmel Valley malacothrix	~	~	1B.2	Perennial rhizomatous herb in the sunflower family (*Asteraceae*). Chaparral (rocky) and coastal scrub. Known from approximately ten occurrences. Blooms: (March)June - December Elevation: 25 – 1,036 meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Micropus amphibolus Mt. Diablo cottonweed	~	~	3.2	Annual herb in the sunflower family (*Asteraceae*). Broad-leafed upland forest, chaparral, cismontane woodland, valley and foothill grassland in rocky soils. Can be confused with *M. californicus*. Many occurrences old; need current status information. Blooms: March – May Elevation: 45 – 825 meters	No	Although marginal habitat is present within the study area, there are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008) and the study area is outside this species known elevation range. It is unlikely that this species occurs within the study area.
Microseris paludosa Marsh microseris	~	~	1B.2	Perennial herb in the sunflower family (*Asteraceae*). Closed-cone coniferous forest, cismontane woodland, coastal scrub, valley and foothill grassland. Similar to *M. laciniata* spp. *leptosepala*. Blooms: April – June (July) Elevation: 5 – 300 meters	**Yes**	Suitable habitat is present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Monardella antonina ssp. *antonina* San Antonio Hills monardella	~	~	3	Perennial rhizomatous herb in the mint family (*Lamiaceae*). Chaparral and cismontane woodland. Easily confused with *M. villosa* ssp. *villosa*, which may be the taxon occurring in Alameda, Contra Costa, San Benito, and Santa Clara counties; needs clarification. Blooms: June – August Elevation: 500 – 1,000 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Ophioglossum californicum California adder's-tongue	~	~	4.2	Perennial rhizomatous herb in the Adder's tongue family (*Ophioglossaceae*). Chaparral, valley and foothill grassland, and vernal pools (margins) in mesic soils. Blooms: (December) January - June Elevation: 60 - 525 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Pinus radiata Monterey pine	~	~	1B.1	Perennial evergreen tree in the pine family (*Pinaceae*). Closed-cone coniferous forest and cismontane woodland. Only three native stands in CA, at Ano Nuevo, Cambria, and the Monterey Peninsula; introduced in many areas. Only one-half of the species' historical extent remains undeveloped on the Monterey Peninsula, and forest destruction has been unevenly distributed over different geomorphic surfaces. Elevation: 25 - 185 meters	**Yes**	This species is present within the study area, although some may have been planted. There is one previously recorded occurrence within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Piperia michaelii Michael's rein orchid	~	~	4.2	Perennial herb in the orchid family (*Orchidaceae*). Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, and lower montane coniferous forest. Recent surveys in Ventura County have been unsuccessful. Known from Santa Cruz Island from a single collection in 1968. Blooms: April - August Elevation: 3 - 915 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Piperia yadonii Yadon's rein orchid	FE	~	1B.1	Perennial herb in the orchid family (*Orchidaceae*). Coastal bluff scrub, closed-cone coniferous forest, chaparral (maritime) in sandy soils. Blooms: (February) May - August Elevation: 10 - 510 meters	**Yes**	Suitable habitat is present within the study area. There are 12 previously recorded occurrences within a five-mile radius of the study area, two of which are within a one-mile radius of the study area (CDFG 2008).
Plagiobothrys chorisianus var. *hickmanii* Hickman's popcorn-flower	~	~	4.2	Annual herb in the borage family (*Boraginaceae*). Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, and vernal pools. Intergrades with *P.c.* var. *chorisianus*. Blooms: April – June Elevation: 15 – 185 meters	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Plagiobothrys uncinatus Hooked popcorn-flower	~	~	1B.2	Annual herb in the borage family (*Boraginaceae*). Chaparral (sandy), cismontane woodland, valley and foothill grassland. Field surveys needed in Gabilan and Santa Lucia ranges to determine status. Blooms: April - May Elevation: 300 – 760 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Potentilla hickmanii Hickman's cinquefoil	FE	SE	1B.1	Perennial herb in the rose family (*Rosaceae*). Coastal bluff scrub, closed-cone coniferous forest, meadows and seeps (vernally mesic), marshes and swamps (freshwater). Blooms: April – August Elevation: 10 – 135 meters	**Yes**	Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Rosa pinetorum Pine rose	~	~	1B.2	Perennial shrub in the rose family (*Rosaceae*). Closed-cone coniferous forest. Possible hybrid of *R. spithamea, R. gymnocarpa*, or others; further study needed. Blooms: May – July Elevation: 2 – 300 meters	No	Suitable habitat is not present within the study area. There are three previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Sidalcea malachroides Maple-leaved checkerbloom	~	~	4.2	Perennial herb in the mallow family (*Malvaceae*). Broad-leafed upland forest, coastal prairie, coastal scrub, North Coast coniferous forest, and riparian woodland, often in disturbed areas. Endangered in Oregon. Blooms: April – August Elevation: 2 – 730 meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).
Stebbinsoseris decipiens Santa Cruz microseris	~	~	1B.2	Annual herb in the sunflower family (*Asteraceae*). Broad-leafed upland forest, closed-cone coniferous forest, chaparral, coastal prairie, coastal scrub, valley and foothill grassland, open areas, sometimes serpentinite. Known from fewer than twenty occurrences. Blooms: April – May Elevation: 10 – 500 meters	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Scientific Name Common Name	Status			Habitat Description[4]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]	CNPS[3]			
Tortula californica California screw-moss	~	~	1B.2	Moss in the *Pottiaceae* family. Chenopod scrub, valley and foothill grassland in sandy, soil. Elevation: 10 – 1,460 meters	No	Suitable habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Trifolium buckwestiorum Santa Cruz clover	~	~	1B.1	Annual herb in the legume family (*Fabaceae*). Broad-leafed upland forest, cismontane woodland, coastal prairie in gravelly, margins. Known from fewer than fifteen very small occurrences; only one fully protected. Blooms: April - October Elevation: 105 – 610 meters	No	There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.
Trifolium polyodon Pacific Grove clover	~	Rare	1B.1	Annual herb in the legume family (*Fabaceae*). Closed-cone coniferous forest, coastal prairie, meadows and seeps, valley and foothill grassland in mesic soils. Known from seven occurrences on the Monterey and Point Lobos Peninsulas. A synonym of *T. variegatum* in The Jepson Manual, but appears to be distinct. Blooms: April – June Elevation: 5 – 120 meters	**Yes**	Suitable habitat is present within the study area. There are six previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Trifolium trichocalyx Monterey clover	FE	SE	1B.1	Annual herb in the legume family (*Fabaceae*). Closed-cone coniferous forest (sandy, openings, burned areas). Known from only one occurrence from the central portion of the Monterey Peninsula. Fewer than 1,000 plants seen in 1987, none in 1992, and only 22 in 1995. Appears to be a fire follower. Blooms: April – June Elevation: 30 – 240 meters	No	Suitable habitat is not present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008). The study area is outside this species known elevation range.

CODE DESIGNATIONS

Federal status[1]: January 2007 USFWS Listing	State status[2]: January 2007 USFWS and CDFG Listing	CNPS[3]: January 2007 CNPS Listing
FE = Listed as endangered under the Endangered Species Act	**SE** = Listed as endangered under the California Endangered Species Act	**1A** = Plants species that presumed extinct in California.
FT = Listed as threatened under the Endangered Species Act	**ST** = Listed as threatened under the California Endangered Species Act	**1B** = Plant species that are rare, threatened, or endangered in California and elsewhere.
FC = Candidate for listing (threatened or endangered) under Endangered Species Act	**CSC** = Species of Concern as identified by CDFG	**List 2** = Plant species that are rare, threatened, or endangered in California, but more common elsewhere.
FD = Delisted in accordance with the Endangered Species Act	**CFP** = Listed as fully protected under CDFG code	**List 3** = Plant species that lack the necessary information to assign them to a listing status**.**
	CR = Species identified as rare by CDFG	**List 4 =** Plants that have a limited distribution or that are infrequent throughout a broader area in California.
		Threat Ranks **0.1**-Seriously threatened in California (high degree/immediacy of threat) **0.2**-Fairly threatened in California (moderate degree/immediacy of threat) **0.3**-Not very threatened in California (low degree/immediacy of threats or no current threats known)
Habitat description[4]: Habitat description adapted from CNDDB (CDFG 2008) and CNPS online inventory (CNPS 2008)		

TABLE B-2 SPECIAL-STATUS FISH AND WILDLIFE SPECIES

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Invertebrates					
Coelus globosus Globose dune beetle	~	~	Globose dune beetle are flightless and quite sessile nocturnal beetles that inhabit sand dune formations, including fore dunes, sand hummocks, sometimes back dunes along immediate coast. Larvae and pupae spend most of the time in the sand. The larvae can also be found under vegetation or accumulated debris. Adults spend the hotter summer months aggregating under vegetation or debris. Adults come to the surface at night and on cool, foggy days. Larvae and adults feed on dead vegetable matter that accumulates on the sand. The dune beetles leave a distinct track on the beach that resembles a labyrinth. Their footprints cannot be seen on the track because the beetle walks below the sand, leaving a collapsed tunnel behind.	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a one-mile radius of the study area (CDFG 2008).
Danaus plexippus Monarch butterfly	~	~	Habitat is a complex issue for this species. In general breeding areas are virtually all patches of milkweed in North America and some other regions. The critical conservation feature for North American populations is the overwintering habitats, which are certain high altitude Mexican conifer forests or coastal California conifer or Eucalyptus groves as identified in literature. Coastal regions are important flyways and so nectar (wild or in gardens) is an important resource in such places. However, essential overwintering areas for North American populations are limited to about 100 places in coastal California and the mountains of Mexico.	**Yes**	Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Euphilotes enoptes smithi Smith's blue butterfly	FE	~	Smith's blue buterfly is found in scattered colonies in coastal areas of Central California. It uses two habitats, coastal sand dunes and cliff/chaparral, both of which are endangered. Smith's blue butterfly is associated with two species of buckwheat, seacliff buckwheat (*Eriogonum parvifolium*) and seaside buckwheat (*Eriogonum latifolium*) in all life stages, and the presence of these plants is a key habitat requirement. These plants are obligate host plants for the larvae and the principle nectar sources for adults. They also provide mating sites. The butterflies generally spend their lifetime within 200 feet of the host plant on which they emerged. Smith's Blues are found in coastal sand dunes and cliff/chaparral areas along the central California coast in Monterey, Santa Cruz, and San Mateo Counties.	**Yes**	Suitable habitat is present within the study area. There are three previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Linderiella occidentalis California linderiella fairy shrimp	~	~	Inhabits large, fairly clear vernal pools and lakes. The California fairy shrimp is the most common fairy shrimp in the Central Valley. It has been documented on most land forms, geologic formations and soil types supporting vernal pools in California, at altitudes as high as 3,800 feet above sea level.	**Yes**	Suitable habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Fish					
Eucyclogobius newberryi Tidewater goby	FE	~	Historically widespread in brackish coastal lagoons and coastal creeks in California from the mouth of the Smith River, Del Norte County, south to Agua Hedionda Lagoon, San Diego County. Naturally absent (due to lack of suitable habitat) between Humboldt Bay and Ten Mile River, between Point Arena and Salmon Creek, and between Monterey Bay and Arroyo del Oso.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Oncorhynchus mykiss irideus Steelhead south/central California coast ESU	FT	~	Both anadromous and non-anadromous forms exist. Anadromous forms migrate between freshwater breeding and marine non-breeding habitats; California breeders migrate to non-breeding habitats as far away as Alaska.	**Yes**	Marginal habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Amphibians					
Ambystoma californiense California tiger salamander	FT	CSC	Typically found in annual grasslands of lower hills and valleys; breeds in temporary and permanent ponds and in streams; uses rodent burrows and other subterranean retreats in surrounding uplands for shelter; appears to be absent in waters containing predatory game fish. The California tiger salamander spends most of its lifecycle estivating underground in adjacent valley oak woodland or grassland habitat, primarily in abandoned rodent burrows. Research has shown that dispersing juveniles can roam up to two miles from their breeding ponds and that a minimum of several hundred acres of uplands habitat is needed surrounding a breeding pond in order for the species to survive over the long term.	No	Suitable habitat is not present within the study area. There are five previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Rana aurora draytonii California red-legged frog	FT	CSC	Found in humid forests, woodlands, grasslands, and streamsides with plant cover. Most common in lowlands or foothills. Frequently found in woods adjacent to streams. Breeding habitat is in permanent or late season sources of deep water; lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. From sea level to 8,000 feet (2,440 meters). Breeds late December to early April. Endemic to California and northern Baja California. Ranges along the coast from Mendocino County in northern California south to northern Baja California, and inland through the northern Sacramento Valley into the foothills of the Sierra Nevada mountains, south to Tulare county, and possibly Kern county.	**Yes**	Suitable habitat is present within the study area. There are four previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Reptiles					
Actinemys marmorata Western pond turtle	~	CSC	Permanent or nearly permanent water in various habitats (e.g. ponds, streams, perennial drainages). Requires basking sites particularly in areas vegetated with riparian habitats. The western pond turtle includes two subspecies, the northwestern pond turtle (*A. m. marmorata)* and the southwestern pond turtle (*A. m. pallida*). The two subspecies range is interconnected within and around the San Francisco Bay Area.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Actinemys marmorata pallida Southwestern pond turtle	~	CSC	Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms, in woodland, forest, and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, and exposed banks are required for basking. May enter brackish water and even seawater. From the San Francisco Bay south, along the coast ranges into northern Baja California (where it has disappeared throughout most of its range.) Isolated populations occur along the Mojave River at Camp Cody and Afton Canyon. From sea level to over 5,900 feet (1,800 meters) in elevation.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Anniella pulchra nigra Black legless lizard	~	CSC	Occurs in moist warm loose soil with plant cover. Moisture is essential. Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Leaf litter under trees and bushes in sunny areas and dunes stabilized with bush lupine and mock heather often indicate suitable habitat. Often can be found under surface objects such as rocks, boards, driftwood, and logs. Can also be found by gently raking leaf litter under bushes and trees. Sometimes found in suburban gardens in Southern California.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Phrynosoma coronatum frontale California horned lizard	~	CSC	Frequents a wide variety of habitats; most common in lowlands along sandy washes with scattered low bushes. Inhabits open areas of sandy soil and low vegetation in valleys, foothills and semiarid mountains from sea level to 8,000 feet (2,438 meters) in elevation. Found in grasslands, coniferous forests, woodlands, and chaparral, with open areas and patches of loose soil. Often found in lowlands along sandy washes with scattered shrubs and along dirt roads, and frequently found near ant hills. Historically, found along the Pacific coast from the Baja California border west of the deserts and the Sierra Nevada, north to the Bay Area, and inland as far north as Shasta Reservoir, and south into Baja California. Ranges up onto the Kern Plateau east of the crest of the Sierra Nevada. Current range is more fragmented.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Thamnophis hammondii Two-striped garter snake	~	CSC	Generally found around pools, creeks, cattle tanks, and other water sources, often in rocky areas, in oak woodland, chaparral, brushland, and coniferous forest. Ranges continuously from near Salinas in Monterey County south along the coast mostly west of the south Coast Ranges, to southern California where it ranges east through the Transverse Ranges (and into the desert in Victorville) and south through the Peninsular Ranges into northern Baja California. Occurs in southern Baja in isolated areas. Also occurs on Catalina Island. At elevations from sea Level to 6,988 feet (2130 meters).	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Birds					
APODIFORMES (swifts, hummingbirds)					
Cypseloides niger Black swift	MNMC	CSC	Breeding black swifts are restricted to a very limited supply of potential nesting locations: behind or beside permanent or semi-permanent waterfalls, on perpendicular cliffs near water and in sea caves.	No	Suitable habitat is not present within the study area. Breeding range does not include the Monterey Bay (Shuford and Gardalli 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
CHARADRIIFORMES (shorebirds, gulls)					
Charadrius alexandrinus nivosus Western snowy plover	FT; MNBMC	CSC	Sandy beaches, salt pond levees; needs sandy, gravelly, or friable soils for nesting. Plovers can be found on flat, open coastal beaches in dunes, and near stream mouths. They are well camouflaged and extremely hard to see, often crouching in small depressions taking shelter from the wind. From early spring to mid-fall, plovers nest in loose colonies, often coming back to the same beaches every year. The nests are simple scrapes in the sand with 1-3 eggs that the male warms at night, while the female does day duty. Eggs hatch in about 27 days, and within hours the chicks are searching for their food of insects and other beach invertebrates.	**Yes**	Suitable habitat is present within the study area. California State Parks has designated the Monterey State Beach has snowy plover nesting habitat. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Hydroprogne [Sterna] caspia Caspian tern	*MNBMC*	~	Nests on sandy or gravelly beaches and shell banks in small colonies inland and along the coast. Found inland along lakes and fresh-water marshes and also in brackish and salt waters of estuaries and bays.	**Yes**	This species was observed within Roberts Lake. Marginal nesting habitat is present within the PSA.
Sternula antillarum California least tern	*FE; MNBMC*	*SE*	The bulk of distribution in southern California coast. The least tern arrives at its breeding grounds in late April. The breeding colonies are not dense and may appear along either marine or estuarine shores, or on sand bar islands in large rivers, in areas free from humans or predators. Nests are situated on barren to sparsely vegetated places near water, normally on sandy or gravelly substrates.	**Yes**	Marginal nesting habitat is present within the PSA. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
FALCONIFORMES (hawks, falcons)					
Accipiter striatus *Sharp-shinned hawk*	MNBMC	CSC	A robin- to pigeon-sized woodland hawk. Forest and open woodland, coniferous, mixed, or deciduous, primarily in coniferous in more northern and mountainous portion of range. Young, dense, mixed or coniferous woodlands are preferred for nesting. Migrates through various habitats, mainly along ridges, lakeshores, and coastlines. Nests usually in tree crotch or on branch next to trunk, most often 3-18 m up, hidden by thick foliage, usually in conifer in north. May build new nest, reuse old one, or modify old bird or squirrel nest. Nests generally seem to be in a stand of dense conifers near a forest opening, though this may reflect observer bias.	**Yes**	This species was observed within the study area. Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Buteo regalis Ferruginous hawk	MNBMC	CSC	Ferruginous hawks are birds of open country. They are found in open habitats, such as grasslands, sagebrush, deserts, shrublands, and outer edges of pinyon-pine and other forests. They select rocky outcrops, hillsides, rock pinnacles, or trees for nest sites.	**Yes**	Suitable nesting habitat is not present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Falco mexicanus Prairie falcon	MNBMC	CSC	Prairie Falcons are sandy-colored falcons with distinctive white eyebrows and dark wing-pit patches. Prairie falcons inhabit hills, canyons, and mountains of arid grasslands and shrub-steppes of southwestern Canada, western United States, Baja California, and northern Mexico. They nest primarily on cliffs overlooking large open areas, using a ledge, cavity, crevice, or an abandoned nest of eagles, hawks, or ravens.	**Yes**	Suitable habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
PASSERIFORMES (perching birds)					
Agelaius tricolor Tri-colored blackbird	~	CSC	Breeds in freshwater wetlands, with tall dense vegetation including tule, cattail, blackberry and rose. Forages in grasslands and croplands. Resident year-round. Breeds April to July.	**Yes**	Suitable habitat is present within the study area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Eremophila alpestris actia California horned lark	MNBMC	CSC	A widespread occupant of open habitats across North America. Horned larks prefer areas with sparse vegetation and exposed soil. In western North America, this species is associated with desert brushlands, grasslands, and similar open habitats, as well as alpine meadows. Throughout their range, horned larks avoid all habitats dominated by dense vegetation and become scarce and locally distributed in heavily forested areas. Common to abundant resident in a variety of open habitats, usually where large trees and shrubs are absent. Grasslands and deserts to dwarf shrub habitats above tree line.	No	Marginal habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
Lanius ludovicianus Loggerhead shrike	MNBMC	CSC	A common resident and winter visitor in lowlands and foothills throughout California. Open habitats with scattered shrubs, trees, posts, fences, utility lines, or other perches. Open-canopied valley foothill hardwood, valley foothill hardwood-conifer, valley foothill riparian, pinyon-juniper, juniper, desert riparian, and Joshua tree habitats. Egg-laying occurs from March to May.	No	Marginal habitat is present within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
PELECANIFORMES (pelicans, cormorants)					
Pelacanus occidentalis californicus California brown pelican	FE; MNBMC	SE	(Nesting colony) Colonial nester on coastal islands just outside the surf line; nests on coastal islands of small to moderate size which afford immunity from attack by ground-dwelling predators. The nest location varies from a simple scrape on the ground on an island to a bulky stick nest in a low tree. Some immature birds may stray to inland freshwater lakes. The brown pelican has a habit of diving for fish from the air. It eats mainly herring-like fish. Groups of brown pelicans often travel in single file, flying low over the water's surface.	No	Although suitable foraging habitat is present within the study area, suitable nesting habitat is not present. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
PROCELLARIIFORMES (albatrosses, petrels)					
Oceanodroma homochroa Ashy storm-petrel	MNBMC	CSC	Ashy storm-petrel breeds on a small number of island groups and offshore rocks within the California Current System, the northernmost being off Mendocino County and the southernmost at Los Coronados Islands off northern Baja California, Mexico. Breeding has been confirmed at only six major island groups (South Farallon, San Miguel, Santa Cruz, Santa Barbara, San Clemente, and Los Coronado Islands) and three groups of offshore rocks (Castle Rock/Hurricane Point, Double Point, and Bird Rocks). Breeds in rock crevices and burrows in colonies on offshore islands. Birds feed at sea on planktonic crustaceans and small fish and visit the colony at night.	No	Although suitable foraging habitat is present within the study area; however this species is unlikely to nest within the study area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).
STRIGIFORMES (owls)					
Athene cunicularia Burrowing owl	~	CSC	Open grasslands and shrublands up to 5,300 feet with low perches and small mammal burrows. Resident year-round. Breeds March-August.	**Yes**	Marginal habitat is present within the study area. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Strix occidentalis occidentalis California spotted owl	~	CSC	A bird of dense, dark, old-growth or mixed mature and old-growth coniferous forests. Forests are usually dominated by firs or douglas-fir, but they also use mature hardwood forests of cottonwoods, alders, oak, and sycamore, especially along steep-walled river valleys. They prefer an uneven and multilayered canopy. They prefer shaded mountain slopes and canyons over flat plateau areas. The breeding season is from March to September.	No	Suitable habitat is not present within the stud y area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Mammals					
Enhydra lutris nereis Southern sea otter	FT	~	Sea otters are marine mammals. They inhabit temperate coastal waters with rocky or soft sediment ocean bottoms less than 1 km from shore. Kelp forest ecosystems are characteristic of otter habitats. This species is found off the coast of central California.	**Yes**	Marginal habitat for southern sea otter is present within the marine habitat within the study area.
Lasiurus cinereus Hoary bat	~	CSC	Basically solitary, except for mother-young association; however, during migration, groups of up to hundreds of individuals may form. Dispersed population allows little chance to obtain density figures. Those migrating through the western U.S. in fall go south at least into Mexico. Typically not attracted to houses or other human structures, they roost 10-15 feet up in trees along forest borders. In the summer, hoary bats don't emerge to feed until after dark.	**Yes**	Suitable habitat is present within the stud y area. There is one previously recorded occurrence within a five-mile radius of the study area (CDFG 2008).
Neotoma macrotis luciana Monterey dusky-footed woodrat	~	CSC	The nocturnal dusky-footed woodrats are generally found in dense chaparral, coastal sage-scrub, pinyon-juniper, oak and riparian woodlands, and mixed conifer forest habitats that have a well-developed understory. They seem to favor brushy habitat or woodland with a live oak component. They are highly arboreal, and thick-leaved trees and shrubs are important habitat components. These species at Fort Ord were found in coast live oak woodland and savanna habitat. They require an abundant supply of downed wood, sticks, bark, and miscellaneous plant materials to build stick houses (nests) for protection, food storage, resting, rearing of young, and social communications. Houses are generally constructed in areas that are dark, moist, and cool, and that provide good cover. This species has been known to build stick houses below rocky bluffs, in trees, on the ground, on north-facing hillsides, and on canyon slopes. The species responds favorably to restoration of riparian habitats.	**Yes**	Suitable habitat is present within the stud y area. There are no previously recorded occurrences within a five-mile radius of the study area (CDFG 2008).

Common Name (*Scientific Name*)	Status		Habitat Description[3]	Considered in Impact Analysis	Rationale
	Federal[1]	State[2]			
Reithrodontomys megalotis distichlis Salinas harvest mouse	~	~	Known from a small area near Monterey Bay. These mice prefer grassy or weedy areas where adequate food and a certain degree of protective cover are available, especially in the vicinity of water. Meadows, marshes, and weed-covered banks of irrigation ditches seem to offer optimum habitat conditions. The species seldom is found in forested areas. They utilize the runways and underground burrows of other rodents and frequently take over vacated burrows of pocket gophers. The nest usually is placed on the ground or slightly above it under some protective cover such as a board, a clump of lodged grass, or a tangle of weeds. These mice are also known to use the nests of marsh wrens in cattail marshes. They appear to be strictly nocturnal and active throughout the year. They are almost entirely vegetarians and feed on the green parts and seeds of plants.	**Yes**	Suitable habitat is present within the stud y area. There are two previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).
Taxidea taxus American badger	~	CSC	Stout-bodied, primarily solitary species that hunts for ground squirrels and other small mammal prey in open grassland, cropland, deserts, savanna, and shrubland communities. Badgers have large home ranges and spend inactive periods in underground burrows. Badgers typically mate in mid- to late summer and give birth between March and April.	**Yes**	Marginal habitat is present within the stud y area. There are three previously recorded occurrences within a five-mile radius of the study area, one of which is within a one-mile radius of the study area (CDFG 2008).

CODE DESIGNATIONS

Federal status[1]: USFWS Listing	State status[2]: USFWS and CDFG Listing
ESU = Evolutionary Significant Unit is a distinctive population.	**SE** = Listed as endangered under the California Endangered Species Act
FE = Listed as endangered under the Endangered Species Act	**ST** = Listed as threatened under the California Endangered Species Act
FT = Listed as threatened under the Endangered Species Act	**CSC** = Species of Concern as identified by the CDFG
FC = Candidate for listing (threatened or endangered) under Endangered Species Act	**CFP** = Listed as fully protected under CDFG code
FD = Delisted in accordance with the Endangered Species Act	**CR =** Rare in California
MNBMC = Migratory Nongame Bird of Management Concern, protected under the Migratory Bird Treaty Act	
Habitat description[3]: Habitat description information adapted from CNDDB and www.natureserve.org	

APPENDIX C – PLANT AND WILDLIFE SPECIES OBSERVED DURING THE SITE RECONNAISSANCE

TABLE C-1 PLANT SPECIES OBSERVED

List compiled from surveys completed by a PMC biologist on August 2 and 3, 2008.

Scientific Name	Common Name	Habitat
Abronia latifolia	Yellow sand verbena	Sand dune
Abronia umbellate	Pink sand verbena	Sand dune
Agapanthus sp.	Agapanthus ("Lily of the Nile")	Planted
Alnus sp.	Alder	Riparian, Emergent Wetland
Ambrosia chamissonis	Beach bur	Sand dune
Arctostaphylos tomentosa	Woollyleaf manzanita	Planted
Armenia maritime var. californica	Thrift/Sea Pink	Sand dune
Arundo donax	Giant European reed	Invasive
Baccharis pilularis	Coyote-brush	Ruderal
Brassica rapa	Field mustard	Urban/ruderal
Cakile maritima	European sea rocket	Sand dune
Carpobrotus edulis	African ice plant	Erosion control; ruderal
Castilleja latifolia	Monterey Coast paintbrush	Coastal Dunes
Ceanothus thyrsiflorus repens	Blue blossom ceanothus	Planted
Cirsium vulgare	Bull thistle	Invasive
Convolvulus arvensis	Field bindweed	Urban/ruderal
Cupressus macrocarpa	Monterey cypress	Residential Park
Cyperus sp.	Nutsedge	Emergent wetland
Dudleya caespitosa	Bluff lettuce	Sand dune
Equisetum arvense	Common horsetail	Residential park, Riparian
Eriogonum latifolium	Coast buckwheat	Sand dune
Erysimum menziesii	Menzies' wallflower	Sand dune
Eschscholzia californica	California poppy	Coastal dune scrub
Eucalyptus sp.	Eucalyptus	Urban, Ruderal, Residential Park
Foeniculum vulgare	Fennel	Invasive

Scientific Name	Common Name	Habitat
Genista sp.	Broom	Invasive
Geranium sp.	Geranium	Planted
Hedera sp.	English ivy	Invasive
Hemizonia sp.	Tarweed	Urban/ruderal
Lemna sp.	Pondweed	Lacustrine, Stream
Lupinus arboreus	Yellow bush lupine	Coastal dune scrub
Malva neglecta	Mallow	Urban/Rudera;
Phormium sp.	New Zealand flax	Planted
Pinus radiata	Monterey Pine	Residential Park
Plantago lanceolata	English plantain	Urban/ruderal
Platanus racemosa	California sycamore	Planted
Quercus agrifolia	Coast Live oak	Coastal Oak Woodland, Mixed Woodland
Raphanus raphanistrum	Wild radish	Urban/ruderal
Rubus discolor	Himalayan blackberry	Riparian, Emergent Wetland
Rubus ursinus	California blackberry	Riparian, Emergent Wetland
Salicornia sp.	Pickleweed	Coastal Dunes
Salix laevigata	Red willow	Riparian, Emergent Wetland
Scirpus sp.	Bulrush	Emergent wetland
Typha latifolia	Broad-leaved cattail	Emergent wetland

TABLE C-2 WILDLIFE SPECIES OBSERVED

List compiled from surveys completed by a PMC biologist on August 2 and 3, 2008.

Scientific Name	Common Name	Habitat
Fish		
Gambusia affinis	Mosquito fish	Estuarine
Birds		
Accipiter striatus	Sharp-shinned hawk	Riparian woodland

Scientific Name	Common Name	Habitat
Aechmophorus clarkii	Clark's grebe	Estuarine
Agelaius phoeniceus	Red-winged blackbird (bicolored form)	Emergent wetland
Anas platyrhynchos	Mallard	Estuarine
Anser anser	Graylag (Barnyard) goose	Estuarine
Aphelocoma californica	Western scrub jay	Coastal oak woodland
Branta canadensis	Canada goose	Estuarine
Buteo jamaicensis	Red-tailed hawk	Coastal dune
Carpodacus mexicanus	House finch	Urban/Ruderal
Charadrius vociferus	Killdeer	Ruderal
Columba livia	Rock pigeon	Urban/Ruderal
Corvus brachyrhynchos	American crow	Urban/Ruderal
Euphagus cyanocephalus	Brewer's blackbird	Urban/Ruderal
Fulica americana	American coot	Estuarine
Hirundo rustica	Barn swallow	Urban/Ruderal
Larus californicus	California gull	Estuarine/Coastal dune/Marine
Larus heermanni	Heermann's gull	Estuarine/Coastal dune/Marine
Larus occidentalis	Western gull	Estuarine/Coastal dune/Marine
Melospiza melodia	Song sparrow	Emergent wetland
Oxyura jamaicensis	Ruddy duck	Estuarine
Passer domesticus	House sparrow	Urban/Ruderal
Phalacrocorax auritus	Double-crested cormorant	Estuarine
Podilymbus podiceps	Pied-billed grebe	Estuarine
Sayornis nigricans	Black phoebe	Emergent wetland
Sterna caspia	Caspian tern	Estuarine
Sturnus vulgaris	European starling	Urban/Ruderal
Zenaida macroura	Mourning dove	Urban/Ruderal

APPENDIX B

WETLANDS MANAGEMENT/ ENHANCEMENT AND RESTORATION PROGRAM

FOR THE LAGUNA GRANDE/ROBERTS LAKE LOCAL COASTAL PROGRAM

CITY OF SEASIDE, CALIFORNIA
CITY OF MONTEREY, CALIFORNIA

HARVEY & STANLEY ASSOCIATES, INC.
ECOLOGICAL CONSULTANTS
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CITY & REGIONAL PLANNING
ENVIRONMENTAL STUDIES
PROJECT MANAGEMENT

WETLANDS MANAGEMENT-ENHANCEMENT-RESTORATION PROGRAM

FOR THE LAGUNA GRANDE/ROBERTS LAKE LOCAL COASTAL PROGRAM IMPLEMENTATION PLAN

City of Seaside, California
City Council

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City of Monterey, California
City Council

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_____

_____

Technical Advisory Committee

_____

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_____

Consultants:

William Farrel Associates

William Farrel, Principal

Harvey and Stanley Associates

John T. Stanley, Principal
John A. Gilchrist, Project Manager
Kenneth DiVittorio, Botanist
Donald W. Alley, Fisheries Biologist
David Jensen, Graphic Artist

December 1983

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1.0 BACKGROUND

1.1 WETLANDS RESOURCES AT LAGUNA GRAND AND ROBERTS LAKE

Laguna Grande and Roberts Lake were once a single brackish lagoon open to the ocean and periodically flushed by seawater. Over the years, filling for development and transportation purposes divided the lake and considerably reduced the water surface area. Seawater flushing no longer takes place and both lakes are freshwater. Rapid filling by sediment resulting from development around the lakes and in the watershed upstream, and by sand blowing into Roberts Lake from devegetated beach dunes west of Highway One has greatly reduced water depth. With this reduction in water volume, water quality has declined. There has been a marked enchroachment of tules and other wetland vegetation in recent years. The process of eutrophication has set in; the lakes are in danger of dying.

Water quality is no longer good enough to support a fishery and the shallow water depth makes recreational boating impractical. The Cities of Seaside and Monterey and the Monterey Peninsula Regional Park District are concerned that the recreation potential of Laguna Grande in particular is declining. Adopted plans for development of a regional park will be difficult to complete unless significant water quality improvements can be made.

Poor water circulation and the extensive tule beds have encouraged the production of mosquitos and midges; mosquito abatement is an on-going problem at the lakes. Finally, poor water quality and extensive tule growth have diminished the aesthetic qualities of Laguna Grande.

The changes just described are not without some positive effects however. The increase in the amount of emergent vegetation, and more especially riparian area on the Monterey side of Laguna Grande, and above the pedestrian bridge, have greatly increased waterfowl and bird habitat. The depletion of both wetland and riparian habitat throughout California makes the expansion of these resources all the more significant. The existence of this

vegetative resource offers previously unforseen opportunities for passive recreation and nature study and, if properly managed, can compliment other recreational activities of the developing parks.

1.2 PLANNING BACKGROUND

Considerable time, effort, and money has been directed towards planning water quality improvements and recreational development at Laguna Grande and Roberts Lake. A Joint Powers Agency (JPA) comprised of the Cities of Seaside and Monterey and the Monterey Peninsula Regional Park District was formed in 1976 to work towards acquisition and development of a regional park at Laguna Grande. This has been a fruitful effort. The Regional Park District has acquired all of the water area of the lake and considerable adjacent land areas. A master plan has been developed and adopted for the park by the Regional Park District. The two cities have completed development of portions of the park facilities enviscened by the plan. The City of Seaside formed a development agency to acquire private parcels around the lake and has removed a large auto wrecking yard from the shoreline of Laguna Grande. Roberts Lake is not part of the regional park, but has been partially developed for park purposes by the City of Seaside.

The Association of Monterey Bay Area Governments (Ambag) completed the 208 Water Quality Plan. Part of this study was a technical report that looked at various alternatives for improving water quality at the two lakes. Principal recommendations of these studies were that sedimentation and water pollution resulting from both urban and rural development in the watershed is in urgent need of correction and that a major dredging program is needed for the two lakes. A recent update of the 208 study has pointed out the lack of progress in these major areas.

The most recent planning that affects the two lakes has been the Local Coastal Program Land Use Plan (LUP) for the Laguna Grande Roberts Lake segment of the City of Seaside and City of Monterey coastal zone. The portion of this LUP within the City of Seaside has been adopted by the City of Seaside and certified by the

California Coastal Commission and is now the guiding land use document for development in the area. All local development in the area must be in conformance with the LUP.

The LUP land use map indicates a combination of open space and private commercial development at and around the lake. While the recreational uses indicated in the Laguna Grande Regional Park Master Plan are generally consistent with open space designations in the LUP, the LUP has not specifically incorporated or adopted the park master plan. Instead a series of general resource management, land use and development, and public access and recreation policies are found in the LUP that serve to guide all future development at Laguna Grande. A similar situation exists for Roberts Lake.

The certified LUP is noteable in its lack of specific identification of environmentally sentive habitats or other critical vegetation resources at the two lakes. There are a series of recommendations in the LUP that as part of the LCP Implementation Program that a wetlands restoration, enhancement, and management program should be prepared and adopted for Laguna Grande and Roberts Lake.

1.3 PURPOSE AND SCOPE OF STUDY

This report constitutes the restoration, enhancement and management program for the wetlands at Laguna Grande at Roberts Lake specified in the LUP. As a part of the LCP Implementation Program for the Laguna Grande/Roberts Lake Sub-area the report is to be adopted by both the Cities of Seaside and Monterey, and by the California Coastal Commission. It therefore is both a local and state document and will be the guiding standard for all development effecting the wetland resources within the sub-area and one of the basis for issuance of any required coastal development permits.

The principal objectives of the program are to:
1) delineate on maps existing wetlands vegetation, and those areas of existing wetlands and riparian habitat of critical importance;

2) set forth a specific management program for the wetlands vegetation including maps and text;
3) identify appropriate shoreline improvements and related design guidelines;
4) establish precise set-back lines for shoreline improvements and development;
5) recommend a program to bring about improvements to water quality in the two lakes; and
6) to recommend a program to obtain the funds needed to carry out the water quality improvements. The report is organized to reflect this scope of work.

There are other tasks critical to realizing solutions to water quality problems at Laguna Grande and Roberts Lake that are beyond the scope or intent of this report. The most significant of these is the completion of engineering feasibility, design, and cost studies necessary before sedimentation problems can be resolved and dredging of the lakes can be undertaken.

1.4 PROGRAM METHODOLOGY

Completion of this study has involved a series of steps. Initially, a scope of work and grant agreement reflecting the certified LUP was developed by the City of Seaside and the staff of the California Coastal Commission in consultation with other affected jurisdictions. A consultant team was then selected to perform the study. As a first step, a careful review of all available literature and plans for the two lakes was made. The consultants then made a number of visits to the lakes and the watershed area. A plant biologist prepared the existing vegetation map, and together with an ecologist, developed the Critical Habitat map. A fisheries biologist reviewed water quality data for the lakes and assisted in preparing recommendations for water quality improvements. A series of meetings were held with representatives of public agencies that formed a Technical Advisory Committee (see list in credits page) to gain information and advice. Numerous individual contacts were made with TAC members and many other persons to obtain data or review specific points. A team of planners was responsible for developing the overall report and its recommendations.

1.5 KEY ISSUES AND CONCERNS

Several issues and concerns have resulted from the physical changes taking place at Laguna Grande and Roberts Lake, from changes occuring in the Canyon Del Rey watershed, and due to differing governmental objectives for management of the wetland resources. These may be summarized as follows:

- How to retard or reverse eutrophication of the lakes due to siltation, declining in water quality; and encroachment by acquatic and riparian vegetation.

- How to best manage the existing wetland and riparian vegetation in light of state goals and policies and the objectives of local agencies that desire to develop the area for park purposes.

- How to develop shoreline improvements around the two lakes consistent with the protection of the wetland habitats but that also further the broad goal of public access and recreation.

- How to provide sources of funds adequate to pay for the needed improvements to water quality.

An additional issue emerged that is an institutional problem;

- The pressing need for a unified and coordinated response to the problems at Laguna Grande and Roberts Lake by all affected and responsible local agencies.

2.0 KEY FINDINGS AND RECOMMENDED ACTIONS

Several key findings have been drawn from the experience of the study and the numerous conclusions presented in this report. These, together with recommendations on key short-range and long-range actions are presented here.

2.1 KEY FINDINGS

- Highly valuable wetland and riparian habitat is present at both Laguna Grande and Roberts Lake. These areas should be retained and managed to maximize habitat values. Park development should treat these areas as a desireable recreation resource and provide suitable facilities to increase public access and enjoyment. Park development in critical habitat areas should be limited to passive uses such as walking and nature observation.

- Opportunities exist to improve wetlands habitat through a habitat management program that gradually removes undesireable invasive species and restores native species.

- Water quality can be improved by improved control of sediment. All of the jurisdictions in the watershed share direct responsibility for the maintenance of water quality in Laguna Grande and Roberts Lakes and are legally obliged to protect water quality.

- There are a number of potential sediment ponding basin sites, principally outside the Coastal Zone, at which effective ponds can be constructed. Taken together these may be adequate to arrest or significantly reduce further sedimentation of the lakes. Engineering design studies need to be undertaken as soon as possible to determine the most suitable sites and develop a construction and cost-sharing program.

- It has not been adequately determined by this or past studies whether a cost-effective program of dredging is feasible. Detailed engineering studies should be undertaken to determine how and where dredge spoils can be disposed of, and what the best methods of dredging are. Careful cost projections will need to be made by qualified engineers.

- The level of funding at the scale needed for dredging and dredge spoils disposal will be very high, likely exceeding local jurisdiction's financial capabilities. Major grant funds must be obtained, probably from the state. Many programs are available, yet competition is keen. A concerted, coordinated and widely supported fund acquisition effort should be made once accurate cost figures have been developed.

2.2 KEY SHORT-RANGE ACTIONS

1. The JPA should be expanded to include all jurisdiction in the Canyon Del Rey Watershed.

2. The JPA should request the Monterey County Flood Control and Water Conservations District to undertake engineering and design studies of sediment basins to control sedimentation of the lakes and to recommend a 'fair-share' cost sharing formula for all jurisdictions in the watershed.

3. The JPA should petition the Monterey County Board of Supervisors to establish a Zone of Benefit encompassing the Canyon Del Rey Watershed in order to raise funds for water quality improvements.

4. The JPA should meet with local, state and federal elected officials to request their support and assistance in fund raising efforts.

5. The Monterey Penninsula Regional Park District should apply to the California Coastal Conservancy for funds to support detailed engineering studies necessary for lake dredging and spoils disposal.

2.3 KEY LONG-RANGE ACTIONS

1. The JPA should consider legal action against any member or non-member jurisdiction in the watershed that refuses to enact and enforce minimum water quality control standards for new development.

2. Engineering studies should be undertaken to determine the feasibility and costs of dredging of Laguna Grande and Roberts Lake and the most economical method of dredge spoils disposal. This study should be funded by Coastal Conservancy grand funds if they can be obtained, or by funds raised by establishment of a MCFCWCD Zone of Benefit. Local general fund monies should be used based on the 'fair-share' formula if other funds are not found.

3. The Monterey Penninsula Regional Park District should pursue an aggressive grant application program once engineering studies demonstrate the feasibility of dredging and spoils disposal. This effort should receive strong political support from all jurisditions in the park district.

4. The Cities of Seaside and Monterey and the Regional Park District shoul initiate a program of habitat management as recommended in this report. Detailed design plans should be developed for construction of the recommneded shoreline improvements.

3.0 MANAGEMENT OBJECTIVES

The following specific objectives have been formulated to serve as a basis for the recommendations contained in this report. They reflect both the applicable policies of the California Costal Act (See Appendix) and the specific intent of the work program and grant agreement that provided the financial support for the study. The objectives take into account the concerns of the key local agencies, the cities of Seaside and Monterey, the Monterey Penninsula Regional Park District, and the Northern Salinas Valley Mosquito Abatement District. The objectives of the California Department of Fish and Game are reflected as well.

3.1 NATURAL HABITAT AREAS

1. Enhance habitat value for migrant and resident wildlife.
2. Rejuvenate disturbed and decadent areas of native vegetation.
3. Manage immergent vegetation to maintain open vistas from developed recreation sites.
4. Manage vegetation to control insect nuisance vectors.
5. Maintain optimum mix of native vegetation forms to enhance wildlife value.

3.2 SHORELINE IMPROVEMENTS

1. Develop shoreline improvements that enhance public opportunities for observation, enjoyment, and appreciation of wetlands and riparian wildlife and aesthetic qualities of wetlands.
2. Develop shoreline improvements that compliment the natural character of wetlands and riparian areas and that are consistant with the protection of these areas.
3. Provide shoreline improvements compatible with existing recreational facilities at Laguna Grande and Roberts Lake and with the use and development of adjoining private properties.

3.3 WATER QUALITY

1. Stabilize the water surface area and depth at Laguna Grande and Roberts Lake by reducing the rate of sedimentation and by removal of bottom sediments
2. Improve water quality in Laguna Grande and Roberts Lake to a degree sufficient to support a recreational fishery provide enhanced aesthetic qualities, and permit recreational boating.

4.0 NATURAL HABITAT AREAS

4.1 EXISTING CONDITIONS

4.1.1 Roberts Lake

Roberts Lake is bordered by dense tule (California bulrush) growth with the exception of the barren north shoreline along Canyon Del Rey Blvd. and the improved parking/viewing/model boating areas on the west shore. Few trees grow around Roberts Lake with the exception of a couple of clumps of willows between the Southern Pacific railroad tracks and the east shoreline and a large cypress at the intersection of Roberts Avenue and Del Monte Blvd.

4.1.2 Laguna Grande

Laguna Grande is virtually entirely bordered by bulrushes. There is also a bulrush island adjacent to the park at the southeast (upper) end of the lagoon. Contrary to Roberts Lake significant portions of the shoreline are bordered by willow trees especially along the southwestern and northwestern shorelines. There is a rather large area at the southwest end of the lagoon occupied by riparian forest and cat-tail marshes. This forest serves to buffer the lagoon from the adjacent neighborhood and light industry. A red-shouldered hawk was seen perched in these trees on several occasions during field visits in October and November of 1983. The area at the upper end of the lagoon just below the footbridge shows increased growth of tules since the water depth has become shallow due to siltation. Bulrush marsh extends inward farther from the shoreline north of the bridge and appears somewhat drier, but more diverse, than other areas. Young willows are beginning to encroach on this area.

The lakebed above the footbridge is choked with bulrushes. The streamcourse is maintained open by dredging periodically conducted by the North Salinas Valley Mosquito Abatement District. Subsequent to the last dredging a considerable growth of acacias developed on the sediment which was piled along the

south side of the channel. The canyon bottom above the bridge is presently an extensive cat-tail and bulrush marsh. The area was historically an open water extension of the lagoon.

The north side of the canyon is occupied by eucalyptus groves at the west end and a well developed live oak woodland along Canyon Del Rey at the upper end. The south side of the canyon is grown over with a well developed riparian forest, almost entirely willows. One small eucalyptus grove also occurs in this area.

4.1.3 Vegetation Map

The vegetation around Laguna Grande and Roberts Lake was mapped at a scale of 1"=350' in the Land Use Plan for the Laguna Grande/ Roberts Lake Local Coastal Program. Since that mapping certain areas of wetland and riparian vegetation have been filled and developed. The lands bordering Roberts Lake and Laguna Grande were remapped at a scale of 1"=100' in the fall of 1983 so as to enable accurate delineation of critical habitat areas.

The vegetation map differentiates between the following vegetation types: riparian, bulrush marsh, cat-tail marsh, oak woodland, ruderal vegetation, coastal strand, blackberry thickets, eucalyptus groves, other non-native invasive plants (acacia, elm, giant reed, periwinkle, pampass grass, german ivy), and cypress trees. The first four mentioned vegetation types are the most natural and considered to have the highest wildlife habitat value.

The only difficulty encountered during the mapping was in matching the vegetation with the shoreline as shown on the base map (The base map used was originally generated for the Local Coastal Program). This discrepancy was not rectified since no recent aerial photograph was available.

4.2 CRITICAL HABITAT

4.2.1 Roberts Lake

The critical habitats at Roberts Lake are:

1) open water at the south end of Roberts Lake

2) bulrush marsh along the shoreline of Roberts Lake excepting where adjacent to intensive recreational use areas - primarily bordering the eastern and southern shorelines of Roberts Lake.

3) riparian trees bordering the bulrushes on the east shore of Roberts Lake.

4.2.2 Laguna Grande

The critical habitats at Laguna Grande are:

1) sheltered backwater areas behind the tule islands at the upper (east) end of Laguna Grande

2) open water at the west end of Laguna Grande

3) bulrush islands at the east end of Laguna Grande

4) bulrush marsh along the shoreline of Laguna Grande excepting where adjacent to intensive recreational use areas - primarily bordering the western half of Laguna Grande.

5) cat-tail marshes in the riparian forest at the southwest end of Laguna Grande

6) bulrush and cat-tail marsh areas on the south side of the canyon upstream from the footbridge at the upper end of Laguna Grande

7) bulrush marsh at the upper end of Laguna Grande on the north-west side of the bridge

8) riparian forest at the southwest end of Laguna Grande

9) riparian vegetation at the west end and along the northwest border of Laguna Grande

10) riparian trees on the south bank opposite the bulrush island at the upper end of Laguna Grande

11) riparian forest on the southside of the canyon above (east of) the footbridge at the upper end of Laguna Grande

12) oak woodland on the south facing slope at the northeast end of the canyon above Laguna Grande

These areas are shown on the critical habitats map. They are differentiated as to critical wetland habitat, riparian habitat and upland habitat. The more important open water and backwater areas are not indicated on the map. The critical habitats map was developed with the expert advise of California Department of Fish and Game biologists.

4.2.3 Criteria for determining critical habitat

A combination of criteria were used to determine critical habitat areas. Firstly, freshwater wetland and riparian forest habitat are considered by the Department of Fish and Game to be of statewide significance in light of the fact that these habitats have suffered the greatest degree of destruction statewide in the past. The determination of critical habitat areas is also based on the definition of "environmentally sensitive areas" as defined in the coastal act. Appliable coastal act policies are cited in the appendix.

Several criteria were applied to differentiate critical wetland habitat from other areas posessing wetland vegetation. These included the relative extent and health of the wetland vegetation and the relative isolation of wetland areas from human activity. Shoreline bulrush marsh vegetation adjacent to the developed park facilities in general was evaluated as affording significantly

less wildlife habitat value than bulrushes buffered by adjacent riparian vegetation. Observations on wildlife usage together with evaluations of the value of each habitat area to wildlife (especially waterfowl, waterbirds and riparian associated birds) for roosting, nesting, resting, and forage also formed a basis for the determination of critical habitat.

5.0 HABITAT MANAGEMENT

5.1 AREAS TO BE RETAINED

By in large all areas of significant and native vegetation (areas of high wildlife habitat value) are to be retained in their "natural" state unless otherwise indicated. It must be said however that retention of native vegetation/habitat does not always means maintenance of the status quo. Other sections of this program advise on appropriate measures for maintaining and enhancing native habitat as well as modifying native vegetation to achieve other already stated compatible goals and objectives.

5.1.1 Roberts Lake

5.1.1.1 Riparian Forest (willows)

a) Retain willow trees growing along eastern shoreline.

5.1.1.2 Bulrush Marsh

a) Retain bulrushes along southern and eastern shorelines.

b) Retain patches of the bulrushes presently along the western shoreline.

5.1.2 Laguna Grande

5.1.2.1 Riparian Forest (willows)

a) Retain riparian forest on southwestern side of lagoon between Virgin Avenue and lakeshore.

b) Retain willow grove at northwestern end of lagoon.

c) Retain willow trees along north shore of lagoon (western portion).

d) Retain willow trees along southern shoreline of lagoon which buffer bulrush island, and backwater, from adjacent developed parkland.

e) Retain extensive riparian forest in canyon bottom and on south side of canyon upstream from footbridge extending to Kolb Avenue.

5.1.2.2 Bulrush Marsh

a) Retain bulrushes along southwestern shoreline next to riparian forest.

b) Retain bulrushes at western end of lagoon on either side of outlet (but not at outlet).

c) Retain bulrushes along northwestern and northern shoreline between western end of lagoon and developed parklands to the east.

d) Retain patches of bulrushes along selected portions of northern shoreline adjacent to the developed parklands.

e) Retain marsh along eastern shoreline at the upper end of lagoon (area just north of the footbridge).

f) Retain tule "island" which has developed on sediment deposited just west of the footbridge.

g) Retain tule "island" adjacent to, and directly north of, park on southeastern side of lagoon.

h) Retain portions of bulrush marsh immediately upstream from footbridge (see next section for recommended habitat improvements).

i) Retain bulrush marsh along stream corridor in the canyon bottom upstream from the lagoon.

5.1.2.3 Cat-tail Marsh

a) Retain cat-tail marshes (2) in riparian forest at southwest end of lagoon.

b) Retain cat-tail marshes (2) in riparian forest on south side of canyon just up canyon from footbridge.

c) Retain cat-tail marsh amidst riparian forest near upper end of canyon.

5.1.2.4 Oak Woodland

a) Retain oak woodland on south facing slope (north side) at upper end of canyon (above eucalyptus grove-see next section for recommendations for enhancement.

5.2 AREAS TO BE MODIFIED OR ENHANCED

5.2.1 Suggested modification of the existing emergent vegetation (tules)/open water pattern.

1. The creation of channels within and behind clumps of bulrushes will increase cover and provide shelter for waterfowl and waterbirds.

2. Maintaining the bulrush border and bulrush islands at widths of less than 20 feet will prevent matting of tules. Matted tule areas serve as breeding areas for mosquitos and midges. not less than 8'-10'

3. Breaking up the existing tule "island" into several "islands" each less than 100 feet in length will allow for mosquito control with mosquito fish. Mosquito fish will not swim up a channel for more than 50 feet.

4. Where possible the creation of approximately 10 feet of water between existing bulrushes and the shoreline will create protected backwater habitat. Some bulrushes should also be left growing on the shoreline.

5. The creation of approx. 12 foot wide channels in the area of dense bulrush growth immediately above the bridge at Laguna Grande will increase the value of the marsh for wildlife.

6. The creation of openings in the bulrushes along the shoreline, (i.e a disjunct border) will increase habitat value and open up vistas.

5.2.2 Eradication and Control of Invasive Non-Native Plants

A number of invasive, non-native plants have become established in various parts of Laguna Grande and Robert's Lake. It is important that these plants be controlled inasmuch as they spread quickly and replace native vegetation which is generally of greater value to wildlife. The locations of these non-native invasive plants which are to be removed are shown on the habitat management plans.

Removal of these plants should proceed with a minimum of ground disturbance. In most cases, removal should be by hand rather than with heavy equipment so as to minimize erosion and damage to surrounding vegetation.

Plant materials removed should be properly disposed of. Particular care should be given to the disposal of herbaceous material (kikuyu grass, periwinkle, German ivy) to prevent the establishment of new colonies.

The following guidelines will be helpful in the eradication and control of invasive species at Laguna Grande and Robert's Lake.

5.2.2.1 Blue Gum (Eucalyptus globulus). Extremely invasive. Grows and spreads rapidly, chokes out nearly all native trees and understory. The trees create a hazard by dropping branches and large pieces of bark, sometimes unannounced, during the dry

summer months. Trees resprout readily from stumps, so eradication can be laborious. Removal should be in stages. Young trees on the edges of the main grove should be removed as soon as possible. Larger trees should be removed periodically so as to allow native oak woodland to eventually replace the eucalyptus grove. The small eucalyptus grove located in the upper portion of the Laguna Grande site should be completely removed as soon as possible. The following procedure may be helpful in the eradication of eucalyptus:

(1) After falling tree, recut stump as close to ground surface as possible.

(2) Scrape loose soil away from base of stump.

(3) Strip all bark off of the stump and any exposed roots to below the soil level. This should prevent sprouting from the root crown.

(4) Replace the soil around the base of the stump. This will help promote the rotting of the stump.

(5) If stump sprouts appear, repeatedly remove sprouts before they reach six inches in length. This process will ultimately exhaust stored food reserves and stop resprouting.

(6) If stump sprouting continues to persist, treat stumps and/or sprouts with concentrated 2,4-Dichlorophenoxy acetic acid (2,4-D)* by either of the following methods:

Method 1 - Apply a 50% solution of 2,4-D amine in water to the exposed cambium layer. This should achieve a 95% kill in one application.

Method 2 - Apply a hot (140° F) 20% solution of 2,4-D to young sprouts.

Following the removal of eucalyptus trees, oaks (Quercus agrifolia, Quercus lobata) should be planted in their place. Guidelines for the revegetation of oaks are included in Appendix A.

5.2.2.2 Silver Wattle (Acacia decurrens var. dealbata). Very weedy and invasive. Particularly a problem along Laguna Grande inlet. Trees should be removed then checked at 2 year intervals for stump sprouts and new seedlings. Stumps may have to be treated with 2,4-D* (see step 6 above) if sprouting persists. Following removal, cottonwood (Populus fremontii) and willow (Salix lasiolepis) should be planted along the Laguna Grande inlet. Guidelines for the revegetation of cottonwood and willow are included in Appendix A.

5.2.2.3 English Elm (Ulmus procera). Invasive, spreading by means of suckers. Small grove located along Virgin Avenue. Trees encroaching in the direction of the lagoon should be removed to prevent the spread of elms into the riparian forest. Stumps and suckers should be treated with herbicide (2,4-D)* to prevent re-establishment (see step 6 above). Control of suckers will require ongoing maintenance.

5.2.2.4 Giant Reed (Arundo donax). Huge bamboo-like grass. Very weedy and invasive, spreading from underground rhizomes. All above ground and underground portions should be removed. Excavation to a depth of 18 to 24 inches should be sufficient to remove most underground material. The use of a back hoe for excavation is recommended. New sprouts from remaining underground rhizomes should be removed as they appear. Tule (Scirpus sp.) should re-establish itself in these areas.

5.2.2.5 Pampas Grass (Cortaderia selloana). Occasional single clumps scattered about the site. Should be removed wherever encountered. Excavation to a depth of 18 to 24 inches should be sufficient to remove most underground material. The use of a back hoe for excavation is recommended.

5.2.2.6 Periwinkle (Vinca major). A serious pest, especially in riparian situations with shade or moisture during the summer since it crouds out most native ground cover. Difficult to eradicate due to extensive rhizomes. Most effective way to eliminate periwinkle would be with an herbicide such as Roundup*. Small to moderate sized colonies located along north shore of Laguna Grande. Area where plants are removed should be revegetated with willow. Guidelines for the revegetation of willow are included in appendix A.

5.2.2.7 German Ivy (Senecio mikanioides). A serious pest in riparian areas. Spreads much as does periwinkle. Treating with an herbicide such as Roundup* is generally more effective than removal by hand. Moderate sized colony located along north shore of Laguna Grande. Revegetation should proceed as with periwinkle.

5.2.2.8 Kikuyu Grass (Pennisetum clandestinum). Extremely invasive. Easily recognized by light green color during the late spring and summer when most other grasses have turned brown. Fast growing, coarse, forming a deep, dense turf and choking out nearly all other low vegetation. Spreads by stolons and underground rhizomes, making eradication difficult. Covering much of area surrounding inlet to Laguna Grande. The use of an herbicide* specific to monocotyledonous plants may be of use in the eradication and control of this plant.

5.2.3 Modifications of vegetation for enhancement of scenic resource.

Planned, restrained, careful control of plant growth along the shorelines of, and adjacent to, Roberts Lake and Laguna Grande for the on-going maintenance and enhancement of scenic values is important for preservation of recreational values and consistant

*Precautions should be taken to insure that herbicides are not allowed to enter the lagoon or inlet. Consult Department of Fish and Game biologists before considerating application.

with sound habitat management. Moreover enhanced opportunities for park visitors to view and enjoy wetlands wildlife and habitat will serve to increase public awareness and appreciation of the importance of wetland habitat preservation.

5.2.3.1 Roberts Lake. The primary view points at Roberts Lake are at the parking and observation areas along the western shoreline. These are periodically maintained by removing emergent vegetation immediately adjacent to these viewing areas.

The north shoreline of Roberts Lake has little aesthethic appeal since it is essentially devoid of vegetation and the shoreline is straight. Breaking up the rectangular appearance of the northeast corner could be accomplished by planting willows at the northeast corner only (not along the north shoreline) and the construction of a waterfowl island just offshore. It is also suggested that some trees, possibly cypress be planted along Del Monte Blvd. adjacent to the north shoreline. If widely spaced and open beneath they would not obstruct, but rather enhance, the view of the lagoon from this major thoroughfare.

5.2.3.2 Laguna Grande. The primary view points at Laguna Grande are from the parklands which are being developed on both the north and south shores in the eastern half of the lagoon. Views of the opposite shoreline and the open water at the opposite (west) end of the lagoon are plentiful but presently somewhat obscured by tules, blackberry thickets, patches of giant reed, and occasional trees. Much, but not all, of the vegetation along the shorelines of the developed recreation areas should be cleared to enhance the views of the lagoon and the near shore water areas. Shoreline areas which should be maintained free of vegetation (especially emergent vegetation) are delineated on the habitat management map. Adjacent areas where vegetation should remain for maintenance of habitat value are also shown.

The footbridge at the east end of Laguna Grande connecting the developed recreation areas on the south and north shores affords a clear view to the west down the full length of the lagoon. It is unlikely to become obstructed however the setting of the bridge would enhanced by clearing the silt and emergent

vegetation from both sides and beneath the footbridge thereby creating open water. The view in the opposite direction (to the east) from the footbridge would be enhanced by the creation of open water channels where there is presently dense tule growth.

The view from the pathway on the north side of the footbridge is presently unobstructed over the top of the marsh vegetation. It appears that a maintenance program may be required to control the growth of volunteer willow seedlings arising between the marsh and the pathway.

Significant views of the lagoon from the west end looking east will be afforded by the development of a hotel and restaurant currently under construction. Control of tule growth at the outlet will probably enhance these views.

5.2.4 Revegetation

5.2.4.1 Buffering of significant wildlife habitat areas. Planting trees adjacent to the bulrush marsh along certain open sections of the shoreline will help to shelter high wildlife use areas from human intrusion. Willow trees are the fastest growing and most suitable tree for this purpose. Stands of willows presently serve this function along certain sections of the shoreline. The willows will also serve as perches and nesting and foraging areas for a variety of waterbirds and riparian species. Guidelines for revegetation with willows are presented in the appendix.

5.2.4.2 Restoration of oak woodland. Following the removal of the eucalyptus trees which are encroaching the oak woodland on the south facing slope of the canyon live oak and valley oak trees should be planted in their place. Specifications for revegetation with oaks are included in the appendix.

5.2.4.3 Replanting of streambank. Following the removal of acacias which are growing along the watercourse leading into Laguna Grande the upper most portion of the left bank (south side) should be planted with cottonwoods (Fremont Cottonwood and/or Black Cottonwood). White alders might also be planted

immediately adjacent to the stream. These trees will add some variety to the riparian forest and therein help to create a more diverse habitat. Specifications for revegetation with cottonwood and alder are included in the appendix.

5.2.5 Construction of Waterfowl Islands

The creation of some islands for wildlife, especially waterfowl, will greatly enhance the wildlife habitat value of both Laguna Grande and Roberts Lake. Islands are recommended at the west end of Laguna Grande and the south end of Roberts Lake. Previously there has been discussion of creating "islands" entirely of bulrushes. Islands with upland habitat will greatly increase the wildlife habitat value especially for potential waterfowl nesting. These islands will also form protected quiet water habitat on their leeward side. Large bulrush islands are to be avoided since the centers tend to become decadent with matted vegetation which may be of habitat value to wildlife but also serve as breeding sites for nuisance insects.

Guidelines for the dimensions and placement of these islands are presented in section 5.3.1. Detailed plans will need to be prepared for the construction of the islands. A schematic diagram follows.

5.3 PROCEDURAL GUIDELINES

5.3.1 Design guidelines for waterfowl islands.

Properly designed and placed artificial islands will provide resting areas for many waterbirds and possible breeding sites for some of the resident species. These islands will also provide shelter from the wind creating secluded quiet backwater areas between the islands and the shoreline. The following design criteria are to be considered in constructing these inlands so as to maximize their value to wildlife while at the same time avoiding creating nuisances (ex. breeding areas for mosquitos) or maintenance problems.

5.3.1.1 **Size.** Smaller islands located farther from the shore with greater vegetative cover are the most productive for waterfowl nesting. (Giroux 1981).

5.3.1.2 **Elevation.** The island surface should be high enough above the water surface to support upland vegetation. The ground surface should be at least two (2) feet above the high water level.

5.3.1.3 **Shape.** Rectangular islands are most appropriate because they have greater perimeter/area than circular, elliptical, or square islands. The greater the ratio of water-land edge to land mass the more attractive the insular habitat (Hammond and Mann 1956).

5.3.1.4 **Area.** Each island should encompass about 0.1 ha (Giroux 1981).

5.3.1.5 **Dimensions.** Giroux (1981) recommends that artificial islands for wildlife nesting should be approximately 25 m (82') wide and 40 m (130') long. Keith (1961) observed that preferred islands for nesting were at least 15 m (50') in diameter. Waterfowl islands at Laguna Grande and Roberts Lake should be less than 100' long to allow for circulation by mosquito fish. Suggested dimensions are 50' X 100'.

5.3.1.6 **Distance between islands and shoreline.** Normally, there should be a distance of at least 170 m (560') between the islands and the mainland to deter predators. Since the occurance of large predators, skunks, coyotes, etc, is probably less than in wilder areas a lesser distance from the mainland would probably be adequate. A distance of 100 ft. is recommended.

5.3.1.7 **Distance between islands.** Close spacing of islands protects them from wind and wave action however clustering of islands can increase their vulnerability to predators (Sherwood 1968, Giroux 1981). Giroux (1981) recommended that islands should be placed no closer than 100 m (330'). Again since there are fewer mammalian predators than in southeast Alberta where Giroux conducted his studies on the use of artifiscal islands by

nesting waterfowl, the recommended distance between islands is approximately 100 feet.

5.3.1.8 Shoreline protection. Emergent vegetation around the island can serve as natural breakwaters, however islands surrounded by a dense belt of tall emergent vegetation offer no access to open water and are therefore avoided by waterfowl. (Mihelsons, et al. 1967). Dense emergent vegetation should be encouraged to grow only on the windward side of the islands.

5.3.1.9 Water depth. The depth of water surrounding artificial waterfowl islands should be greater than 70 cm.

5.3.1.10 Planting. Establishment of vegetation on the islands should be promoted by seeding with a mixture of grasses and legumes. Additionally nesting waterfowl prefer stands of broad-leaved annuals and perennials mixed with grasses. Plants suitable for revegetation of the islands are -

Brewer's Saltbush (Atriplex lentiformis var. breweri)

Bluegrass (Poa annua)

Cultivated Oat (Avena sativa)

Common Barley (Hordeum vulgare)

Curly Dock (Rumex crispus)

Available information on establishment methods and habitat values of these plants is included in the appendix.

Willows may possibly invade these islands. Some willow growth might be favorable but maintenance would be required to ensure that willow growth did not overtake the entire island (i.e. that open weedy/grassy areas remain). Poison hemlock, fennel, and thistles are likely also to invade these islands.

5.4 MANAGEMENT AND MAINTENANCE RESPONSIBILITIES

5.4.1 Management/Maintenance of Bulrush Border

The removal of patches of bulrush along selected portions of the shorelines, cutting of channels thru dense masses of bulrush and the thinning of bulrush as shown on the habitat management plans should be accomplished in conjunction with the dredging program. Thereafter periodic maintenance of bulrushes will be the joint responsibility of the Regional Park District, City of Seaside and North Salinas Valley Mosquito Abatement District.

5.4.2 Removal of Non-native Invasive Plants

The removal of patches of invasive plants as shown on the habitat management plans will be the responsibility of the City of Seaside with potential funding assistance from the Regional Park District. Cooperative involvement of either the CCC or YCC is a strong possibility since much of this work will require intensive hand labor.

5.4.3 Management and Maintenance of Scenic Resources

Initial revitalization and later ongoing maintenance of the vegetation surrounding Roberts Lake and Laguna Grande will be the responsibility of the City of Seaside and City of Monterey Parks and Recreation Departments with potential financing from the Regional Parks District. Initial improvement of open water areas, removal of sediment deposits, and thinning of dense tule growth should be accomplished in conjunction with the dredging of the lagoons. Periodic maintenance of park shorelines thereafter will be the responsibility of the respective cities.

The Regional Park District should seek funding for the construction of these islands in conjunction with funding for the dredging program. The parks district may wish to have the public works departments of the two cities oversee the ritual construction which will most likely be contracted out.

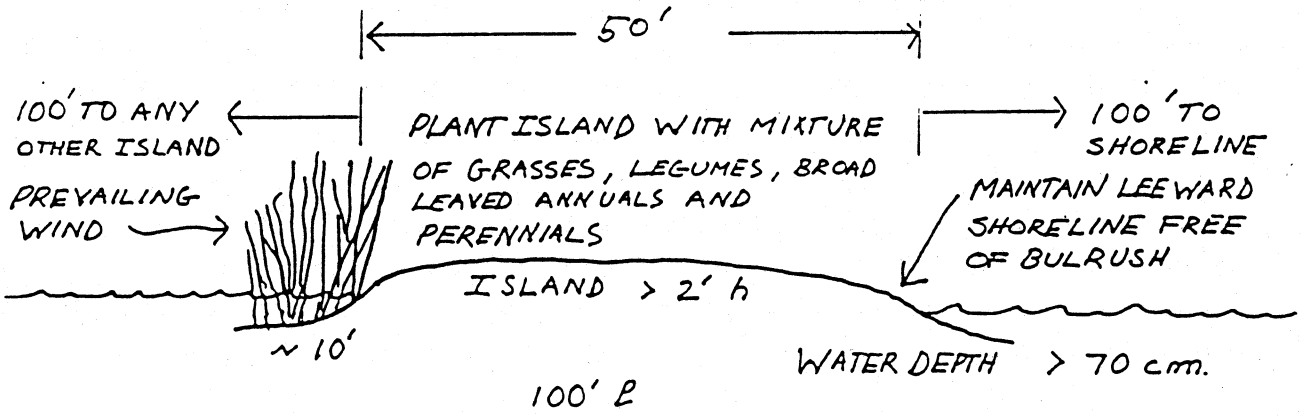
5.4.4 Revegetation With Native Plants.

Replanting with native trees and shrubs after the eradication of invasive plants will be the responsibility of the respective park and recreation departments. If the work is to be contracted detailed revegetation plans and planting specifications will be required.

5.4.5 Construction of Waterfowl Islands

The waterfowl islands should be constructed at the time of dredging. It should be noted that it will probably not be possible to use any of the lakebed deposits for construction of these islands. Detailed plans and specifications for the construction of these islands will be required in order to ensure their stability. Hydrologic (incl. flood control) considerations should be evaluated in conjunction with a decision on final placement of the islands.

TYPICAL WATERFOWL ISLAND



6.0 SHORELINE IMPROVEMENTS

A number of improvements are recommended around the shoreline of Laguna Grande and Roberts Lake and within wetland and riparian areas. The purpose of these improvements are to provide the physical and visual access required in the certified LUP, to help protect wetlands resources, to ensure access for mosquito abatement equipment and to enhance the quality of recreational opportunities. The selection, siting, and general design of the proposed improvements are based on the key objective of restoring, enhancing and managing the wetlands and riparian habitat. While many kinds of improvements are conceivable, only those consistent with this objective have been recommended.

Figure 4 illustrates the general location and nature of the recommended shoreline improvements. The discussion that follows describes them in more detail, provides general design guidelines, and assigns specific maintenance and construction responsibilities.

6.1 PROPOSED IMPROVEMENTS

6.1.1 Pedestrian Pathways and Elevated Boardwalks

Figure 7 of the certified LUP for the Laguna Grande/Roberts Lake sub-area indicates public accessways around the entire periphery of Laguna Grande and Roberts Lake and extending on either side of the stream channel above the bridge at Laguna Grande. Considerable portions of this path system have already been constructed by the Cities of Seaside and Monterey as part of the development of Laguna Grande Regional Park and Roberts Lake. Some additional length of pathway has been designed and is presently being installed as part of the Day's Inn project near the outlet channel of Laguna Grande. The pedestrian pathways proposed here reflect therefore the certified LUP, the existing pathways, and the private construction work in progress.

The pathways and boardwalk shown in Figure 4 upstream of the existing bridge over Laguna Grande are located to carry out the intent of the LUP for access while at the same time minimizing the disturbance of critical wetlands and riparian habitat. A boardwalk is recommended in order to provide access through marsh areas without disturbing vegetation or water flow patterns. The location of the pathway system has been selected in order to provide access to both sides of the stream channel and to permit an interesting loop trip to be made.

6.1.2 Benches

Benches should be installed at intervals along the pathway system at Laguna Grande to enhance the enjoyment of the park. Figure 4 shows general locations where benches may be placed but other sites may work as well.

6.1.3 Fishing and Observation Platforms and Piers

At several locations around Laguna Grande fishing and observation platforms or piers are recommended. These tie into the access pathway system, afford additional access to the lake and will enhance recreational opportunities. The locations indicated are illustrative only.

6.1.4 Access for Mosquito Abatement Equipment

The Northern Salinas Valley Mosquito Abatement District (NSVMAD) is responsible for the control of mosquitos and midges and other noxious insects at Laguna Grande and Roberts Lake. The District must be able to have access along the shorelines of the two lakes in order to apply insecticides and to maintain water circulation.

6.1.5 Floatlines and Log Boom Barriers

Model power boat racing is a popular activity at Roberts Lake. Because the lake is also heavily used by waterfowl, the City of Seaside has placed a floatline to restrict the area of model boat operation in order to protect water birds. However, the floatline has from time to time been moved by unauthorized

persons, apparently to enlarge the model boat racing area. This has reduced the protected area available to waterfowl. It is recommended that the floatline be more permanently secured to avoid this problem, or that a more substantial barrier, such as a log boom, also firmly secured to the shore, be installed.

The tules along the shoreline of Laguna Grande serve as critical waterfowl habitat and are recommended for retention elsewhere in this report. In order for these wetland areas to be of maximum benefit to waterfowl human intrusion should be minimized, particularly during nesting season from October to May. It is recommended therefore that if Laguna Grande is eventually opened to boating, that a log boom barrier be used to keep boats away from nesting areas during the late fall, winter and early spring. The approximate placement of the moveable boom is shown on Figure 4.

6.1.6 Setbacks

The certified LUP requires that all shoreline improvements including lateral access pathways, park facilities, and private development be set-back specified distances from the inland extent of wetland and riparian vegetation. These setbacks are intended to ensure viability of the wetland and riparian areas of wildlife habitat. Thus, while the setbacks themselves are not a form of development, they are an important constraint to shoreline improvements.

6.2 DESIGN GUIDELINES FOR SHORELINE IMPROVEMENTS

There should be considerable latitude in the design of the shoreline structures described in this section. The Cities of Seaside and Monterey and the Monterey Penninsula Regional Park District should use their experience in selecting final designs. Aesthetic attractiveness is of course of concern. Low or moderate initial cost, durability, and ease of long-term maintenance are also important criteria.

Existing park structures at Laguna Grande and Roberts Lake generally set the tone, or design theme for continued development of the area including the shoreline structures discussed here. In addition, examples of elevated walkways and nature observation platforms at other parks can be used as models for structures at Laguna Grande.

The following criteria are intended as general guides in designing shoreine structures at Laguna Grande and Roberts Lake. Final design work can be completed prior to construction.

6.2.1 Pedestrian Pathways and Boardwalks

Pathways that will be constructed on dry land should follow the design standards presently in use by the Cities of Seaside at Laguna Grande.

6.2.1.1 Area 'A'. Pathways in areas indicated 'A' on Figure 4 should be for use by pedestrians but not bicycles. Use levels are not expected to be high; walking for pleasure will be the chief activity. Pathways should be 7' in width and surfaced with decomposed granite.

6.2.1.2 Area 'B'. The pathway constructed in this area should be the same as in 'A' areas above. It should be for pedestrians only; enjoyment of nature will be a cheif activity. It should be seven feet in width and surfaced with decomposed granite in all portions of the pathway constructed on dry land. It differs from the 'A' areas in that some portions of the pathway traverses wet areas. In these areas the pathway should be built up with fill several feet to permit use by pedestrians and small vehicles of the NSVMAD. The pathway bed should be about ten feet in width and small drainage culverts should be installed at intervals to permit water exchange.

6.2.1.3 Area 'C'. Pathways constructed in these areas should be essentially the same as in 'A' areas. They should be for use by pedestrians only; enjoyment of nature will be a chief activity. They should be seven feet in width and surfaced with decomposed granite on all portions of the pathways constructed on dry land.

They differ rrom 'A' areas in that some portions of the pathways traversing wetland areas should be constructed as boardwalks mounted on rootings or piers. Use of this form of lateral access is encouraged as a means of affording access to areas too wet for conventional pathway design while at the same time protecting sensitive wetland vegetation. Boardwalks of this type are in increasingly wide useage in ecological reserves and areas where nature and wildlife observation are principal activities.

Specific locations where boardwalks will need to be used should be determined at the time overall pathway layout is selected. Pathway layout should be planned during winter months to account for higher water levels in Laguna Grande.

Boardwalk construction is normally wood throughout. Width can be as narrow as four feet. Railings should be installed on both sides. The structure should be strong and steady. Wood used for the footings will be submerged and therefore should be resistant to rotting. The structure should be left unpainted although clear sealant may be used. Actual construction design may vary. Several illustrations are shown below.

6.2.1.4 Area 'D'. Pathway construction in this area can be located entirely outside critical habitat except for a brief length that will pass through the oak woodland. The pathway should be designed for both pedestrian and bicyle use, should be ten feet in width and surfaced with asphalt. This pathway will serve as a principal link between the Fremont Blvd., Canyon Del Rey intersection and areas of the park developed for active recreation. Details of pathway design should follow similar pathways already in place at Laguna Grande.

6.2.2 Benches

The design and construction of benches for resting along the pathway system can be extremely simple. A heavy wood plank approximately 4"X18"X6' mounted on wood or metal posts is suitable; other similar designs will work as well. Benches should be oriented parallel to the pathway and placed on the landward side several feet back from the pathway at locations where a break in the shoreline vegetation affords views of the lake, or where other interesting views are available. Caution should be taken that the locations of benches, or other park facilities, do not interfere with use of the pathway by NSVMAD equipment.

6.2.3 Fishing Piers and Observation Platforms

Fishing platforms or piers should be constructed once it has been demonstrated that an adequate recreational fishery can be maintained in Laguna Grande. These structures should extend from the bank towards the center of the lake for a distance of 15' to 20' or as far as is required to project at least 6' beyond the outer edge of the tules in order to pemit enough room to cast. Piers of solid construction, mounted on pilings are more stable than floating docks and should be preferred. Full railings should be included for safety. Construction should be compatible in design, materials and finish with the boardwalks described above. A 'T' configuration will permit several people to fish at the same time. General dimensions and design are illustrated below.

The design and construction of observation platforms should generally be the same as for fishing piers with a few exceptions. Since the purpose of these structures is to provide only a "window" to the lake and shoreline vegetation, they do not need to extend beyond the edge of the tules. In order to maximize opportunities for wildlife observation, the platforms should be screened or camafloged. This can be easily accomplished by retaining a narrow band of tules adjacent to the railings or by fastening tule cuttings to the railings to form a screen. General dimensions and design are illustrated below.

6.2.4 Access for Mosquito Abatement Equipment

Access for NSVMAD equipment should be ten feet in width above the bridge over Laguna Grande in order to permit passage of standard pickup trucks, and 8' in all other locations at Laguna Grande and Roberts Lake.

The pedestrian and bicycle paths shown on Figure 4 as 'A', 'B', and 'D' will generally be adequate for use by NSVMAD equipment. And should be used for this dual purpose rather than constructing additional accessways which would adversely impact wetland and riparian vegetation. If any additional width in these areas is needed for vehicular access it should be provided by clearing vegetation on the lake or stream channel side of the pedestrian path. Special care should be taken to avoid cutting willows or other riparian trees if pathway widening is required.

Access is not presently available for NSVMAD on the south side of the stream channel above the Lagune Grande Bridge. It is not recommended that vehicular access be provided here as this would require considerable drainging or filling of wetlands or modification of critical habitat. If spraying is needed in this area it should be done by hand using the elevated pedestrian walkway (Area 'C') as far as possible.

Roberts Road offers access at present for NSVMAD equipment on the west side of Roberts Lake and will continue to be used in the future.

6.2.5 Floatlines/Log Boom Barriers

In order to secure the floatlines and/or log booms recommended earlier, secure attachment points should be constructed at the shoreline at each end of the barrier. Either cement plugs or wood or steel posts with heavy eye bolts can be used. Galvanized chain or cable should be used to secure log booms to anchor points on either shore. The method of fastening should be able to be removed easily in order that the boom can be moved.

The floats presently in use at Roberts Lake are sufficient in design for their purpose. Floats may not be adequate however at Laguna Grande as a means of limiting boating use at the lake. Logs, approximatley one foot in diameter, will form an impassable barrier and may have to be used.

6.2.6 Setbacks

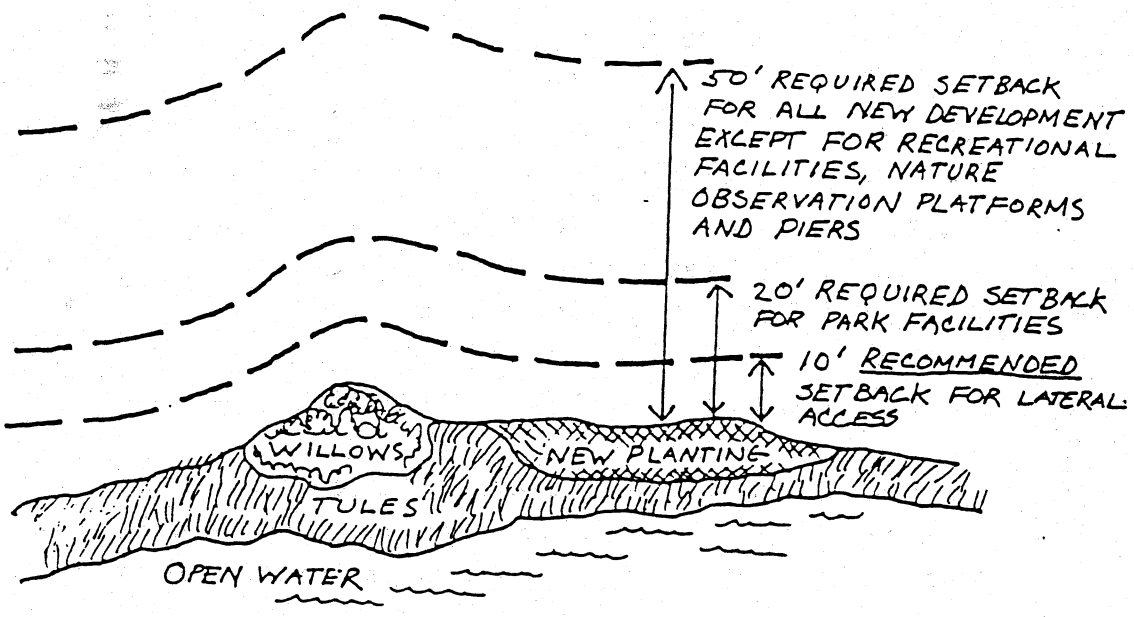
The certified LUP sets forth the following requirements for setbacks at Laguna Grande and/or Roberts Lake:

- Where feasible at Laguna Grande, lateral access is to be set back a minimum of 10 feet from the inland extent of emergent vegetation. Where passing through or near the wildlife habitat area to be established at Laguna Grande this lateral access is to be designed so as to protect the habitat area.

- Development shall be set back a minimum of 20 feet from marsh or riparian vegetation.

- All development except for recreation and nature observation platforms and piers shall be set back a minimum of 50 feet from the inland extent of wetland and its associated vegetation.

In graphic form these setbacks would look like this:



While it is undoubtedly desireable to require that recreation facilities designed for active use be maintained at least 20' from the wetland vegetation, it is not necessary to prohibit passive public access from being located directly adjacent to wetland and riparian habitat. In some areas it is necessary and desireable to develop access within and through such areas in order to provide wildlife observation opportunities. In addition, mosquito abatement equipment must be able to be operated immediately adjacent to the inland extent or the wetland and riparian vegetation and it is most efficient to have the public accessway serve both uses. Accordingly it is recommended that the ten foot setback for lateral access stated in the local Coastal Program Land Use Plan be modified in favor of a more flexible policy that permits pathways to be based upon terrain considerations, the desire to enhance wildlife observation opportunities, and the desireability of joint use of the accessway by pedestrians and mosquito abatement equipment. This in effect will mean that there will be no setback for access pathways.

It is further recommended that the 20 foot and 50 foot setback lines be based upon the Critical Vegetation map (Figure 2) and on the Habitat Management map (Figure 3) rather than on the map of Existing Vegetation, because it is really the critical habitat in combination with proposed areas of revegetation that the setbacks should be established to protect. Setbacks should therefore be measured landward from the landward edge of critical habitat as indicated on Figure 2 and/or landward from the landward edge of proposed new vegetation as shown by Figure 3. This means that in areas where complete removal of emergent vegetation is proposed by Figure 3, that setbacks should be measured from the edge of the shoreline.

6.3 RESPONSIBILITIES FOR CONSTRUCTION AND MAINTENANCE

Development of Laguna Grande Regional Park has been a cooperative effort by the Monterey Penninsula Regional Park District and the Cities of Seaside and Monterey. Construction of physical facilities within their respective jurisdictions has been carried

out by the two cities with financial assistance from the Parks District. This pattern is expected to continue. Development of facilities at Roberts Lake is the exclusive responsibility of the City of Seaside.

At Laguna Grande it is assumed that all of the shoreline improvements described above and shown on Figure 4 will be completed by the City of Seaside with the exception of a limited section of the pathway on Area 'C' (between Sequoia and Kolb Avenue) which is in the City of Monterey. On-going maintenance of the shoreline improvements will also be the responsibility of the respective cities.

7.0 WATER QUALITY

7.1 LITERATURE REVIEW

The following summary describes previous studies done for Laguna Grande and Roberts Lake, as well as relevant water quality studies for other lakes.

7.1.1. AMBAG 208 Laguna Grande-Roberts Lake (1977)

This major study focused on management alternatives for improving water quality of the two lakes. Included are analyses of development control and technical alternatives for the upper watershed, as well as various alternatives for in-lake correctional measures. Lake bottom dredging was evaluated and recommended as one option. The discussion included probable dredging impacts, cost analysis (containing some errors) for removing and 2 feet of bottom sediment from Laguna Grande and Roberts Lake respectively. A recommendation was made for bentonite sealing after dredging, a recommendation for use of a "Mud Cat" dredge, and three short case studies.

7.1.2 NSVMAD Laguna Grande Management Recommendations and Correspondence to Calif. Coastal Commission (1981)

The report and letter focused on management considerations for water quality improvement and mosquito/midge control. Recommendations included control of tule growth, creation of "tule islands", dredging Laguna Grande and Roberts Lake, planting Mosquito fish (Gambusia affinis) and prevention of future siltation by installation of sediment catch-basins and control of blowing sand at Roberts Lake. Prior to major development in the watershed the lakes were 14 feet deep. Current depth of Laguna Grande is approximately 3 feet, Roberts Lake is approximately 2 1/2 feet deep. The District has monitored water quality in the lakes since 1975.

7.1.3. Montery Peninsula Regional Park District Wetlands Enhancement Plan and Urban Fishing Grant Application (1982)

The wetland plan reiterated water quality recommendations in the AMBAG 208 study. Dredging to a depth of 8 feet in Laguna Grande, 5 feet in Roberts Lake and creation of tule islands were

recommended. Purchase or lease of a Mud Cat dredge was also recommended. One objective of the plan was establishment of a lake fishery--possibly catchable trout as recommended by the California Department of Fish and Game.

7.1.4 Lake El Estero Restoration and Management Plan

A water and sediment program was conducted to determine the condition of the lake, nutrient sources, sediment disposal options and suitability of lake water for irrigation of park lands. A major source of nutrients contributing to lake eutrophication was found to be resident bird populations. Lake restoration recommendations include installation of sediment traps, lake deepening, aeration, bird control and yearly maintenance activities. Removal of lake water and sediment excavation by bulldozer was recommended to deepen the lake to an overall 4 foot depth. Costs of various restoration measures were also given.

7.1.5 Lake Merritt (Oakland) Restoration Project (1977) and Lake Merritt Management Plan (1979)

These reports contained a comprehensive study of lake hydrology, biology, pollutant sources and management recommendations. Lake dredging, weed harvesting, sediment traps, urban runoff controls, herbicides and aeration were discussed. Dredging the lake bottom by hydraulic dredge to a 7 foot depth was recommended. The spoil material would then be barged to Alcatraz Island and dumped.

7.2 DREDGING OPTIONS

Options for removal of lake bottom sediments reviewed include hydraulic dredge, dragline, clamshell, and lake drawdown and excavation by bulldozer. The lake drawdown/bulldozer excavation alternative may not be a viable option due to possible higher elevation of Roberts Lake making lake water removal difficult, and because of the likely existence of groundwater springs in the Laguna Grande lakebed.

Each of the remaining options have various advantages and disadvantages in terms of overall cost, mobilization and

dismantling, and operating efficiencies. It is important to recognize that the dredging technique selected is very much dependent on the method selected for dredge spoils disposal. For example, unless there is a large area available for stockpiling dredge material in reasonable proximity to the lake, hydraulic dredging may not be feasible due to be high water content of the material and necessity to dewater the sediments before ultimate use or disposal. Other factors which must be determined are the size class(es) of lakebed sediments and a reasonably precise determination of bottom contours for each lake.

Therefore, before the JPA and Park District proceed further with a particular dredging or excavation technique, it is recommended that a detailed engineering feasibility study be done for sediment removal. The study should be performed by a professional engineer with experience in dredging and sediment removal techniques. It should include:

- Identification of a practical intermediate storage and ultimate disposal site. (Existing data on chemical constituents in the sediments can be used to assist in the selection process). Possible disposal sites include the undeveloped park lands adjacent to Laguna Grande, the marina sanitary landfill, agricultural fill in the Marina-Castroville area, State Parks' beaches in the Seaside area. Water quality, cost and institutional constraints exist for each of these options.

- Lake bottom soundings to determine precise bottom contours for each lake.

- Sediment coring and grain-size analysis by a licensed soils engineer.

- Overall strategy and costs for the selected option.

7.2.1 Dredging Parameters-Laguna Grande

Existing depth-approx. 2 1/2-4 feet.
Recommended depth- 5 to 8 feet (see Fig.5 proposed lake contours)

Current siltation rates-approx. 1600 tons/yr.
Total sediment to be removed-50,000 c. y.

7.2.2 Dredging Parameters-Roberts Lake

Existing Depth-approx. 2 1/2 feet
Recommended Depth-5 feet
Current siltation rates-3400 tons/yr. (@ rate of 2'/yr.)
Total sediment to be removed - 30,000 c.y.

7.2.3 Lake Bottom Configuration

After dredging depths of 8 feet and 5 feet respectively are recommended for Laguna Grande and Roberts Lake (Figure 5) as the minimum depths necessary to maintain water quality, restrict algae growth and establish a warm or cold water fishery. Optimum depths for fish establishment are 10 feet in the center of Laguna Grande and 5 feet (instead of 4 feet) in the shallow zones near the tule islands. However, due to fiscal constraints the shallower depths are recommended and will provide sufficient water quality for fish. The 208 plan recommendations to remove 4 feet of material from Laguna Grande and 2 feet from Roberts Lake would not provide sufficient depth for establishment of any type of fishery, and would not provide adequate depths necessary for insect and algae control. It should also be noted that dredging volume and cost estimates (below) do not include sediment removal above the pedestrian bridge. If an open water area is contemplated by the City of Seaside and Park District in this area, estimates of volumes and cost should be calculated during the engineering feasibility study.

7.2.4 Dredging Cost Estimates

Because the AMBAG 208 Study and the Regional Park District in recent grant applications recommended acquisition of a Mud Cat type hydraulic dredge, the manufacturer has been contracted as part of this study in order to update earlier cost information. This is not a recommendation for acquisition of this type of dredge equipment--the engineering analysis should determine the appropriate equipment. However, the information will give the

District an idea of current costs to remove sediment and transport it to the edge of each lake.

Mud Cat Purchase:	
MC 915 Dredge	129.000.00
Discharge pipe package (8" X 1500')	27,500.00
Cable & harness equipment	5,000.00
Work boat	4,000.00
Freight	6,800.00
State Tax	10,750.00
TOTAL	$183,050.00

Mud Cat Lease (3 months)	
MC 915 Dredge	38,700.00
Miscell. Equip.	11,000.00
State Tax	3650.00
Two-way freight	13,600.00
TOTAL	$66,950.00

If a 24 hour shift were used, dredging could occur within a two-month period. In this case costs (except freight) should be reduced by one third.

Labor and operating costs should be added to both estimates. Approximately 300 hours will be needed to complete the operation. At $35/hr. the total cost would be $28,000.

Although the lease alternative appears more economical, purchase of a Mud Cat may be more cost effective in the long run. It provides a piece of equipment that can be used for the periodic maintenance dredging needed in the future for both lakes. The dredge can be leased to other local agencies to recover part or

all of the additional purchase cost. In addition, resale values for this type of dredge equipment are favorable due to high demand and unavailability on the west coast.

In order to project costs for removal and ultimate disposal, several assumptions must be made. If it is assumed that the bottom sediments are predominately sand-sized material and that a suitable location can be found close to each lake for sediment dewatering, then additional costs for pumping capacity and piping the sediment slurry to a distant location will not need to be accounted for. If the sediments contain relatively higher percentages of organic, silt, or clay material a large dewatering site would be necessary due to the very slow dewatering time from these sediments. Once started the dredge should be run continuously except for normal operational shut-downs for shift changes and maintenance.

For purposes of preliminary cost estimates it has been assumed that the Marina landfill will be the ultimate disposal site. Although there are possible uses for the dredge spoils (agricultural amendment, landfill, park soil additive and fill) none are assured options at this time. The Marina landfill dumping policies are currently in a period of change. The current $3/ton rate for "in-district" disposers may be increased in the future. Rates also depend on water content of the material disposed-with higher water content material subject to higher rates. In-district dry fill material is now accepted free although this policy may also change in the future.

Estimates for hauling the dredge spoils have varied between $3.50 and $6.50 per ton. The lower figure is based on hauling costs estimated for Lake El Estero sediment removal, while the higher cost estimates were obtained from local contractors. Because more definitive hauling costs would need to be derived through a competive bid procedure, only a range of costs can be presented at this time.

Therefore, using the costs developed for the Mud Cat hydraulic dredge option, the total estimated project costs for this option would be as follows:

Mud Cat lease	$ 66,950	
Operating costs	28,000	
Excavation of dried material ($3/coy.)	240,000	
Hauling-25 mile round trip ($3.50-$6.50/ton)	322,000	- 598,000
Dumping fee	276,000	
Total Cost Estimate-Initial Dredging	$932,950	- $1,208,950

7.3 FISHERY OPTIONS

Potential opportunities and problems associated with the establishment of a recreational fishery have been reviewed because they bear directly on water quality improvements and dredging. There are two approaches to providing recreational fishing. One program approach would rely heavily on periodic stocking of catchable-sized fish--rainbow trout or other fish species. In this program the water quality would need to be sufficient to provide oxygen sufficient for survival, but little effort would be devoted to maintaining an ecosystem that provides food for fish and spawning habitat. However, fish would need to be stocked annually at the time of greatest fishing pressure.

The other approach would entail establishment of an ecosystem which would provide resources for a sustained, reproducing warm-water fishery with perhaps an additional put-and-take, catchable trout stocking program to enhance the recreational benefits of Laguna Grande. This would involve changing the present summer conditions of a blue-green algae dominated system with associated low oxygen levels. The abundance of blue-green algae is correlated with high concentrations of dissolved organic matter in lakes. A self-sustaining warm water fishery is plausible only if a major portion of the present sediment input and dissolved organic nutrient input can be prevented. A summer put-and-take trout fishery may not be plausible, either, if algal blooms and associated low oxygen conditions cannot be prevented. Dissolved organic matter cannot be controlled with upstream sediment traps.

Both of the program approaches moted above will entail dredging. Presently available water quality information is inadequate to predict post-dredging water quality and assess the long term viability of the aquatic habitat for fishes. After dredging and before any stocking of fish, water quality should be monitored through at least one flushing season to ensure that conditions are viable for fishes. Dredging will stir up and reintroduce toxicants, nutrients and other pollutants to the lake. These must be flushed out and/or be settled out before fish can survive.

After dredging, measures should be taken to encourage more aerobic bacterial degradation of sedimentary organic compounds to solve the blue-green algal bloom problem. Decomposition is presently dominated by anaerobic bacteria that create organic compounds that favor blue-green algae and most probably will continue after dredging unless the lake bottom substrate is modified (Donald Grant, pers. comm.). Modifications would require addition of rocks and coarse gravels to provide interstices for aerobic bacteria (Donald Grant, pers. comm.). This substrate would also create habitat for macroinvertebrates which would provide a food source and spawning substrate habitat for a self-sustaining warm water fishery. However, if the siltation problem were not solved after dredging, such substrate improvements would soon be covered over. If the plan were to stock catchable-sized, non-reproducing fishes each year that would be caught before they starved, then lake bed substrate would be less critical for fish. However, blue-green algal problems would continue with the likelihood of periodic fish kills.

Water quality sampling by NSVMAD from June 1975 to June 1977 in Laguna Grande indicate that water temperatures will probably be sufficiently warm for spawning reproduction and growth of some warm water fish species. The lake would be cooler after dredging, but water temperatures may be high enough at lake margins for spawning where tule islands might reduce water mixing. Water temperature measurements should be monitored to confirm this for the margins and photic zone.

If the program approach after dredging is to establish a naturally sustaining warm water fishery, it is recommended that blue gill (Lepomis macrochirus), largemouth bass (Micropterus salmoides) and white crappie (Pomoxis annularis) be introduced. These species spawn in spring and summer at temperatures of 18-21^{0}C, 14-24^{0}C and 97-20^{0}C, respectively. They also forage on midges and mosquitoes. Blue gill survive and reproduce under a wide variety of conditions and would be most likely to maintain themselves. White crappie would be preferrable to black crappie (Pomoxis nigromaculatus) because the former have slightly greater tolerances for high turbidities, higher temperatures and lack of vegetation and other cover.

The more complex three-species combination, particularly with two species to compete with and forage upon the more adaptive blue gill, would be more likely to provide a more stable fish association than a two-species combination. Additionally, objects of cover should be distributed throughout the lake to provide fish cover and help prolong fish survival.

NSVMAD's recommendation to introduce mosquito fish (Gambusia affinis) is appropriate for mosquito control. They would also provide forage for other fishes. The recommendation by the California Department of Fish and Game to establish a put and take trout fishery appears plausible at this point for a dredged Laguna Grande. Winter lake conditions would be acceptable but water temperature and dissolved oxygen levels should be monitored in summer after dredging to confirm the favorability for rainbow trout. A rainbow trout fishery would require annual stocking to balance fishing pressure because rainbow trout cannot spawn successfully in lakes.

7.4 OTHER IN-LAKE RECOMMENDATIONS

7.4.1 Periodic Dredging

Recommendations for periodic dredging cannot be made presently because of unknown factors associated with initial dredging options, engineering and costs, as well as the effectiveness of

sediment catch basins. It is reasonable to assume that upstream sediment basins will not be 100 percent effective, and that periodic redredging will be necessary to maintain lake depths and water quality.

7.4.2 Bentonite Clay Sealing

The AMBAG 208 Plan recommended a bentonite clay coating on the bottom of Laguna Grande and Roberts Lakes to prevent the release of nutrients from the lake bottoms. With dredging to depths as recommended above, it is doubtful lake bottom nutrients will continue to be as much of a water quality problem as occurs now. Further, the cost-effectiveness of such measure is questionable inasmuch as the clay layer would be covered by new sediment within a few years. It not only adds to the amount of future dredging needs, but could also prevent formation of a lake bottom subtrate favorable to fish and wildlife. Therefore this management technique is not recommended.

7.4.3 Aeration

Aeration of the lake by means of compressed air outlets near the lake bottom is not recommended. This procedure would increase the mixing of the upper layers of the lake and enlarge the water volume which could be used by algae. Algae which would normally drop out of the photic zone and die would be brought back up into the light by air bubbles rising to the surface. Also, bubbles near the lake bottom would stir up the bottom, increase turbidity and resuspend nutrients. This would increase the nutrient supply for algae to accelerate their growth. The oxygen produced by aeration at night would prevent algal death as well as fish death. In short, aeration by compressed air could worsen the algal problem by increasing algal blooms.

Another option for oxygenating the water to prevent fish kills would be to install fountains which would intake water at the surface and aerate it by spraying. Problems of fouling of fountain pumps and bubble aerators must be considered in either option. Additionally, artificial oxygenation of any kind may

only be a short-term solution to possible fish kills and not a solution to the problem of algal blooms.

7.4.4 Bird Control

The non-native bird populations, especially at Roberts Lake, contribute a significant percentage of nutrients to the lakes. Recommendations made for Lake El Estero (Anderson-Nichols, 1983) are appropriate for Roberts Lake and for Laguna Grande as more human use areas develop. Principal recommendations include the need for signing and public education to discourage bird feeding, abandonment of pets, and covering trash receptacles.

7.4.5 Stoplog Outlet

The 208 Plan recommendation for a stoplog outlet at Roberts Lake should be implemented as proposed in the Plan. It should be used during the day season only to provide maximum water depth and lake volume.

7.5 SEDIMENT RETENTION PONDS

In order to maintain adequate lake depths and reasonably good water quality sediment input to the lake has to be curtailed. Sediment retention basins are needed around the lakes and in the upper watershed. The major upper watershed basins should be in place before lake dredging occurs.

The major sediment sources for Laguna Grande are in the upper watershed outside the Coastal Zone, and therefore the scope of this study. However because this is so important to overall lake management, possible sites for sediment basins in the upper watershed were reviewed. Total sediment control requirements must relate to ultimate development of the watershed, which is not fully known at this time.

Possible sites include the following:

1). Ryan Ranch. An existing sediment basin adjacent to Highway 68 is functioning reasonably well (Nov.-Dec.,1983). However long term maintenance of this basin (after construction completed at Ryan Ranch) needs to be insured.

2). Highway 218/68 intersection. This is a possible location requiring little or no removal of sensitive wildlife habitat. If Monterey II is developed this site is logical in combination with on-site sediment control.

3). Highway 218 East of North-South Rd.

4). Highway 218-Frog Pond area. The Frog Pond itself is designated a natural area with recreational trails and high riparian wildlife value. A sediment basin could be constructed east of the Frog Pond without affecting recreational areas, but some removal of riparian vegetation would be necessary.

5). West of Driving range near Fremont Blvd. A small sediment catch basin could be established here without affecting use of the driving range. Existing trees in the area would screen the basin from view except for a narrow view corridor down the driving range itself. Loose fill now being dumped just northwest of this site is entering Canyon Del Rey Creek and the lakes.

6). North end Laguna Grande Regional Park near Kolb St. extension (see Fig. 5). This should be the site of the major sediment basin within the park. This portion of the park is the least sensitive in terms of vegetation and wildlife habitat. Considerations should be given to removing the Kolb St. fill and extending the basin to Fremont Blvd. if engineering studies indicate extra length is needed for proper functioning of the sediment basin. This basin should incorporate an oil/grease trap for removal of urban contaminents.

Effective sediment control in the watershed must occur if Laguna Grande and Roberts Lakes are to survive. Furthermore, it will be pointless to spend large sums of public monies to dredge the lakes if the sediment loading can't be arrested. Sediment control is the responsibility of all jurisdications around the lake and upstream. Maximum sediment retention effectiveness requires the installation of several (2-3) upstream sediment basins. A mechanism for effective maintenance and clean-out of basins must be established. Also, further engineering study is needed in order to define optimal location, design and costs of sediment basins.

Sediment and urban pollutants are also entering the lakes from roads, parking areas, and storm drains. As recommended in the 208 Plan, sediment catch basins and oil/grease traps are needed on storm drain outlets around Laguna Grande and Robert Lake. Approximately eight major drainage outlets exist on the Seaside and Monterey sides of the lakes. None presently have sediment or grease traps. New private development and new public works drainage projects (replacement of the Seaside storm drain near City Hall for example) should be fitted with sediment and grease traps. Existing storm drains should be retrofitted.

7.6 ROBERTS LAKE SAND DUNE EROSION

Revegation of the sand dune slopes adjacent to Roberts Lake was also recommended in the 208 Plan. According to that plan, blowing sand is the major source of Roberts Lake sediment. Some natural revegetation has occurred in the last several years reducing wind erosion from these slopes. However natural revegetation should be augmented by artificial revegetation in order to stabilize the dunes and largely eliminate this sediment source. Development of dune areas west of Highway One should be required to fully stabilize dunes.

7.7 OTHER WATERSHED MANAGEMENT CONSIDERATIONS

The AMBAG 208 Plan and 1982 plan update contain a number of additional management recommendations relating to Laguna

Grande/Roberts Lake water quality. These should be implemented by the appropriate jurisdictions in a timely manner if long term water quality problems in these lakes are to be avoided. They include:

- Vacuum street sweeping
- Pave driveways (Seaside)
- Develop management plan for existing urban erosion
- Adopt grading/erosion and sediment control ordinances (Del Rey Oaks)
- Adopt cluster development/roadway standards
- Require on-site retention of all runoff and sediment
- Establish hillside development policies and standards

8.0 FUNDING

8.1 INTRODUCTION

The development of Laguna Grande Regional Park, particularly the acquisition of private parcels, has been supported in large measure by grant funds from state and federal sources. Some of the grant sources used to date by the Monterey Peninsula Regional Park District include:

-1974 Park Bond Act
-1976 Park Bond Act
-Land and Water Conservation Act
-State Urban Park Program (SB-174)
-HUD

Local funds have generally been used to pay for the development of the existing level of recreational facilities at Laguna Grande Regional Park. Development of Roberts Lake, which is not part of the regional park system, has been funded by the City of Seaside.

In order to complete the water quality improvements necessary to realize the full recreation and habitat potential of the two lakes, considerable additional funds will be needed. These funding requirements probably exceed the combined capabilities of the local jurisdictions and accordingly, outside sources of funds will be needed. Specific activities for which financing needs to be arranged include: detailed engineering design, cost, and operational studies for the construction of sediment basins in the Laguna Grande (Canyon Del Rey) watershed; initial and maintenance dredging of Laguna Grande and Roberts Lake and dredge spoils disposal; construction costs for sediment basins and related channel improvements; and installation of aeration equipment if desired.

The following discussion outlines various funding opportunities potentially available to support these activities. The section concludes by recommending some specific actions that should be taken to provide the necessary funding.

8.2 Federal Grant Programs

(No information has been developed on Federal Sources).

8.3 State Grant Programs

The State of California administers a variety of grants and financial assistance programs, several of which may be suitable for use for wetlands restoration, management and enhancement. The availability of any particular grant program varies from year to year depending on fund balances, legislative restrictions etc. Many grant programs are offered only until the initial funds are used by grantees. Invariably grants are awarded on a competative basis and competition is extremely keen.

A state booklet entitled State Funding Sources Related to Parks and Recreation published in August 1983 lists several grants that may be suitable for use at Laguna Grande and Roberts Lake. A listing and description of these is attached as Appendix A. Not on the list is the proposed A.B. 2099, 1984 Park Bond Act by local Assemblyman Sam Farr. This bill provides $79,000 for the Monterey Regional Park District.

8.4 Local Funding-Multi Jurisdiction

Laguna Grande is a regional park that serves all of the incorporated cities on the Monterey Peninsula and large portions of the county as well. Consequently, improvements to water quality at the lake are of direct benefit to all of these jurisdictions. Increased sediment production and water pollutions, that has caused the needs for sediment basins dredging and related work has occurred as a result of land use practices throughout the water shed of Laguna Grande and Roberts Lakes. The cities of Seaside, Monterey, Del Rey Oaks, Monterey County, and Ford Ord all have territory located in the watershed and all share responsibility for maintenance of water quality within the watershed. Moreover, the solution to controlling sedimentation of the two lakes can probably only be solved by cooperative action and coordinated financial support from all of the entities in the watershed. Two funding mechanisms are apparent:

8.4.1 Zone of Benefit-Monterey County Flood Control and Water Conservation District

A Zone of Benefit of the Monterey County Flood Control and Water District (MCFCWCD) could be formed with an area drawn to encompass the boundaries of the Canyon Del Rey watershed. The purpose of the Zone of Benefit would be to provide a taxing basis to raise funds for flood control work in the watershed, to spread these costs equitably to all landowners within the watershed, and to provide a single agency (MCFCWCD) to carry out the necessary engineering and management responsibilities.

Procedures required to form a Zone of Benefit generally are as follows: A petition would be drafted by interested property owners (cities of Seaside, Monterey, Del Rey Oaks, etc.) describing the need for flood control improvements such as channel work, erosion control, sediment basins, and dredging of Laguna Grande and Roberts Lake; an assessment report would be prepared by MCFCWCD showing assessment roles; MCFCWCD Board (Monterey County Board of Supervisors) would hold a hearing; a vote would be required of qualified voters during a general or special election and 50% of those voting must approve formation of the zone. Subsequent to formation of the zone, taxes would be levied and funds accrued to support flood control work. This would be an on-going source of funds. The MCFCWCD could provide staff assistance to manage the activities of the Zone of Benefit.

8.4.2 Local Bond Issue

Under the provisions of the "1913 Municipal Improvement Act" a bond issue could be proposed and brought to public vote. It would be necessary to establish the amount of the bond issue by determining the costs of improvements (sediment basins) and maintenance (dredging). This would first require that preliminary engineering and design studies be completed. The amount of revenue to be generated by the bonds would be uncertain.

8.5 Local Funding- Single Jurisdiction

8.5.1 Use of Local Funds

The City of Seaside has established a "Laguna Grande Park/Roberts Lake Park Development Fund" (Ordinance 618), whereby twenty-five percent (25%) of the occupancy tax and sales tax revenue derived from Laguna Grande hotel/commercial development, not to exceed $100,000 per year, will be deposited in the fund until park development is complete. At that point any fund balance will be transferred to the general fund and the special fund will be terminated. At present no revenues have been generated by this fund since the hotel/commercial development is not yet operating.

The City of Seaside could consider extending this special fund to apply to all future commercial development adjacent to the two lakes on the premis that improvements to the lakes are of benefit to the economic well-being of any business located adjacent to it. This reasoning could be further extended to include use of some portion of the occupancy and sales tax revenue generated by hotel/commercial development in the Beach Sub-area, or in other parts of the city for improvements of the two lakes. Seaside could also consider amending Ordinance 618 to provide for the permanent, on-going use of some portion of the occupancy and sales tax revenues for periodic maintenance of sediment basins and dredging that will be required at the lakes.

The Cities of Monterey and Del Rey Oaks could enact similar provisions and thereby assist in raising funds for lake improvements. Programs of this kind do not however, represent <u>new</u> money to the local jurisdictions but rather an allocation of general fund revenues to a specific project.

8.5.2 Development Fees

The public jurisdictions in the Canyon Del Rey watershed could establish one-time development fees applicable to most types of development. Such fees would be based on the need to make water quality improvements including sediment traps, sediment basins

and lake dredging. The amount of such fees would need to be established by each jurisdiction in a way that would equitably reflect either the jurisdiction's proportional contribution to sedimentation of the lakes, or the degree to which the developments would benefit from improved flood control or water quality within the watershed.

Monterey County has already established the "Drainage Improvements Fund for Canyon Del Rey" for the purpose of making channel and other rlood control improvements resulting from development of the Laguna Seca Ranch #2 subdividison. The County charges all major and minor subdivisions in the area a one-time fee of $60 per gross acre. No expenditures have been made by the County and the current balance of the fund is about $30,000. These monies may be available for construction of sediment basins within the watershed or for use to pay for engineering design studies throughout the basin. The fund is a useful model that the other agencies might consider ror their own areas of jurisdiction.

8.5.3 Sale/Lease of Public Properties

Several parcels adjacent to Laguna Grande are in public ownership. Some of these are owned by the City of Seaside and are within the Laguna Grande Redevelopement Area. Another parcel, fronting on Fremont Avenue is owned by the Monterey Peninsula Regional Park District and is intended for use as part of Laguna Grande Regional Park.

Consideration should be given by these two agencies, if conditions of title or other deed restrictions will permit, of the sale or lease of these parcels for private commercial development. Income generated from such uses would likely be significant and could substantially defray the costs of water quality improvements.

8.5.4. Appropriations from City General Funds

Seaside, Monterey, Del Rey Oaks and Monterey County could individually appropriate monies from their general funds to support water quality improvements at Laguna Grande and Roberts Lake.

Because appropriations from geneal funds would likely be very limited in amount, but also because they could be made quickly, such funds might be most suitably used to support studies of sediment basin localities and design and dredging plans.

8.5.5 Private Grants

Several private foundations operate in the Monterey Peninsula area and are interested in the environmental and recreational fields. While a specific listing of these sources is not included here, a general review of their past activity was made. Most of the private foundation activity has been devoted to purchase of land, maintenance of acquired areas, or educational programs. It does not appear promising that private funding will be available for the water quality improvements needed at Laguna Grande and Roberts Lake, nor that if it were available that it would be in the amounts needed. Non-the-less, because several major foundations are locally represented this an avenue that can be pursued.

8.6 Recommendations

Obtaining adequate funding for water quality improvements is a major challenge particularily in view of the significant costs for dredging and spoils disposal. An overall strategy is needed to give direction and momentum to the development of a funding program.

A number of different funding opportunities are potentially available. The selection of which sources are developed should reflect specific needs. The funding strategy should differentiate between funding for initial engineering studies, large one-time costs for construction of sediment ponds, dredging and dredge disposal, and on-going cleaning of sediment ponds and maintenance dredging. Local funding sources may be adequate to pay for initial studies, on-going maintenance, and perhaps even part of the cost of constructing the sediment ponds. Initial dredging of Laguna Grande and Roberts Lake, and disposal of dredge spoils will in all likelihood require major state or federal grants.

The funding strategy selected should also differentiate between immediate actions and long-term needs. Reducing the rate of further sedimentation of the lakes is the most immediate priority. Accordingly funds for this work needs to be developed as soon as possible.

The following recommendations are based upon the information presented earlier in this section, upon a review of past funding activities at Laguna Grande, and upon discussions with local public officials and state agency representatives. Specific recommendations concerning the most suitable grants to pursue have not been made. Major grant applications for initial dredging work should probably be postponed until engineering and design studies have been completed and accurate cost information is developed.

1. The Laguna Grande JPA, which presently consists of the Cities of Seaside and Monterey and the Monterey Penninsula Regional Park District should be expanded to include all of the jurisdictions in the Canyon Del Rey watershed in order to maximize support for the development of funds for water quality improvements. The present JPA should formally request that Monterey County, Del Rey Oaks, Ford Ord and the Monterey Peninsula Airport District join the JPA and actively support its fund raising efforts.

2. The JPA should develop a coordinated short and long-range funding strategy to cover the requirements of all aspects of water quality improvements to Laguna Grande and Roberts Lake. Specific responsibilities for tasks set forth in the funding strategy should be assigned to designated staff of the member agencies. A time schedule for completing these tasks should be adopted and maintained. In general, the manager of the Regional Park District should lead major fund raising efforts, but he should receive assistance from the staff of the other agencies.

3. The JPA should act in concert in efforts to obtain financing for water quality improvements. Major grant applications

should be supported by resolutions of the governing bodies of the members of the JPA.

4. In general, the JPA should aggressively pursue every potential grant source capable of providing major funding. This may require making multiple applications each year. JPA staff should work closely with local state and federal representatives including Assemblyman Sam Farr, State Senator Henry Mello, and Congressman Leon Panetta in order to keep informed of potential funding sources and to focus efforts on obtaining funds. If JPA staff needs assistance in preparing grant applications, member agencies should consider contributing sufficient funds to employ a consultant to help prepare applications.

5. The JPA should develop and endorse a 'fair share' plan by which each member agency contributes to locally funded costs of water quality improvements based upon that jurisdiction's proportionate contribution to the sedimentation of Laguna Grande and Roberts Lake. The 'fair share' formula should be developed by qualified public or private engineers based on a study of major sediment sources in the watershed.

6. The JPA should formally request the Monterey County Flood Control and Water Conservation District to allocate funds from the "Drainage Improvements Fund for Canyon Del Rey" to the study of sediment basin design in the watershed. The JPA may also wish to request that the MCFCWCD organize and manage this study. If assistance from MCFCWCD is not available the JPA should commission engineering and design studies for sediment basins and request that member agencies contribute the cost of such studies.

7. The JPA should request proposals from qualified engineering firms for detailed feasibility and design studies for initial dredging and spoils disposal at Laguna Grande and Roberts Lake. Subsequently the JPA should apply to the California Coastal Conservancy for grant funds to support the engineering studies.

8. The JPA should petition the MCFCWCD to establish a Zone of Benefit for flood control improvements in the Canyon Del Rey watershed.

9. Montery County should expand requirements for developer contributions to water quality improvements to cover all developable lands within county portions of the watershed.

10. The Cities of Monterey and Del Rey Oaks should review City of Seaside Ordinance 618 and the County's "Drainage Improvements Fund for Canyon Del Rey" to determine whether similar ordinances should be adopted in their respective jurisdictions.

11. The City of Seaside should amend Ordinance 618 to apply to all future commercial development adjacent to Laguna Grande and Roberts Lake and should also extend the ordinance indefinately.

12. The Monterey Peninsula Regional Park District and the City of Seaside should evaluate the desireability of selling or leasing publicly owned vacant parcels contiguous to Laguna Grande for commercial development in order to raise funds for water quality improvements.

13. The City of Del Rey Oaks should consider the use of city owned land behind Monte Mart for sediment basin purposes.

CITATIONS

Giroux, J. F., 1981. Use of artificial islands by nesting waterfowl in southeastern Alberta. J. Wildl. Manage. 45(3):669-679.

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Keith, L. B. 1961. A study of waterfowl ecology on small impoundments in southeastern Alberta. Wildl. Monogr. 6. 88pp.

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APPENDIX A

CALIFORNIA COASTAL ACT POLICIES

NATURAL SYSTEMS

SENSITIVE HABITATS, WATER AND MARINE RESOURCES

I. PURPOSE

A. DEFINITION AND IMPORTANCE OF SENSITIVE HABITATS

The Coastal Act (Section 30107.5) defines "environmentally sensitive areas" as any areas in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an eco-system and which could be easily disturbed or degraded by human activities and developments. These areas include:

- areas of special biological significance as identified by the State Water Resources Control Board (for prohibition of sewage discharge to certain water bodies);
- rare and endangered species habitat identified by the State Department of Fish and Game;
- all coastal wetlands and lagoons;
- all marine, wildlife, and education/research reserves;
- nearshore reefs, tidepools, seacaves, islets, offshore rocks, kelp beds;
- indigenous dune plant habitats;
- wilderness and primitive areas.

In this report, the terms "environmentally sensitive areas" and "sensitive habitats" are synonymous.

B. COASTAL ACT POLICIES

The Coastal Act contains the following policies for the protection, maintenance, enhancement, and restoration of sensitive habitats, water availability, and biological productivity:

Section 30240. (a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas. ("Uses dependent on such resources" include nature education and research, hunting, fishing, and aquaculture. Source: Local Coastal Program Manual.)

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

Section 30230. Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231. The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of groundwater supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Pursuant to Sections 30007.5 and 30250 of the Coastal Act, protection of resources — including sensitive habitats, marine resources, and water quality —has priority over all other land uses. Other priorities, in order of precedence, are maintaining agricultural production and providing sites for coastal-dependent industry; maximizing public access and recreational opportunities; and lastly, general, residential and commercial uses.

30233. (a) The diking, filling, or dredging of open coastal waters, wetlands, estuaries, and lakes shall be permitted in accordance with other applicable provisions of this division, where there is no feasible less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects, and shall be limited to the following:

(1) New or expanded port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.

(2) Maintaining existing, or restoring previously dredged, depths in existing navigational channels, turning basins, vessel berthing and mooring areas, and boat launching ramps.

(3) In wetland areas only, entrance channels for new or expanded boating facilities; and in a degraded wetland, identified by the Department of Fish and Game pursuant to subdivision (b) of Section 30411, for boating facilities if, in conjunction with such boating facilities, a substantial portion of the degraded wetland is restored and maintained as a biologically productive wetland; provided, however, that in no event shall the size of the wetland area used for such boating facility, including berthing space, turning basins, necessary navigation channels, and any necessary support service facilities, be greater than 25 percent of the total wetland area to be restored.

(4) In open coastal waters, other than wetlands, including streams, estuaries, and lakes, new or expanded boating facilities.

(5) Incidental public service purposes, including, but not limited to, burying cables and pipes or inspection of piers and maintenance of existing intake and outfall lines.

(6) Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.

(7) Restoration purposes.

(8) Nature study, aquaculture, or similar resource-dependent activities.

(b) Dredging and spoils disposal shall be planned and carried out to avoid significant disruption to marine and wildlife habitats and water circulation. Dredge spoils suitable for beach replenishment should be transported for such purposes to appropriate beaches or into suitable longshore current systems.

(c) In addition to the other provisions of this section, diking, filling, or dredging in existing estuaries and wetlands shall maintain or enhance the functional capacity of the wetland or estuary. Any alteration of coastal wetlands identified by the Department of Fish and Game, including, but not limited to, the 19 coastal wetlands identified in its report entitled, "Acquisition Priorities for the Coastal Wetlands of California", shall be limited to very minor incidental public facilities, restorative measures, nature study, commercial fishing facilities in Bodega Bay, and development in already developed parts of south San Diego Bay, if otherwise in accordance with this division.

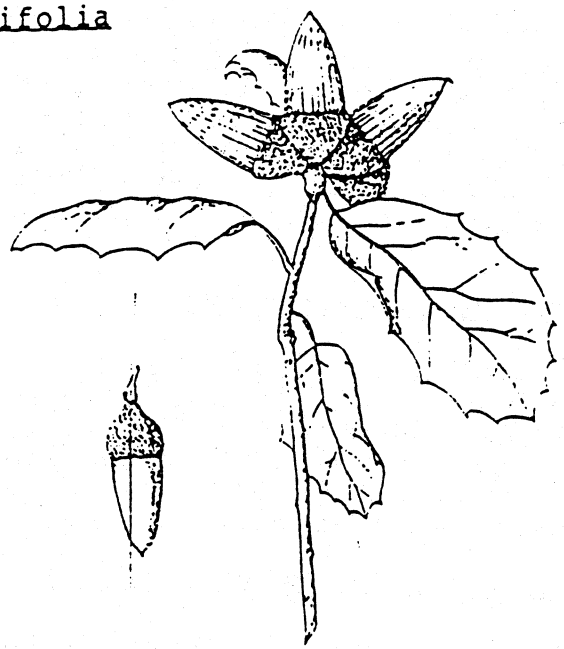
30235. Revetments, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted when required to serve coastal-dependent uses or to protect existing structures or public beaches in danger from erosion and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply. Existing marine structures causing water stagnation contributing to pollution problems and fishkills should be phased out or upgraded where feasible.

APPENDIX B

GUIDELINES FOR THE REVEGETATION OF NATIVE CALIFORNIA PLANTS AT LAGUNA GRANDE AND ROBERT'S LAKE

COAST LIVE OAK

Quercus agrifolia



APPEARANCE

Form/Shape- A tree with a broad, rounded crown which often is broader than it is high.

Foliage- Evergreen. Leaves are recurved, holly-like, 1-3 inches (2.5-7.5 cm.), leathery, oval to broadly elliptical with even tooth pattern, and are dark green.

Height at Maturity- 30-75 feet 9-23 m).

Spread at Maturity- 60-100 feet (18-30 m).

Flowers- Catkins appear from February to April. Striped acorns ripen first fall.

GROWTH RATE/MAXIMUM AGE

The growth rate is slow, but more rapid when young. The maximum age is 100-300 years.

ECOLOGICAL RELATIONSHIPS

Native Range- Sonoma County to San Diego County in valleys and lower elevations of the Coast Ranges.

Climate Zones- 7-9, 14-24

Plant Communities- Mixed Evergreen Forest, Foothill Woodland.

Plant Associations-
Quercus lobata,
Quercus douglasii,
Platanus racemosa,
Arbutus menziesii,
Quercus wislizenii,
Arctostaphylos spp.,
Pseudotsuga menziesii,
Sequoia sempervirens.

WILDLIFE HABITAT VALUE

The acorns are an excellent food source for mallards, pintails, woodducks, clapper rails, pheasant, pigeons, quail, blackbirds, crows, jays, meadowlarks, thrushes, woodpeckers, titmice, starlings, thrashers, rabbits, foxes, muskrats, raccoons, squirrels, mice and woodrats. Has some value as browse for deer.

EROSION CONTROL VALUE

The deep, greedy roots provide good erosion control.

DESIGN/LANDSCAPING VALUE

It is a handsome "character" tree of California and provides good shade in groves or as a specimen tree. Established oaks are a treasure, a precious asset. Never but NEVER plant a lawn beneath one.

ADVERSE CHARACTERISTICS

It can have a messy leaf drop in early spring and sporadically throughout the year. Leaves, buds, and unleached acorns are mildly toxic to humans when eaten.

DISEASE & PEST SUSCEPTIBILITY

It is susceptible to oak moth larvae, goat moths, aphids, mites, white flies, scale insects, powdery mildew (when watered, fertilized, or heavily pruned), oak root fungus, and crown rot. Oak root fungus remains in the soil and can infect other plants, even after the oak is removed. Of the oaks, this species is the most severly damaged by oak leaf caterpillars (oak moth larvae). Most susceptible of all Pacific Coast oaks to rot.

PLANTING LOCATION

Area suitability- Foothills, Flatlands.

Channel location- Upper slope, top of bank, outside maintenance road, outside levee slope.

PLANT REQUIREMENTS

Exposure- Prefers sun but tolerates some shade especially when young. It can withstand wind and seashore conditions, but will be stunted.

Soil Tolerance- Tolerates many soil types, even heavy soils, but prefers loam with a gravelly subsoil.

Moisture Requirements- Established trees do not tolerate summer watering unless planted as nursery stock, in which case they can be good lawn trees. Requires good drainage and is drought tolerant once established.

MAINTENANCE REQUIREMENTS

For established trees, do not raise or lower grade level between the trunk and the drip line. Do not allow the soil to become compacted around the tree. Never water within four feet of the trunk or allow standing water around the trunk. Deep watering at the drip line is best. Plant only drought tolerant plants underneath the tree. Do not plant lawns or other ground covers that require regular watering.

Avoid excessive pruning because it may stimulate succulent new growth which is subject to powdery mildew.

PROPAGATION

Acorns ripen in September and October and must be sown when fresh. Sprout acorns between layers of moss or in sand, perlite, or vermiculite in a plastic bag placed in a refrigerator. Plant sprouted acorns when the taproot is 1" to 2" long. If sprouts are to be planted out directly do not trim taproot. Trim 1/2" from taproot if sprouts are to be planted in containers.

PLANTING OPTIONS

Seeds, container stock.

PLANTING PROCEDURES

Seed- Select fresh, plump, fallen acorns, free of worm holes. Remove the caps and place acorns in water, discard those which float. Plant acorns on or just beneath the soil surface. A screen can protect acorns from jays and squirrels. Seed can also be sprouted between layers of damp peat moss for about two weeks. To plant the sprouted seeds, clip roots to promote branching and place in holes just deep enough for the acorns to be covered. (Do not clip taproot if sprouts are to be planted out directly). At the bottom of each hole, poke a vertical hole to take the sprouted taproot. The first leaves should appear in 6-8 weeks. Seeds can also be planted in one gallon containers, allowed to grow until 8" - 12" high, and then planted in place. Water plants weekly the first two months, then monthly. Slow, deep watering encourages deep rooting. Make sure the plant has good drainage. Remove any crossing limbs in the early years of growth.

Container stock- Be sure the taproot is not coiled around the inside of the container. A coiled taproot should be carefully removed, and the wound painted with a suitable root sealant. Plants 5-8 feet high are not hurt by having the vertical root cut in transplanting if the rootball is otherwise big and firm.

Cuttings- No reliable method for rooting oak cuttings has been developed.

NURSERY LEAD TIME FOR PLANTING STOCK

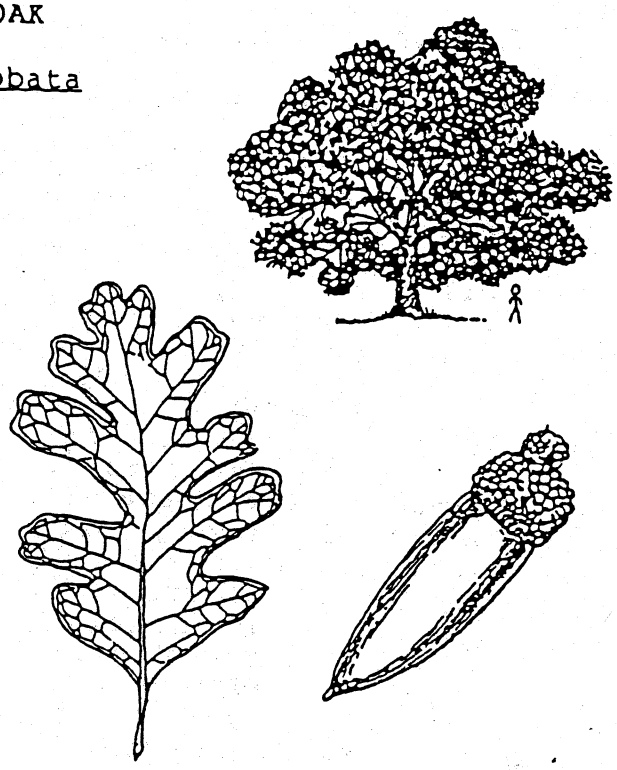
One gallon: 8 months.
Five gallon: 2 years.
Fifteen gallon: 3 years.
An easy nursery crop, if mildew is controlled.

REMARKS

This is the most frequent and characteristic tree of the California Coast Range Valleys.

VALLEY OAK

Quercus lobata



APPEARANCE

Form/shape- A large, rounded tree. The crown is often broader than high and has pendulous branches when older. When young, the tree is more erect.

Foliage- Deciduous. Leaves are deeply cut into 7-11 rounded lobes and are about 2 1/2-4 inches (6.5-10 cm) long. They are dark green above and more pale beneath.

Height at Maturity- 50-80+ feet (15-25+ m).

Spread at Maturity- 50-70+ feet (15-21+ m).

Flower- Catkins appear from March to April. Acorn ripens first fall following catkins.

GROWTH RATE/MAXIMUM AGE

The growth rate is rapid when young, moderate later. The maximum age is 300-400 years.

ECOLOGICAL RELATIONSHIPS

Native Range- Valleys of Western and Central California and the inner Coast Ranges except close to the sea.

Climate Zones- 1-3, 6-16, 18-21.

Plant Communities- Foothill Woodlands.

Plant Associations- Quercus agrifolia, Quercus douglasii, Quercus wislizenii

WILDLIFE HABITAT VALUE

The acorns are an excellent food source for mallards, pintails, woodducks, clapper rails, pheasant, pigeons, quail, blackbirds, crows, jays, meadowlarks, foxes, thrushes, woodpeckers, rabbits, titmice, starlings, mice, thrashers, muskrats, raccoons, squirrels, and woodrats. Has some browse value for deer.

EROSION CONTROL VALUE

The roots are deep and provide good erosion control.

DESIGN/LANDSCAPING VALUE

It is a handsome, massive tree when mature and provides excellent shade. Established oaks are a treasure, a precious asset. Never, but NEVER plant a lawn beneath one.

ADVERSE CHARACTERISTICS

The tree may drop limbs without warning especially when dry. Leaves, buds, and unleached acorns are mildly toxic to humans when eaten.

DISEASE & PEST SUSCEPTIBILITY

It is susceptible to oak moth larvae, goat moths, aphids, mites, white flies, scale insects, powdery mildew, anthracnose, oak root fungus, and crown rot. Oak root fungus remains in the soil and can infect other plants, even after the oak is removed.

PLANTING LOCATION

Area suitability- Foothills, Flatlands.

Channel location- Upper slope, top of bank, outside maintenance road.

PLANT REQUIREMENTS

Exposure- Prefers full sun; young plants can withstand some shade.

Soil Tolerance- Prefers rich, loamy soils but tolerates many soil types including heavy clay and moderately alkaline soils.

Moisture Requirements- Requires good drainage and is drought tolerant once established.

MAINTENANCE REQUIREMENTS

For established trees, do not raise or lower grade level between the trunk and the drip line. Do not allow the soil to become compacted around the tree.

Never water within four feet of the trunk or allow standing water around the trunk. Deep watering at the drip line is best. Plant only drought tolerant plants underneath the tree. Do not plant lawns or other ground covers that require regular watering. Avoid excessive pruning because it may stimulate succulent new growth which is subject to powdery mildew. Between ages of 5-10 years pocket gophers may be a great hazard because they eat the roots.

PROPAGATION

Seed is ripe in September and October and must be sown when fresh. Sprout acorns between layers of moss or in sand, perlite, or vermiculite in a plastic bag placed in a refigerator. Plant sprouted acorns when the taproot is 1" to 2" long. If sprouts are to be planted out directly do not trim taproot. Trim 1/2" from taproot if sprouts are to be planted in containers.

PLANTING OPTIONS

Seeds, container stock.

PLANTING PROCEDURES

Seed- Select fresh, plump, fallen acorns, free of worm holes. Remove the caps and place acorns in water, discard those which float. Plant acorns on or just beneath the soil surface. A screen can protect acorns from jays and squirrels. Planting can be done anytime of the year. Seed can also be sprouted between layers of damp peat moss for about two weeks. To plant the sprouted seeds, clip roots to promote branching and place in holes just deep enough for the acorns to be covered. (Do not clip taproot if sprouts are to be planted out directly). At the bottom of each hole, poke a vertical hole to take the sprouted tap root. The first leaves should appear in 6-8 weeks. Seeds can also be planted in 1 gallon containers, allowed to grow until 8"-12" high, and then planted in place. Water plants weekly the first two months, then monthly. Slow, deep watering encourages deep rooting. Make sure the plant has good drainage. Remove any crossing limbs in the early years of growth.

Container stock- Be sure the taproot is not coiled around the inside of the container. A coiled taproot should be carefully removed, and the wound painted with a suitable root sealant. Plants 5-8 feet high are not hurt by having the vertical root cut in transplanting if the rootball is otherwise big and firm.

Cuttings- No reliable method for rooting oak cuttings has been developed.

NURSERY LEAD TIME FOR PLANTING STOCK

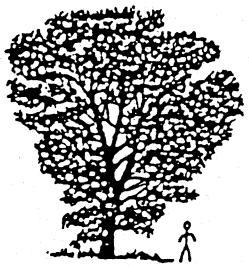
One gallon: 10 months.
Five gallon: 2 years.
Fifteen gallon: 3 years.

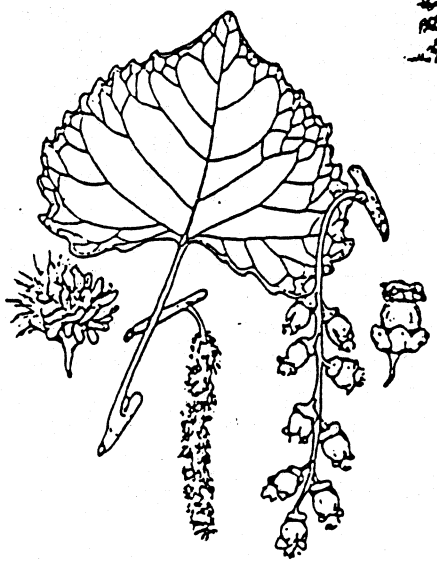
REMARKS

Said to be North America's largest oak. Called Roble (Ro-blay) by the Spanish-Californians. Valley oak acorns were highly valued by California Indians because the acorns are sweet. This species, where growing natively, is an indicator of deep, rich soil. This species is adaptable to a wide range of growing conditions; however, individual trees require consistant treatment.

FREMONT COTTONWOOD

Populus fremontii





APPEARANCE

Form/Shape- A tall, broad, open crowned tree.

Foliage- Deciduous. Leaves are heart-shaped, coarsely toothed, 4 inches (10 cm) long, and yellow-green in color, turning lemon yellow in the fall. The leaves are often retained through most of the winter.

Height at Maturity- 40-90 feet (12-28 m).

Spread at Maturity- 30-50 feet (9-15 m).

Flowers- Catkins appear in March and April before the leaves come out.

GROWTH RATE/MAXIMUM AGE

The growth rate is rapid. The maximum age is 50 to 100 years.

ECOLOGICAL RELATIONSHIPS

Native Range- Sacramento River Valley and Western bordering hills, Sierra Foothills in Southern California, along rivers for the Mojave Desert.

Climate Zones- 7-24.

Plant Communities- Along streams in many plant communities.

Plant Associations- Salix spp., Alnus rhombifolia, Platanus racemosa.

WILDLIFE HABITAT VALUE

The seeds are a food source for squirrels, meadow mice, and foxes. Fair quality browse for deer.

EROSION CONTROL VALUE

The deep, invasive roots provide good erosion control.

DESIGN/LANDSCAPING VALUE

Fremont Cottonwood is a good shade tree and provides a good windbreak when planted in groves. In fall, the leaves are an attractive yellow.

ADVERSE CHARACTERISTICS

Plant only male trees because female trees produce masses of cottony seeds that can be very messy. Don't plant near sewer lines and septic tanks because the roots are invasive near water. The tree is not suitable for city streets, lawns, or small gardens. Suckers badly, breaks easily.

DISEASE & PEST SUSCEPTIBILITY

It is susceptible to canker, leaf spot, hosts mistletoe, and is susceptible to wetwood (a bacterial infection).

PLANTING LOCATION

Area Suitability- Flatland.

Channel Location- Lower slope, middle slope, upper slope,

PLANT REQUIREMENTS

Exposure- Prefers full sun. Not tolerant of shade.

Soil Tolerance- Tolerates many soil types but best in sandy, humus soil in river bottoms.

Moisture Requirements- Requires constant moisture; must be watered regularly if planted in desert areas. It is drought tolerant if roots tap a good underground water source.

MAINTENANCE REQUIREMENTS

A low maintenance tree, but requires a few deep waterings during the dry season where planted away from permanent water.

PROPAGATION

Seeds ripen on female trees in summer. Use fresh seeds; no treatment is necessary. Easily grown from hardwood cuttings taken in midwinter.

PLANTING OPTIONS

Seeds, to produce male and female trees, cuttings, and container stock of selected forms like 'Nevada' if male trees are desired.

PLANTING PROCEDURES

Surface sterilize all cuttings to prevent spread of canker diseases. Can be planted anytime of the year if irrigated for establishment.

NURSERY LEAD TIME FOR PLANTING STOCK

One gallon: 6-8 months.
Five gallon: 15 months.

REMARKS

These trees are water indicators. Excellent streamside species where their vigorous spread would not cause problems.

ARROYO WILLOW

Salix lasiolepis

APPEARANCE

Form/Shape- An erect shrub or small tree.

Foliage- Deciduous. Leaves are 2 1/2-4 inches (6-10 cm) long, narrow and dark green; pubescent to glaucous underneath.

Height at Maturity- 6-30 feet (1.8-9 m).

Spread at Maturity- 6-15 feet (1.8-4.5 m).

Flowers- Catkins appear from February to April.

GROWTH RATE/MAXIMUM AGE

The growth rate is rapid. The maximum age is probably under 50 years.

ECOLOGICAL RELATIONSHIPS

Native Range- Streambeds throughout California.

Climate Zones- All zones.

Plant Communities- Many plant communities.

Plant Associations-
Alnus rhombifolia,
Acer macrophyllum,
Salix laevigata,
Platanus racemosa.

WILDLIFE HABITAT VALUE

Arroyo willow is a good source for gray squirrels, woodrats, and meadow mice. Avidly browsed by deer, but only of fair food value.

EROSION CONTROL VALUE

The shallow, long, rigid, invasive roots provide good erosion control.

DESIGN/LANDSCAPING VALUE

It is good in areas that undergo inundation.

ADVERSE CHARACTERISTICS

The roots are invasive and can be troublesome near sewer pipes, water lines, and septic tank systems.

DISEASE & PEST SUSCEPTIBILITY

It is susceptible to aphids, and aphis galls, leaf spotting fungi, and powdery mildew.

PLANTING LOCATION

Area Suitability- Foothills, Flatlands.

Channel Location- Streambed, toe of channel, lower slope, middle slope.

PLANT REQUIREMENTS

Exposure- Prefers full sun but is shade tolerant.

Soil Tolerance- Tolerates many soil types, including clay hardpan, shallow soil and sandy soil, but not heavy soils.

Moisture Requirements- Tolerates inundation. Requires high soil moisture but does not have high water requirements once established.

MAINTENANCE REQUIREMENTS

Deep watering encourages deep rooting.

PROPAGATION

Seeds ripen in the summer; they are viable for only a few days; no treatment is necessary. Cuttings are best when taken when the tree is dormant late fall to mid-winter. Cuttings may also be taken as new leaves begin to emerge.

PLANTING OPTIONS

Cuttings, seeds.

PLANTING PROCEDURES

Cuttings- Make each cutting at least 2 1/2 feet (7.5 dm) long with a diameter not greater then 2 inches (5 cm) at the largest end and 1/4 inch (5 mm) at the tip. For reference purposes make a slanted cut at the butt end and square cut at the tip. Cuttings should be planted the same day they are taken and should be kept moist. They should be planted in sunlit locations with plenty of moisture all year. Plant the cuttings in prepared holes or push them into saturated soils, butt end down at least 1 foot with at least 2 nodes above the ground.

NURSERY LEAD TIME FOR PLANTING STOCK

Little or no commercial availability.

REMARKS

Easy to grow from fresh cuttings.

WHITE ALDER

Alnus rhombifolia

APPEARANCE

Form/Shape- A tall, round topped tree; pyramidal when young (to 40'± or 14 m).

Foliage- Deciduous. Leaves are 2-3 inches (5-7.5 cm) long, oblong to ovate, doubly toothed, and bright, glossy green.

Height at Maturity- 50-90 feet (15-29 m).

Spread at Maturity- 30-40 feet (9-12 m).

Flowers- Pendulous catkins that appear in winter.

GROWTH RATE/MAXIMUM AGE

The growth rate is very rapid. The maximum age is generally under 100 years.

ECOLOGICAL RELATIONSHIPS

Native Range- Found along permanent water courses and in meadows of most of California, except along the coast.

Climate Zones- 1-9, 14-21.

Plant Communities- Chapparal, Foothill Woodland, Yellow Pine Forest.

Plant Associations- *Platanus racemosa*, *Acermacrophyllum*, *Populus* sp., *Salix* spp.

WILDLIFE HABITAT VALUE

White alder seeds are a food source for goldfinches and other perching birds. Thickets provide effective wildlife cover.

EROSION CONTROL VALUE

The roots are shallow, invasive, and provide good erosion control where water is plentiful.

DESIGN/LANDSCAPING VALUE

White alder is very fast-growing and useful as a lawn tree, hedge, or large divider tree. It has a short winter interval without leaves and a beautiful gray trunk.

ADVERSE CHARACTERISTICS

Do not plant near sewer or water lines or septic tank systems because this tree's shallow root system may aggressively invade and damage them.

DISEASE & PEST SUSCEPTIBILITY

It is sometimes susceptible to aphids & caterpillars but usually pest-free.

PLANTING LOCATION

Area Suitability- Foothills, Flatlands.

Channel Location- Toe of channel, lower slope.

PLANT REQUIREMENTS

Exposure- Prefers full sun but tolerates shade. Best growth with moderate overhead light.

Soil Tolerance- Prefers rich, humus soils, but is suitable on clay hardpan or sandy soil.

Moisture Requirements- Requires ample, perennial moisture to look its best, but survives as a street tree with normal rainfall.

MAINTENANCE REQUIREMENTS

Pruning is usually not necessary.

PROPAGATION

Seed ripens from late fall to winter and germinates without treatment. Cuttings do not root easily, and should be rooted in green house or nursery for best results. Also propagates on-site by underground rhizomes, suckers, and basal sprouts.

PLANTING OPTIONS

Seed, container stock.

PLANTING PROCEDURES

Plants are easily handled and transplanted when young. The best time to plant is October, or throughout the winter.

NURSERY LEAD TIME FOR PLANTING STOCK

One gallon: 6 months.
Five gallon: 18 months - 2 years.

REMARKS

In the wild, alders develop root nodules which allow them to fix nitrogen and can enrich the nitrogen content of the soil. The tree is a water indicator whose leaves have the pleasant odor of fall. Usually appear in stands or at least multi-stemmed specimens when near water. Relatively heat-tolerant.

BREWER'S SALTBUSH

Atriplex lentiformis var. *breweri*

APPEARANCE

Form/Shape- A dome-shaped dense shrub.

Foliage- Nearly evergreen. Leaves are 1-2 inches (2.5-5 cm) long, oval, bluish-gray, with smooth margins.

Height at Maturity- 5-7 feet (1.5-3 m).

Spread at Maturity- 6-8 feet (1.8-2.4 m).

Flowers- Tiny, greenish in large branched clusters, appearing from August to October.

GROWTH RATE/MAXIMUM AGE

Growth rate is rapid. The maximum age is unknown.

ECOLOGICAL RELATIONSHIPS

Native Range- On the coast from San Francisco Bay to Orange County inland to Riverside County.

Climate Zones- 8, 19, 14-24.

Plant Communities- Coastal Sage Scrub.

Plant Associations-
Salix spp.,
Populus spp.,
Diplacus aurantiacus,
Artemisia californica.

WILDLIFE HABITAT VALUE

The seeds are a good food source for Canada geese, quail, jack-rabbit, gophers, pocket mice, and kangaroo rats and possible forage for deer. Excellent cover for upland game birds.

EROSION CONTROL VALUE

The roots provide some erosion control.

DESIGN/LANDSCAPING VALUE

Brewers saltbush can be hedge pruned and provides a solid cover. It is useful as a wind screen, is fire retardant, and does well in hot areas. Not a showy plant, but the gray-white foliage is striking.

ADVERSE CHARACTERISTICS

Dead flowers and seed pods on female plants can appear messy if not pruned off.

DISEASE & PEST SUSCEPTIBILITY

It is susceptible to aphids.

PLANTING LOCATION

Area Suitability- Foothills, Flatlands, Bayside.

Channel Location- Top of bank, outside maintenance road, outside levee slope.

PLANT REQUIREMENTS

Exposure- Prefers full sun; tolerates salt spray and wind.

Soil Tolerance- Tolerates unusually harsh soil conditions including alkaline and saline and dry or infertile conditions. It can grow on reclaimed marine soil or pure sand.

Moisture Requirements- Drought tolerant, but also tolerates considerable moisture.

MAINTENANCE REQUIREMENTS

It can tolerate pruning but does not require it. If heavily sheared in spring, it will remain bushy and full.

PROPAGATION

Seeds are ripe in the winter. Cuttings root easily most of the year.

PLANTING OPTIONS

Seeds, cuttings, layering, container plants.

PLANTING PROCEDURES

The best time to plant is fall.

NURSERY LEAD TIME FOR PLANTING STOCK

One gallon: 6 months.

REMARKS

Excellent for bank and spoils reclamation. May lose a branch occasionally to unknown causes. Very brittle

CULTIVATED OAT

Avena sativa

The cultivated oat is an introduced annual cereal grass that grows 1-2 1/2 feet (3-7 dm) high. It grows quickly and provides good cover and erosion control; however, it does not reseed well, and can become a fire hazard. The plant grows in many soil conditions and requires little maintenance. The seed can be hydromulched at a rate of 300 lbs/acre on 5-10% slopes. Cattle can be poisoned due to a build up of nitrates. Horses and cattle have been lost due to the presence of a specific fungus, ergot. Waterbirds and songbirds frequently feed on the grain including California quail, Brewer's and redwing blackbirds, house finch, lesser goldfinch, and various ground squirrels and mice.

COMMON BARLEY

Hordeum vulgare

Barley is an introduced annual cereal grass that grows 2-3 feet (6-9 dm) high. It grows rapidly and provides excellent erosion control quickly, but does not reseed itself well. It is a moderate fire hazard and provides medium forage value for livestock. Little maintenance is required and it is tolerant of saline and alkaline soils. Seed should be applied at the rate of 300 lbs/acre on 0-5% slopes. In cold climates germination and growth are better than any other grass. It is good for late season planting. "Briggs" is the fastest growing variety. The grain is utilized by many waterfowl, upland gamebirds, songbirds and ground squirrels. Poisonous only if infected with specific fungus.

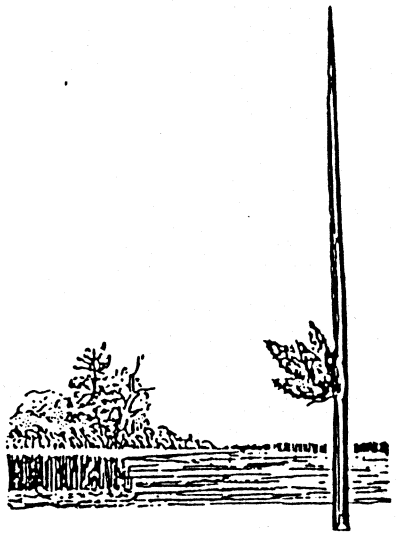
APPENDIX C

WILDLIFE USE OF BULRUSHES
FROM
AMERICAN WILDILFE & PLANTS
A GUIDE TO WILDLIFE FOOD HABITS:
the use of trees, shrubs, weeds, and
herbs by birds and mammals of the United States

by
Alexander C. Martin
Herbert S. Zim
and
Arnold L. Nelson

AMERICAN WILDLIFE & PLANTS
A GUIDE TO WILDLIFE FOOD HABITS: *the use of trees, shrubs, weeds, and herbs by birds and mammals of the United States*

BULRUSHES
Scirpus



[206*/52 users] The 40 or more species of bulrush present in the United States form one of the most conspicuous plant groups in American marshlands. These representatives of the sedge family range considerably in size. Some are less than one foot high and hardly deserve the group name bulrush (implying large rush). On the other hand, tall species may reach a height of seven feet. Bulrushes vary in form and appearance; some have cylindrical or whip-like stems (round-stemmed group), some are triangular-stemmed and bare of leaves (threesquares), while still others have angular stems and conspicuous leaves or bracts (leafy bulrushes). The most important species in the three groups are:

ROUND-STEMMED BULRUSHES. Hardstem (*acutus*), mainly northern and western; softstem (*validus*), widespread; slender (*heterochaetus*), northern; southern (*californicus*), southern

THREESQUARES. Common (*americanus*), widespread; Olney's (*olneyi*), coastal and southwestern; Torrey (*torreyi*), northeastern; swamp (*etuberculatus*), southeastern

LEAFY BULRUSHES: Alkali (*paludosus*), western; saltmarsh (*robustus*), coastal in East; river (*fluviatilis*), northern

The hard-coated seeds (akenes) of bulrushes are one of the more important and most commonly used foods of ducks and of certain marshbirds and shorebirds. The stems and underground parts are eaten by muskrats and geese. Furthermore, bulrushes furnish important nesting cover for waterfowl as well as for marsh wrens and blackbirds and give concealing protection to muskrats, otters, raccoons, and other animals.

An outstandingly important species, the country over, is the common threesquare (*S. americanus*). Ordinarily, it does not grow in extensive stands like some of the others, but it frequently forms fringes along the edge of ponds, lakes, and streams. These locations tend to make the plant's seeds readily available to ducks. Its close relative, Olney threesquare, has little value for ducks but is one of the favorite foods of coastal muskrats.

Hardstem bulrush is the most common and valuable marsh plant of inland areas of the West, particularly in the Northwest. It tolerates some alkalinity but not so much as the alkali bulrush, another western species of considerable value. Saltmarsh bulrush is a useful food for ducks, geese, and muskrats along the Atlantic and Gulf coasts. Softstem and slender bulrushes and other species have value in their respective regions.

Waterfowl (seeds mainly)
- *** Coot, *NE and W; +SE*
- Duck
  - ** Baldpate, *E; *W*
  - ** Black, *NE; *SE*
  - + Bufflehead, *NE and W*
  - *** Canvasback, *SE; +NE*
  - *** Gadwall, *SE; *W*
  - + Goldeneye, American, *W*
  - *** Mallard, Common, *W; **SE; *Wis.; +NE*
  - **** Mottled, *Gulf Coast*
  - *** Pintail, *NE and W; **SE*
  - *** Redhead, *W; **NE; +SE*
  - * Ring-necked, *U.S.*
  - *** Ruddy, *W; **E*
  - * Scaup, Greater, *W; +E*
  - ** Scaup, Lesser, *W; *NE; +SE*
  - *** Shoveller, *SE; **W*
  - *** Teal, Blue-winged, *W; **E*
  - *** Teal, Cinnamon, *Mt.-Des. and Pac.*
  - *** Teal, Green-winged, *U.S.*
- Goose
  - **** Blue, *Gulf Coast* (stems)
  - *** Canada, *Pac.; **Gulf Coast and Utah; +Atl. Coast* (stems)
  - *** Snow, *W; **Gulf Coast* (stems)
  - ** Tule, *Calif.* (stems)
- Swan
  - * Trumpeter, *Mont. and B.C.* (seeds and stems)
  - + Whistling, *E* (seeds and stems)

Marshbirds and Shorebirds (seeds, rootstocks)
- + Avocet, *W*
- *** Crane, Florida, *Fla.*
- Dowitcher
  - + Eastern, *E*
  - * Long-billed, *W*
- Godwit
  - *** Hudsonian, *N*
  - + Marbled, *W*
  - + Knot, American, *E*
- Rail
  - + Clapper, *U.S.*
  - + King, *SE*
  - *** Sora, *W; **NE*
  - * Virginia, *NE and W; +SE*
  - + Yellow, *E*
- Sandpiper
  - + Pectoral, *U.S.*
  - * Semipalmated, *Atl.Coast*
  - + Stilt, *U.S.*
  - * Snipe, Wilson, *U.S.*

Upland Gamebirds (seeds)
- + Pheasant, Ring-necked, *Utah*
- * Quail, Mearns, *N.Mex. and Ariz.*

Songbirds (seeds)
- + Blackbird, Tricolored Redwing, *Calif.*
- + Bunting, Snow, *NE*
- + Crossbill, Red, *No.U.S.*
- + Longspur, Smith, *Ill.*
- Sparrow
  - + Botteri, *Tex.*
  - + Song, *NE*

Fur and Game Mammals (rootstocks, aerial stems)
- *** Muskrat, *NE and La.*

Small Mammals (seeds)
- + Mouse, Meadow, *E*

ABBREVIATIONS

PLANT PARTS[1]

fr. = fruits
lf. = leaves
sd. = seeds
veg. = vegetative parts

REGIONS (in progression from East to West)

NE = Northeast
SE = Southeast
Pr. = Prairies
Mt.-Des. = Mountain-Desert
Pac. = Pacific

SEASONS

W = Winter (Nov. to Mar., typically)
Sp = Spring (April to May, typically)
Su = Summer (June to Aug., typically)
F = Fall (Sept. to Oct., typically)

EXTENT OF USE

– = Use to an undetermined extent
+ = ½ to 2% of diet
* = 2 to 5% of diet
** = 5 to 10% of diet
*** = 10 to 25% of diet
**** = 25 to 50% of diet
***** = 50% or more of diet

APPENDIX D

SUMMARY OF STATE GRANT FUNDING SOURCES

PROGRAM ROBERTI-Z'BERG URBAN OPEN-SPACE AND RECREATIONAL PROGRAM (Also called SB 174 or the Urban Grants Program)

California Department of Parks and Recreation
Office of Recreation and Local Services
P.O. Box 2390
Sacramento, CA 95811
(916) 445-4441

Purpose: Acquisition and development (and operation and maintenance some years) of indoor and outdoor recreation areas and facilities. There is a competitive portion of this program available for communities on a need basis.

Specific annual budget allocations for this program allow up to 31% of block grant funds received by urbanized jurisdictions to be used, with some limitations, on operations and maintenance. Applications for need basis (competitive) grants are accepted separately for operations and maintenance projects. Funds for the program, authorized in the California Parklands Act of 1980, are for acquisition and development only.

Limitations: 75% state - 25% local matching program. Moneys available to local units of government. Acquisition projects may waive 25% matching funds when state approves criteria.

PROGRAM 1980 BOND ACT (CALIFORNIA PARKLANDS ACT OF 1980)

California Department of Parks and Recreation
Office of Recreation and Local Services
P.O. Box 2390
Sacramento, CA 95811
(916) 445-4441

Purpose: Acquisition and development of indoor and outdoor recreational areas and facilities and historic resources.

Limitations: There must be an approved Priority Plan for expenditure (distribution of funds). 100% development grants; 75% state/25% local match for acquisition unless exempt.

PROGRAM CALIFORNIA CONSERVATION CORPS

California Conservation Corps
1530 Capitol Avenue
Sacramento, CA 95814
(916) 445-6330

Purpose: To further the development and maintenance of the state's natural resources and environment; to accomplish useful and needed public service conservation work projects; to develop the natural environment to provide opportunities for greater public use.

PROGRAM ENVIRONMENTAL LICENSE PLATE FUND

California Resources Agency
ELP Fund
The Resources Agency
1416 Ninth Street
Sacramento, CA 95814
(916) 323-1971

Purpose: Provides funding for projects which help protect and/or preserve the environment and have one or more of the following purposes: control and abatement of air pollution; acquisition, preservation and restoration of natural areas; purchase of property for park purposes or public accessways to coastal areas; environmental education; enhancement of resources; protection of wildlife habitat; and protection of non-game species and rare and endangered plants and animals.

Limitations: The Environmental License Plate Fund is a special fund of the state budget. Funds can be appropriated by the Legislature to state agencies, cities, counties, and districts, the University of California, and private research organizations. A 12-month lead time is required before approved funds are available.

Deadline: August 15

PROGRAM WILDLIFE CONSERVATION BOARD

Wildlife Conservation Board
California Department of Fish and Game
1416 Ninth Street
Sacramento, CA 95814
(916) 445-8448

Purpose: Acquisition of land or interest in land for preservation of wildlife habitat or public access, and development of public access facilities for fishing, hunting, or associated recreation.

Limitations: 50% local matching funds required for fishing pier projects; 25-year lease or other proprietary interest in land to the Department of Fish and Game; and cooperative agreement for operation and maintenance by local agency.

PROGRAM BOAT LAUNCHING FACILITY DEVELOPMENT GRANT

California Department of Boating and Waterways
1629 S Street
Sacramento, CA 95814
(916)445-9657

Purpose: Developing boat launching facilities.

Limitations: Local gcvernmental agency must own or control land, must also be able to operate and maintain facility. 100% grant program.

PROGRAM HARBORS AND MARINAS LOAN PROGRAM

California Department of Boating and Waterways
1629 S Street
Sacramento, CA 95814
(916)445-9657

Purpose: Loans to local government agencies and businesses for development or improvement of marina facilities.

PROGRAM STATE FINANCIAL ASSISTANCE FOR LOCAL WATER PROJECTS (Also called the Davis-Grunsky Program)

California Department of Water Resources
Local Projects Financing Office
1416 Ninth Street
Sacramento, CA 95814
(916) 445-7924

Purpose: Provides loans for construction of local domestic water projects and agricultural water conservation projects. Grants are provided for recreation and the enhancement of fish and wildlife. The state may also participate with an applicant as a partner under certain circumstances. Also, loans and grants may be considered for projects which would rehabilitate a dam and reservoir.

Limitations: As of September 1982, the $130 million loan and grant program was oversubscribed, and new applications are not being accepted by the department.

PROGRAM STATE COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM

California Department of Housing and Community Development
Dave Williamson
921 Tenth Street
Sacramento, CA 95814
(916) 324-0943

Purpose: Recent congressional action allows for the transition of the CDBG - Non-Entitlement Program, formerly administered by the US Department of Housing and Urban Development, to the states. The state is currently drafting the program design and evaluation criteria in anticipation of administering the $25 million program for federal fiscal year 1983. The program will provide grants to eligible small cities and counties for a variety of housing, public facility, and economic development activities.

Limitations: Grants primarily benefit lower income people.

The following programs are administered by the STATE COASTAL CONSERVANCY. This agency undertakes projects directly and/or provides grant funds to local governments and non-profit agencies for projects located within the coastal zone or around San Francisco Bay. Funding sources are 1976 and 1980 park bond acts. The application process is continuous; inquiries may be made by telephone or by letter directed to:

Executive Officer
State Coastal Conservancy
1330 Broadway, Suite 1100
Oakland, CA 94612

PROGRAM RESOURCE ENHANCEMENT

Purpose: Provides up to 100% funding for acquisition or development projects to enhance and preserve coastal habitats in wetlands, rivers and streams, dunes, and other areas.

Limitations: Limited to projects designed to acquire or enhance important resource lands and habitats. Evidence of a local agreement for long-term operation and maintenance of the project generally required.

PROGRAM LAND TRUSTS/NON-PROFIT ORGANIZATIONS

Purpose: Provides grants and technical assistance to private non-profit organizations involved in acquisition, enhancement, restoration, management, or development of access on coastal resource lands.

Limitations: Limited to projects designed to enhance wetlands, estuaries, streams, and watersheds, to provide public shoreline access, to preserve coastal agricultural lands, to preserve sensitive sites, or to consolidate lots to permit an orderly pattern of development. Project applicants must have 501(c) (3) status from the Internal Revenue Service and Articles of Incorporation stating that one of the principle purposes of the organization is "the protection of land for coastal public access, agricultural, scientific, historical, educational, recreational, scenic, or open space opportunities". A fund payback or the commitment of matching funds is preferred.

Only applicable Development Standards and Design Guidelines of the West Broadway Urban Village Specific Plan have been included. Non-applicable pages have been deleted and non-applicable sections have been stricken out.

DEVELOPMENT STANDARDS AND DESIGN GUIDELINES 7

The Development Standards and Design Guidelines in this chapter provide design guidance for development projects undertaken in the West Broadway Urban Village Plan Area. The ultimate goal for these standards and guidelines is to promote the orderly development of the Urban Village in conformance with the vision and goals included in this Specific Plan.

Graphics are included to illustrate guideline intent. They are not intended to depict the only design solution to a specific standard or guideline.

The Development Standards and Design Guidelines contain language that reflects the following principles:

- **"Shall"** or **"Must"** indicate a design standard and means that conformance is mandatory.
- **"Should"** or **"Strongly Encouraged"** mean that conformance will be strongly encouraged by the City through the review process and that the guideline is intended to be a recommendation about how to implement the goals for development, which are provided in Section B of this chapter.

The standards are intended to mandate necessary design components in building projects that will help to create or preserve good urban fabric. The guidelines encourage high-quality building and site design while allowing flexibility for designers. All changes to existing or new development, including façade improvements, are subject to review by the Board of Architectural Review.

The provisions written in these Development Standards and Design Guidelines, when in conflict, shall take precedence over the City of Seaside Zoning Ordinance and other relevant Municipal Code sections within the West Broadway Urban Village Specific Plan Area. The Seaside Zoning Ordinance continues to be applicable to issues not addressed by these Development Standards and Design Guidelines.

A. Goals for Development

The goals that follow apply to all areas of development in the West Broadway Urban Village Specific Plan Area.

1. Contribute to a Village Identity

- ♦ New development projects should establish individual identity while complementing the character of traditional design established within the context of the Urban Village and the city.
- ♦ Gateways to the West Broadway Urban Village should demarcate the transition to the area from Highway 1, Sand City, Monterey and other parts of Seaside.

2. Encourage High-Quality Building Design

- ♦ New development should display quality and character through materials and architectural expression such as massing, articulation and roof forms.
- ♦ Buildings should be designed so as to provide attractive and detailed façades on all sides that face streets and adjacent development.

3. Facilitate Multiple Modes of Circulation

- ♦ Streets should enhance the non-vehicular environment by introducing a scale that is conducive to pedestrian and bicycle use.
- ♦ Sidewalks should be functional and maximize pedestrian access to development projects.
- ♦ Streetscapes should be attractive and functional for pedestrians as well as vehicular traffic.
- ♦ The spaces between and around buildings should contribute to a larger network of non-vehicular connections between neighborhood and cross-town destinations.

4. **Strengthen the Pedestrian Realm**

   - Landscape and building elements, such as enhanced paving materials, accent lighting, streetscape furniture and adequate sidewalk space, should contribute to pedestrian environments that are aesthetically attractive and physically safe.
   - Mixed-use commercial areas should include pedestrian amenities that contribute to active and economically-vibrant environments.

5. **Strategically Locate Parking**

   - New development should decrease the visual prominence of the automobile and related parking facilities.
   - Surface parking lots should be sited in ways that allow buildings and landscaping to be the primary focal elements viewed from streets.

6. **Incorporate Sustainable Design Principles**

   - New development should minimize energy consumption, conserve water use, and use recycled or sustainable building materials.
   - Landscaping should be appropriate to the local climate and provide stormwater collection and retention.

B. Development Standards

The following development standards apply to the West Broadway Urban Village Specific Plan Area. They are intended to support the development of an active and lively downtown with a pedestrian-oriented mix of residential and commercial buildings that will draw visitors, shoppers and residents to the area. All new development, remodeled exteriors and new signage are subject to design review by the Board of Architectural Review (BAR). Table 7-1 lists permitted uses on ground floors and Table 7-2 lists permitted uses on upper floors. Except for provisions as laid out in the Specific Plan, definitions in Title 17 apply and can be found in Section 17.70 of the Municipal Code.

B.1 Permitted Uses on Primary Streets – MX Zone

The primary streets where pedestrian activity will be focused are Broadway Avenue, Del Monte Boulevard, Olympia Avenue and a short segment of Canyon Del Rey Boulevard, as mapped in Figure 7-1.

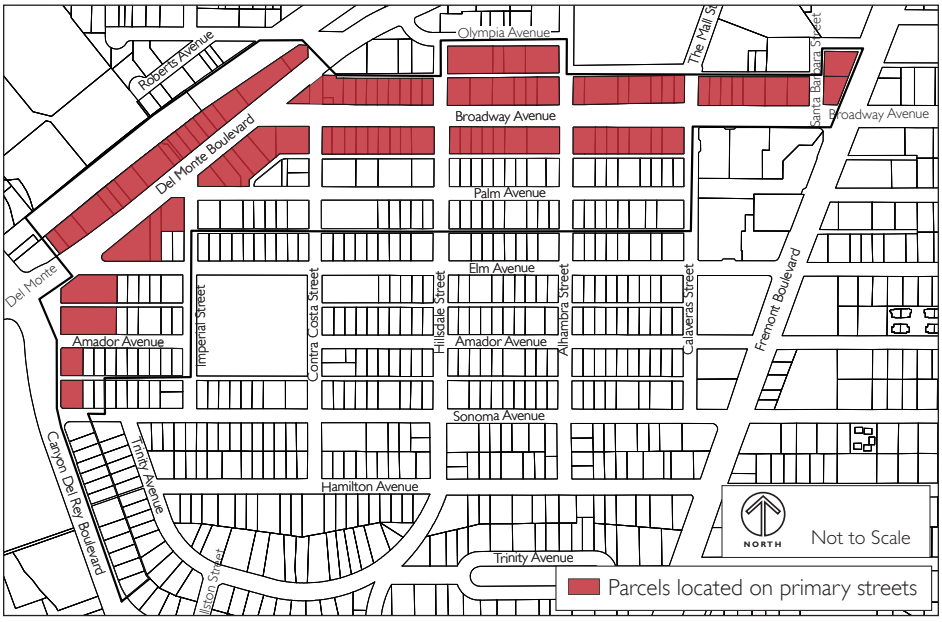


Figure 7-1. Permitted Uses on Primary Streets - MX Zone *(for illustrative purposes only)*

All uses in the West Broadway Urban Village Specific Plan Area shall contribute to the revitalization and vibrancy of the Plan Area. In order to facilitate and ensure a high level of pedestrian activity, mixed-use buildings are required for all parcels that front onto Broadway Avenue and Del Monte Boulevard. Mixed-use buildings are defined for this Specific Plan as the combining of ground floor level sales and service

uses, including eating and drinking establishments, with residential and/or office uses on upper floor levels. Following are permitted uses for ground floors and upper floors of buildings fronting onto primary streets in the Specific Plan Area.

B.1.1 Permitted Ground Floor Uses

For development on all parcels that front onto primary streets, newly constructed buildings are required to have a mix of uses. Ground floor level retail sales and service uses or eating and drinking establishments are required for all parcels that front onto Broadway Avenue, Del Monte Boulevard and Olympia Avenue. The following uses are permitted:

B.1.1.1 Retail Sales and Services that include the following:

- **Specialty Food Retail**, including but not limited to the following: groceries/drug stores (under 15,000 square feet); coffee/tea; candy; gourmet foods; ice cream; pastry/desserts; yogurt/dairy; doughnuts/bakery; wine.
- **Specialty Goods Retail**, including but not limited to the following: cooking supplies/culinary; general housewares; decorator/art and design centers (including tile, floor and wall coverings); architectural showrooms and supplies; specialty hardware; specialty gardening supplies; antiques selling previously used, high-quality goods; party supplies; lamps and lighting; household accessories; stationery; books and magazines; musical instruments.
- **Quality Goods and Services**, including but not limited to the following: small crafts; art supplies; picture framing; specialty furniture; clothing/shoe stores; thrift/consignment stores; electronics and computers; cameras/photography service and supplies; sporting goods; outdoor/sports clothing and supplies; toys/games; cards/gifts; jewelry/watches; florists.
- **Personal Services**, including but not limited to the following: dry cleaning; shoe repair; seamstress; tailor; minor appliance repair; barber and beauty shops; finance and insurance services; pharmacy and drug stores.
- **Business Services** that have the capacity to generate a high degree of pedestrian activity, such as photocopying service and video/movie rentals and sales.

B.1.1.2 Eating and Drinking Establishments that include the following:

- Restaurants serving alcoholic beverages and/or providing entertainment, provided those activities are ancillary to the restaurant use.

- ♦ Chairs and tables for outdoor dining and carts for merchant display may be permitted on sidewalks, paseos and other public rights-of-way and shall be consistent with Design Guidelines for the West Broadway Urban Village, provided that:
  a. The use maintains a minimum six-foot wide travel zone that is clear and unimpeded for pedestrian traffic, and
  b. The use does not infringe on the full width of the building entrance or otherwise impede access to and from the building.

B.1.1.3 Casual Dining/Quick Service/Fast Food restaurant so long as it does not include a drive-thru.

B.1.1.4 Plazas, paseos, parks and civic open spaces that are conducive to pedestrian activity.

B.1.1.5 Small-scale light manufacturing as an accessory to a primary retail use to allow for a wholesale component of a retail business, including the following and similar uses: bakery; upholstery; tile-making; screen-printing; architectural showroom and supplies.

B.1.1.6 Other similar and compatible uses deemed by the Zoning Administrator to facilitate vitality and pedestrian activity in accordance with the goals of the Urban Village Specific Plan.

B.1.2 Ground Floor Uses Requiring A Minor Use Permit

Findings in support of Minor Use Permits on primary streets must cite the potential for the use to contribute to pedestrian activity and to provide visual access for pedestrians into the ground floor use.

B.1.2.1 Civic and cultural facilities, including libraries, public recreation facilities, museums, art galleries, movie theaters and auditoriums.

B.1.2.2 Child care facilities.

B.1.2.3 Hair and nail salons, day spas, therapeutic massage.

B.1.2.4 Health and exercise clubs.

B.1.2.5 Public health facility.

B.1.2.6 Lodging or similar establishments engaged in the provision of temporary or travel accommodation on a less than monthly basis, including bed and breakfasts, hostels, hotels and inns.

B.1.2.7 Outdoor entertainment.

B.1.2.8 Other similar and compatible uses deemed by the Zoning Administrator to meet the purpose and intent of the Urban Village Specific Plan.

B.1.3 Ground Floor Uses Requiring A Use Permit

Findings in support of Use Permits on primary streets must cite the potential for the use to contribute to pedestrian activity and to provide visual access for pedestrians into the ground floor use.

B.1.3.1 Bars and nightclubs, including establishments providing entertainment or permitting dancing, and establishments serving alcoholic beverages not clearly ancillary to food service.
B.1.3.2 Public halls; clubs; lodges; meeting facilities.
B.1.3.3 Pool halls/billiards and bowling alleys as part of an eating and drinking establishment or other recreation use.
B.1.3.4 Banks and financial institutions.
B.1.3.5 Business, professional and government offices.
B.1.3.6 Parking structures.
B.1.3.7 Other similar and compatible uses deemed by the Planning Commission to meet the purpose and intent of the Urban Village Specific Plan.

B.1.4 Permitted Upper Floor Uses

Permitted upper floor uses on primary streets are intended to provide residential and small office uses above the ground floor including:

B.1.4.1 Multi-family residential.
B.1.4.2 Business, professional and government offices.
B.1.4.3 Medical and dental offices.
B.1.4.4 Other similar and compatible uses deemed by the Zoning Administrator to meet the purpose and intent of the Urban Village Specific Plan.

B.1.5 Upper Floor Uses Requiring A Minor Use Permit

For development on parcels on primary streets, the following uses on the upper floors are permitted with a Minor Use Permit:

B.1.5.1 Lodging or similar establishments engaged in the provision of temporary or travel accommodation on a less-than-monthly basis, including bed and breakfasts, hostels, hotels and inns.
B.1.5.2 Child care facilities.
B.1.5.3 Hair and nails salons, day spas, therapeutic massage.
B.1.5.4 Health and exercise clubs.
B.1.5.5 Public health facility.
B.1.5.6 Other similar and compatible uses deemed by the Zoning Administrator to meet the purpose and intent of the Urban Village Specific Plan.

B.1.6 Upper Floor Uses Requiring A Use Permit

For development on parcels on primary streets, the following uses on the upper floors are permitted with a Use Permit:

B.1.6.1 Parking structures.

B.1.6.2 Other similar and compatible uses deemed by the Planning Commission to meet the purpose and intent of the Urban Village Specific Plan.

~~B.2 Permitted Uses on the North Side of Palm Avenue and its Intersecting Streets – RH/MX Zone~~

~~Palm Avenue is envisioned as a primarily residential street. Typically, uses on Palm Avenue will follow the regulations of Section B.3; however, small-scale professional office and residential serving retail uses at the ground floor of properties fronting onto the north side of Palm Avenue and the immediately adjacent sections of Contra Costa, Hillsdale, Alhambra, and Calaveras Streets as seen in Figure 7-2, may be conditionally approved.~~

~~Figure 7-2. Permitted Uses on the North Side of Palm Avenue - RH/MX Zone *(for illustrative purposes only)*~~

~~B.3 Permitted Uses on All Other Streets – RM/POS Zone~~

~~All other streets in the Plan Area are envisioned as being primarily residential in character. These streets, including the half-block portion of the intersecting streets as shown in Figure 7-3, shall be developed at densities that will create a transitional area between the adjacent blocks of the new mixed-use area to the north and existing single-family residential to the south.~~

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B.4.1.1 For all commercial and mixed-use development with a residential component: 3.0 FAR. Where residential is part of a mixed-use development, the FAR shall include the residential dwelling units.

B.4.1.2 For mixed-use development with office above retail: 2.5 FAR.

B.4.1.3 For residential development: 2.5 FAR with 80 percent site coverage.

B.4.2 Residential Density

Residential density is calculated by dividing the total number of dwelling units by site acreage (du/acre). Density shall be calculated on a project-wide basis. The allowable residential density for parcels in the West Broadway Urban Village Specific Plan Area is as follows:

B.4.2.1 Where residential is part of mixed-use development: 30 to 60 du/acre.

B.4.2.2 Where unique site or project constraints exist, residential density at mixed-use development may occur at a minimum density below 30 du/acre with approval of the Planning Commission.

B.4.2.3 For all other residential development: 20 to 30 du/acre.

B.4.2.4 For residential on the south side of Palm Avenue: 10 to 20 du/acre

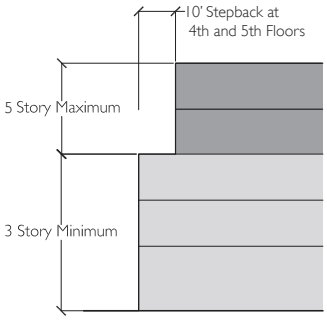
B.5 Height Standards

Height requirements are intended to ensure that the heights of new buildings contribute to the new character of the West Broadway Urban Village while being sensitive to the existing built fabric of the Specific Plan Area. Heights are measured from sidewalk or finished grade to the highest point of the roof. In all areas, architectural ornamentation may exceed the given height limit by a maximum of 10 feet. See Figure 7-4 for a key to height standard locations. Existing buildings that are demolished such that 75 percent or more of the existing building is affected shall be viewed as new construction and subject to these height standards. Interior tenant improvements are exempt from these height standards.

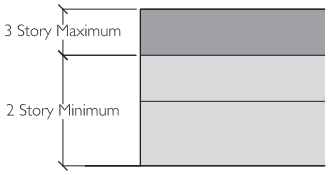
B.5.1 District 1: Both sides of West Broadway Avenue and Del Monte Boulevard, south side of Olympia Avenue, and Canyon Del Rey Boulevard between Amador Avenue and Sonoma Avenue

B.5.1.1 3 stories minimum, 5 stories maximum.

B.5.1.2 The fourth and fifth stories shall step back from third-story street walls 10 feet minimum.



B.5.1



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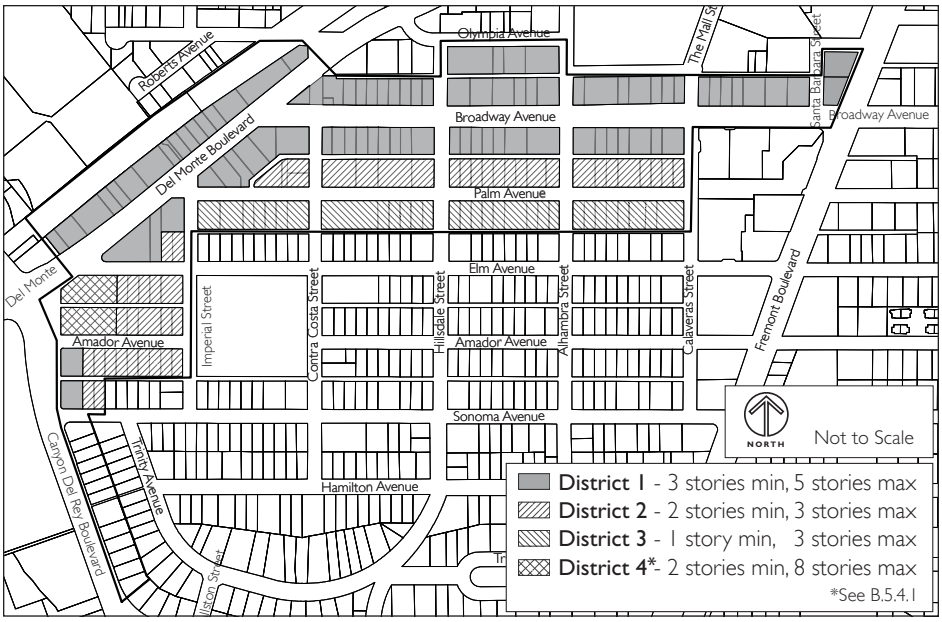
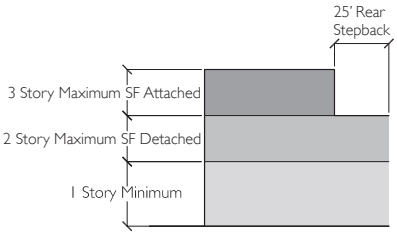
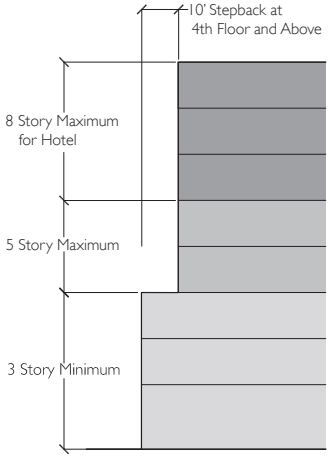


Figure 7-4. Height Districts *(for illustrative purposes only)* *See B.5.4.2



B.5.3



B.5.4

~~**B.5.2 District 2: North side of Palm Avenue, Elm Avenue, Amador Avenue, Sonoma Avenue and Imperial Street**~~

~~B.5.2.1 2 stories minimum, 3 stories maximum.~~

~~**B.5.3 District 3: South side of Palm Avenue**~~

~~B.5.3.1 1 story minimum, 3 stories maximum for single-family attached.~~

~~B.5.3.2 1 story minimum, 2 stories maximum for single-family detached.~~

~~B.5.3.3 The third story shall step back from the rear property line a minimum of 25 feet where abutting existing residential lots to the south.~~

~~**B.5.4 District 4: Canyon Del Rey Boulevard Between Elm Avenue and Amador Avenue**~~

~~B.5.4.1 3 stories minimum, 5 story maximum for all uses except hotel, 8 stories maximum for hotel use only.~~

~~B.5.4.2 The fourth story and above shall step back from third-story street walls 10 feet minimum~~

B.6 Setback Standards

To create a pedestrian-friendly environment in the West Broadway Urban Village, mixed-use buildings shall be built up to the right-of-way (ROW), generally indicated by the edge of the sidewalk. Residential buildings may be set back from the street property line. Figure 7-5 indicates setbacks on primary streets. Figure 7-6 indicates setbacks for all other streets.

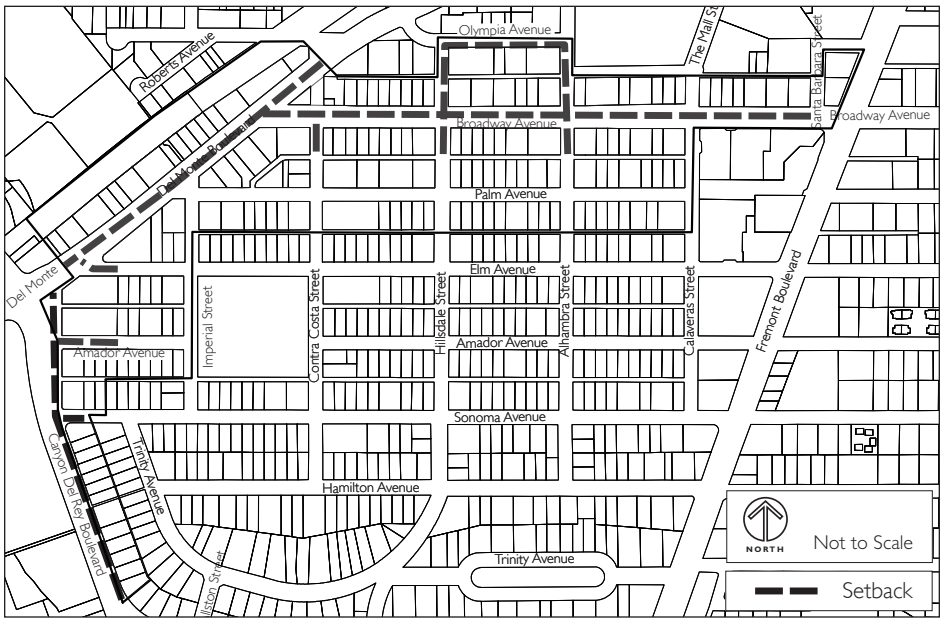


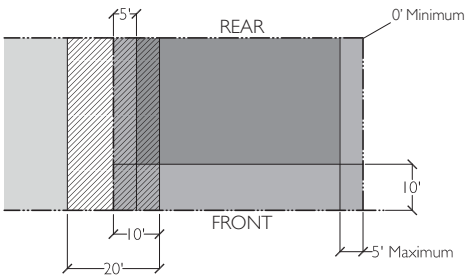
Figure 7-5. Setbacks on Primary Streets *(for illustrative purposes only)*

B.6.1 Setbacks on West Broadway Avenue, Olympia Avenue, Del Monte Boulevard, Canyon Del Rey Boulevard and the First Block of Side Streets

B.6.1.1 *Front Setbacks*: **0 feet minimum, 10 feet maximum.**

Development fronting onto primary streets, plus first half-block of side streets, shall have:

- Building walls built to the street frontage for a minimum of 70 percent of the site.
- A maximum of 30 percent of the street frontage used for entry forecourts, paseos, outdoor plazas or parking access.
- The building wall at the street frontage built with a minimum of 60 percent of the ground floor consisting of windows or store-fronts with views into the building.



B.6.1.2 *Side Setbacks*: **0 feet minimum and 5 feet maximum** except for driveway access and paseos.

- *Side Setbacks For Paseos*: 20 feet from building face to building face, subject to review by the Fire Marshall.

B.6.1.3 *Rear Setbacks*: no rear setback requirements.

~~***B.6.2*** **Setbacks on All Other Streets**~~

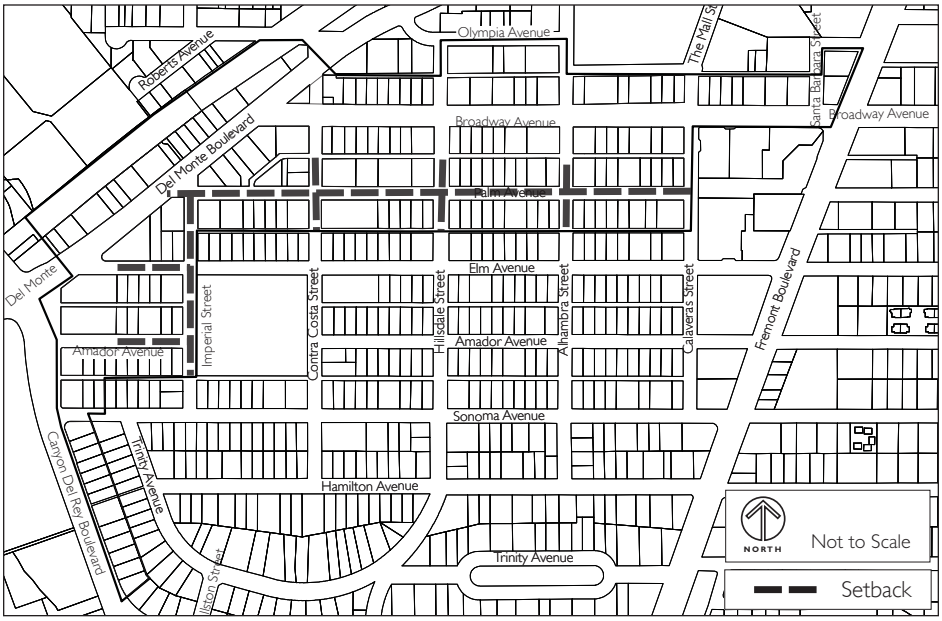


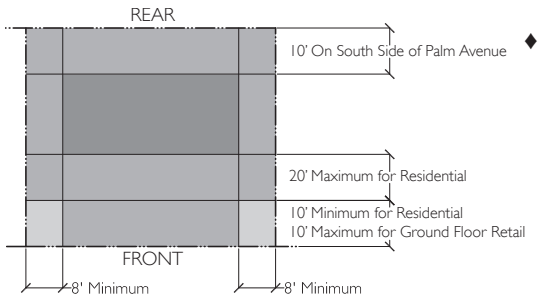
Figure 7-6. Setbacks on All Other Streets *(for illustrative purposes only)*

~~B.6.2.1 *Front Setbacks*: **10 feet minimum and 20 feet maximum**~~

- ~~0 feet minimum and 10 feet maximum where commercial ground floor uses are developed along the north side of Palm Avenue (see Section B.1.4 above).~~

~~B.6.2.2 *Side Setbacks*: **8 feet minimum**.~~

~~B.6.2.3 *Rear Setbacks*: no rear setback requirements except for the south side of Palm Avenue.~~



- ~~**10 feet** for properties fronting onto the south side of Palm Avenue to buffer impact of development on existing residences to the south.~~

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B.6.3 Special Setback Standards

B.6.3.1 At corner parcels, setback requirements from the primary street also apply to the secondary street.

B.6.3.2 Public plazas are exempt from street frontage setback requirements.

B.7 Open Space Standards

New development in the West Broadway Urban Village Specific Plan Area shall provide open space as stated in this section, according to use. Mixed-use developments are required to provide publicly-accessible open space in the form of plazas, paseos and other greenspace. Standards and guidelines specifically related to plazas and paseos are described in Sections D.2 and D.3. Residential developments are required to provide private open space (defined as exterior space attached to individual units, such as balconies or secure yard space) and/or common open space (defined as secure space available to all residents of a project, such as a roof deck or garden above the base of the building).

B.7.1 Commercial and Office

B.7.1.1 Development shall provide 100 square feet of usable public open space for every 2,000 square feet of developed building footprint. This open space may be provided off site in a plaza or paseo if it is located in the West Broadway Urban Village Specific Plan Area, and if approved by Planning Commission.

B.7.1.2 Parcels of less than 10,000 square feet are exempt from open space requirements.

B.7.2 Residential

B.7.2.1 All development with residential dwelling units shall provide a minimum of 80 square feet per unit of private open space and 100 square feet per unit of common open space.

B.7.2.2 Multi-family residential development shall provide active recreation elements for residents of all ages in common areas (outdoor, indoor, or both).

B.7.2.3 On the south side of Palm Avenue, residential units may have rear yards.

B.7.3 Connectivity

B.7.3.1 All public open spaces shall be accessible to the public during daylight hours and in the evening when businesses are open, and shall be designed to connect with public rights-of-way and adjacent public open spaces in the vicinity.

B.8 Parking Standards

New development in the West Broadway Urban Village Specific Plan Area shall provide parking as stated in this section, according to use. The requirements here intend to minimize the impact of parking on the West Broadway Urban Village and to re-enforce the intended transit and pedestrian-oriented character. Requirements for renovation, enlargements or use changes apply only to net new floor area and/or the incremental increase in parking demand that accompanies a new higher intensity use. Incremental parking requirements shall be rounded to the next whole number when the fraction is 0.5 or higher.

B.8.1 Non-Residential Parking Requirements

B.8.1.1 Commercial, retail, office and all other non-residential uses shall require one space per every 500 square feet of development. Parking provided in private off-street facilities may not exceed one space per 400 square feet of development. If private parking remains open for non-exclusive use by the general public one space per 750 square feet is required.

B.8.1.2 Places of public assembly having fixed seating (i.e. auditoriums, theaters, assembly halls, etc.), shall be required to provide one (1) space for every four (4) persons of occupancy.

B.8.1.3 On-street parking along street frontages of projects may be counted toward the parking requirement. When a space falls on the line of two properties, it may be fractionally counted toward the requirement for each.

B.8.1.4 Where an existing private lot is converted to a shared lot that is open for non-exclusive use, spaces that are provided in excess of the amount required may be leased to other establishments.

B.8.1.5 The Zoning Administrator may grant a reduction of up to 25 percent of off-street parking requirements upon provision of an approved Transportation Demand Management plan for the project and tenants. Additionally, Zoning Code Section 17.34.120 allows for payment of a fee where provision of off-street parking is neither feasible nor desirable, subject to approval by the Planning Commission.

B.8.2 Residential Parking Requirements

B.8.2.1 For all residential and mixed-use development in the West Broadway Urban Village Specific Plan Area, parking for dwelling units with two or more bedrooms shall be required at 1.5 spaces per dwelling unit. Parking for one bedroom or studio units shall be required at 1.0 space per dwelling unit.

B.8.2.2 Guest parking shall be required for all multi-family complexes of ten dwelling units or more at a rate of one space per ten dwelling units (or portion thereof). Residential development within a mixed use building is exempt from this standard.

B.8.3 Mixed-use Parking Requirements

B.8.3.1 For mixed-use developments, when two or more uses are located on the same lot or parcel or within the same building, the number of off-street parking spaces required shall be the sum of the total of the requirements of the various individual uses computed separately.

B.8.3.2 In cases where operators of uses wish to cooperatively establish and operate parking facilities, and certain uses generate parking demands primarily during hours when the remaining uses are not in operation or have a low demand, a reduction of up to 25 percent in the total number of spaces may be granted by the Zoning Administrator upon provision of an approved Transportation Demand Management plan for the project and tenants.

~~**B.8.4 Parking Lots and Structures**~~

~~B.8.4.1 New parking lots shall not front Broadway Avenue or corner parcels. Parking lots and structured parking shall be located at the rear or side of buildings.~~

~~B.8.4.2 Multi-story parking structures shall be lined with commercial, retail or residential use where allowed at the ground floor at street frontages.~~

B.8.5 Bicycle Parking

B.8.5.1 Bicycle parking shall be provided at 10 percent of vehicle requirements for all uses except single-family residential development.

B.8.5.2 For mixed-use development, secure bicycle parking shall be provided at each entrance, and include a shelter, as feasible.

B.8.5.3 Bicycle parking shall be installed at highly visible locations that are close to the main entrance of a destination.

B.9 Sustainable Development Standards

The intensity of land use and the pedestrian- and bicycle-friendly character envisioned by the West Broadway Urban Village Specific Plan will further the City's sustainability goals by ensuring that new buildings in the Urban Village incorporate sustainable design principles of minimizing energy consumption, conserving water, and use recycled or sustainable building materials. In addition, landscape and streetscape design will incorporate sustainability principles. The general measures listed below shall be reviewed and considered by all designers and builders in the Specific Plan Area.

B.9.1 Building Construction: Building Materials

B.9.1.1 Where feasible, renovate and add to existing buildings rather than demolish or build new buildings.

B.9.1.2 Recycle demolition and construction debris to the maximum extent possible. Deconstructive reuse and recycling is highly encouraged. Debris should be sorted on the job site and taken to recycling centers to ensure materials are being recycled.

B.9.1.3 Use locally-produced, extracted, harvested, recovered and manufactured building products from northern California as much as possible.

B.9.1.4 Use high-quality green or sustainable construction materials, products and furnishings with the maximum amount of recycled content available, where feasible.

B.9.1.5 Use recycled materials for building interiors, such as recycled carpet and recycled glass countertops.

B.9.1.6 Use "rapidly renewable" materials wherever appropriate, such as bamboo, engineered lumber and paper-based "cellulose" insulation.

B.9.1.7 Use low-emitting materials for all interior adhesives, sealants, paintings, coatings, carpet systems, composite wood and agrifiber products, and cleaning products.

B.9.1.8 Insulate and seal the building envelope while providing energy-efficient ventilation and fresh air exchange.

B.9.1.9 Provide recycling, composting and trash receptacles in all common areas. Central building collection locations for all waste types should be provided for pickup by waste haulers.

B.9.2 Building Construction: Doors and Windows

B.9.2.1 Install size-appropriate windows to balance natural light while reducing heat gain during the warm season.

B.9.2.2 Use Low-E (low-emissivity) glazing, dual and triple pane glazing and other energy-efficient window glazing technologies.

B.9.2.3 Install exterior shading over doors and windows, such as trellises, trees, awnings and overhangs to reduce heat gain during the warm season. Passive solar design should be incorporated such that heat gain is maximized during the cool season.

B.9.2.4 Provide window treatments such as shades and blinds that will diffuse incoming light and control glare.

B.9.2.5 Install operable windows in all commonly-used building areas. Operable windows can take advantage of the breezes in Seaside for natural cooling.

B.9.3 Building Construction: Water and Graywater

B.9.3.1 Install low water use fixtures and appliances. Use "on-demand" water heaters and low water use appliances such as front-loading clothes washers, water-efficient dishwashers, low-flow toilets and water-saving showerheads.

B.9.3.2 Collect and reuse rainwater, such as with a rooftop catchment system, to supplement landscape water use.

B.9.3.3 Pre-plumb buildings as feasible to allow for the installation of "graywater" systems and/or solar hot water systems. Water recycled from clothes washers, dishwashers and other uses should be collected and reused in the landscape, if coordinated with health standards.

B.9.4 Building Construction: Heating, Ventilation and Air Conditioning (HVAC)

B.9.4.1 Install the most energy-efficient equipment feasible, such as sensor-controlled and economized HVAC systems, automatic-adjustment or occupancy-sensing lighting systems, Energy Star-qualified products, and interior design that optimizes the use of natural light.

B.9.4.2 Provide automatic shut-off HVAC controls to allow building heating and cooling to be turned off when building is not in use or when target temperatures are reached.

B.9.4.3 Use an Energy Management System (EMS) to heat and cool only occupied rooms.

B.9.5 Building Construction: Alternative Energy Generation

B.9.5.1 Pre-wire buildings as feasible to allow use of solar and wind electricity generation. Ensure that the electrical wiring and system is sized to accommodate additional amperage due to photovoltaic and wind-generated energy on-site.

B.9.5.2 Install solar photovoltaic panels as feasible to provide on-site energy generation. Sell unused energy back to the power company as possible.

B.9.5.3 Install solar hot water collectors as feasible to replace or supplement conventional water heating loads.

B.9.5.4 Install wind turbines where possible to utilize energy from the wind. Use wind turbines that avoid or reduce avian impacts.

B.9.5.5 Consider site layout and design of buildings in relation solar orientation and sea breezes to supplement heating and cooling loads.

B.9.5.6 Design for passive solar heat gain, where appropriate, using dark colored, dense materials that absorb heat from the sun and radiate back into the building interior slowly, such as concrete, adobe, brick and plaster. Roof systems should be designed so as not to absorb excessive heat that burdens HVAC systems.

B.9.5.7 Consider the installation of radiant floor heating or other efficient space heating technologies that eliminates forced air systems in buildings.

B.9.6 Landscaping and Streetscape

B.9.6.1 Use only native and other drought-resistant or drought-tolerant landscaping, and group landscaped areas by water need. Irrigation shall be drip irrigation directed where needed. Large areas of mowed lawn landscaping are not allowed.

B.9.6.2 Provide opportunities to recycle green waste. Recycling of landscape material should be made easy by providing bins at convenient locations. Shrubs that require trimming are discouraged.

B.9.6.3 Provide adequate shading of plazas, sidewalks, parking areas, common areas and buildings, where appropriate. Trees and trellises help to control heat gain in and around buildings.

B.9.6.4 Include low-impact development stormwater collection and treatment measures to control peak run off flow and volume. Where possible, increase permeable surface area on-site by employing stormwater management features such as permeable pavement, vegetated filter strips, vegetated drainage swales, flow-through planter boxes, infiltration basins or trenches, media filtration devices and vegetated roofs.

B.9.6.5 Encourage the use of rooftop rainwater catchment systems to reduce irrigation from potable water sources and eliminate excess stormwater runoff from roof structures.

B.9.6.6 Use reclaimed water systems such as on-site wastewater recycling when possible for landscape irrigation systems.

B.9.6.7 Install recirculating systems for recycled water in all decorative water features.

B.9.7 Lighting

B.9.7.1 Provide energy efficient interior and exterior light fixtures. For new construction and large renovations in the West Broadway Urban Village, interior and exterior lighting shall meet or exceed 2008 California Energy Commission standards for lighting efficiency.

B.9.7.2 Install lighting fixtures that are certified with the International Dark-Sky Association's (IDA) Fixture Seal of Approval. (www.darksky.org)

B.9.7.3 Use sensor-controlled interior lights. Sensors ensure that lights automatically turn on when rooms are occupied and off when vacant.

B.9.7.4 Install photosensors at building interiors. These devices automatically dim lighting levels when natural light in the building is abundant.

B.9.7.5 Light exterior only as necessary; use the minimum light setting required to provide adequate security and safety. Focus lighting fixtures downward, use pedestrian-scaled fixtures, and ensure all fixtures have cut-off shading to resist light leakage into the night sky.

B.9.7.6 Position lighting in a manner that will reduce or avoid glare.

C. *Design Principles*

This section discusses basic principles for future development in the West Broadway Urban Village. These principles, although straightforward and rudimentary, should be considered in the preliminary phases of the design of a project. The goal inherent in these principles, and the guidelines in this document, is to produce a built environment that facilitates a high degree of pedestrian activity.

1. Building Orientation
Entrances to buildings shall face onto a public street.

2. Building Massing
The massing, or three-dimensional volumetric form, of larger buildings shall be broken into smaller components that more readily relate to the human scale.

3. Pedestrian Orientation
Site planning, building design and landscaping of projects should implement design solutions that provide amenities, maximize access and optimize the use of new development by pedestrians.

4. Building Components
A building shall have a base, a middle and a top, which can be achieved for any architectural style or building type.

5. Façade Composition
The design of building façades shall incorporate elements that help to break up long, undifferentiated walls or sides of buildings and facilitate a relationship with the building's users as well as its landscape setting.

6. Relationship to the Human Form
Building façades shall incorporate design features and architectural elements that relate to the scale of the pedestrian.

7. Sustainability
Development shall incorporate elements and features that minimize impact on the natural and built environment.

D. Commercial Mixed-Use Development

This section contains standards and guidelines for new and redeveloped construction in the West Broadway Avenue and Del Monte Boulevard mixed-use areas. Developers are encouraged to implement a vertically mixed-use typology, such as multi-family residential or office use above a retail use.

Sections

D.1 Site Planning
D.2 Design for Pedestrians
D.3 Open Space
D.4 Parking
D.5 Building Design
D.6 Landscape Design
D.7 Signs
D.8 Lighting

D.1 Site Planning

INTENT: To ensure that new development creates an attractive West Broadway Urban Village that is comfortable for residents and visitors.

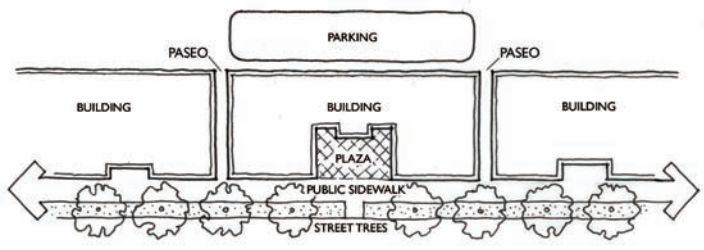
D.1.1 Building Location and Orientation

Standards

D.1.1.1 Parking shall not be allowed between the building and street edge.

Guidelines

D.1.1.2 Main façades with entrance doors and windows should front upon the primary street.



Proper building orientation and location of parking.

D.1.1.3 The location of site uses should be coordinated with adjoining properties to avoid creating nuisances such as noise, light intrusion, invasion of privacy and traffic, particularly when development is adjacent to sensitive uses such as residential development.

D.1.1.4 Owners of adjoining properties are strongly encouraged to develop shared facilities such as driveways, parking areas, pedestrian plazas and walkways.

D.1.2 Corner Sites

Guidelines

D.1.2.1 At street corners, new development should either be sited on the corner property lines or set back from the corner to provide a public open space that provides direct access to the buildings or frames an open space between buildings.

D.1.2.2 Buildings located on corners should include special design and architectural features that help to anchor the intersection.

D.1.2.3 To address the corner location, articulation of the building mass should be provided at corner sites, including, but not limited to, creating a rounded or angled facet on the corner, location of the building entrance at the corner and/or an embedded corner tower.

Building set back at corner to provide space for outdoor dining.

Well-articulated corner massing.

D.1.3 Development Along Alleys

Standards

D.1.3.1 Alleys shall have paving materials that accommodate pedestrian and vehicular traffic.

D.1.3.2 All trash bins shall be secured and screened from view.

Guidelines

D.1.3.3 Alleys should be treated as pedestrian connections where restaurants, flower shops and other commercial establishments are encouraged.

D.1.4 Service and Refuse Areas

Standards

D.1.4.1 Trash enclosures shall be constructed of durable and washable materials and the color, texture, and architectural detailing shall be consistent with the overall site and building design. Materials should be graffiti-resistant.

D.1.4.2 Trash enclosures shall be designed for collection from a side street, alleyway or parking area to avoid collection trucks needing to maneuver in busy roadways.

D.1.4.3 Roofs of trash or service enclosures shall be designed to complement the project buildings' roof style and colors.

D.1.4.4 Loading and service entrances shall not intrude upon the public view, nor interfere with pedestrian and vehicular flows within the project site.

Guidelines

D.1.4.5 Trash enclosures, service areas, utility meters, and mechanical and electrical equipment should be screened from public view and located for convenient access by service vehicles.

D.1.4.6 Screening of service areas should be integrated into the overall building and landscape design.

Screened trash enclosure.

D.1.5 Small-Scale Manufacturing Projects

Standards

D.1.5.1 Large truck deliveries shall be limited to the hours between 8 a.m. and 5 p.m. when adjacent to residential development.

Guidelines

D.1.5.2 The visual character of development that houses a small-scale manufacturing use should be compatible with surrounding development and relate in size and scale to adjacent buildings and uses.

D.1.6 Sustainable Site Development

Guidelines

D.1.6.1 Existing buildings should be reused and incorporated into new development, if possible. If reuse or incorporation of existing buildings is not possible, then buildings materials should be recycled.

D.1.6.2 Solar access should be considered when site planning. Buildings should maximize the use of winter and summer sun for efficient energy use and reduce shading on neighboring properties and public spaces.

D.1.6.3 Non-automobile modes of transportation should be encouraged by providing no more than the minimum number of vehicle parking spaces, creating attractive pedestrian environments and providing bicycle parking.

D.2 Design for Pedestrians

INTENT: To ensure that pedestrian movement and amenities are an important part of the development of the site.

D.2.1 Pedestrian Orientation

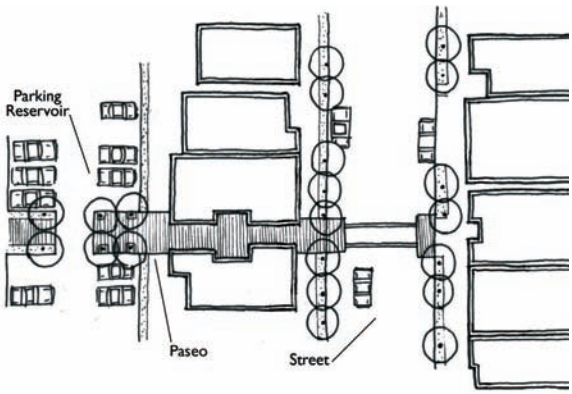
Standards

D.2.1.1 All commercial mixed-use areas shall emphasize pedestrian orientation by creating attractive pedestrian spaces which utilize such features as plazas, interior walkways and paseos, ornamental gates, trellises, lighting, plant materials, seating, fountains, etc.

Attractive pedestrian space with planters, seating and sidewalk paving.

D.2.1.2 Outdoor pedestrian space shall be landscaped and include appropriate street furniture to facilitate pedestrian activity.

Nicely landscaped outdoor pedestrian space.



Pedestrian connection between parking and streets.

Well-designed plaza promoting pedestrian activity.

D.2.1.3 Attractive well-marked pedestrian links between parking and buildings shall be provided. The connections shall be designed as safe, clearly marked and attractive pedestrian walkways across parking spaces and landscaped areas.

D.2.1.4 All commercial mixed-use buildings shall be publicly-accessible via a path or walkway from a public sidewalk.

Guidelines

D.2.1.5 Pedestrian connections within development projects should include spaces such as plazas to encourage and attract pedestrian activity.

D.2.1.6 Pedestrian paths and plazas should be lit with pedestrian-scale lighting conforming to the guidelines in Section B.9.7.

D.2.1.7 Pedestrian paths and plazas should use permeable paving materials whenever possible.

D.3 Open Space

INTENT: To give design guidance for the amount, layout and materials of public, private and common open spaces.

D.3.1 Public Open Space

Guidelines

D.3.1.1 Plazas, building forecourts and paseos should be developed to maximize circulation opportunities between adjacent buildings.

D.3.1.2 Seating areas should be provided and coordinated with shading, landscaping, lighting and views to focal points.

D.3.1.3 Permeable paving materials should be used whenever possible.

D.3.1.4 Outdoor gathering spaces should be provided for residents and tenants that provide opportunities for 'eyes on the street' and amenities such as benches, barbeques and bocce ball courts that will encourage people to socialize communally.

A plaza providing opportunity for activity between buildings.

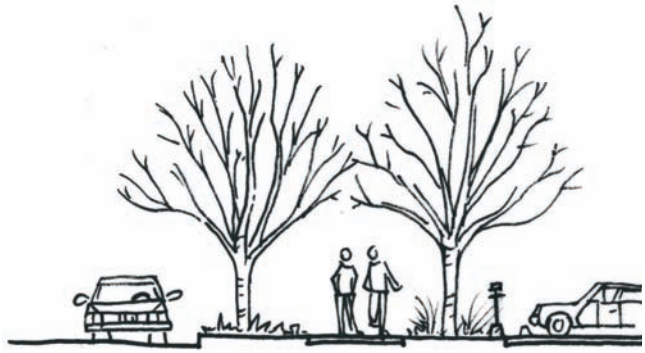
D.3.2 Private Open Space

Guidelines

D.3.2.1 Private residential open space areas should be configured and designed to ensure privacy for residential uses while also providing linkages to the public open space components of the project.

D.3.2.2 Permeable paving materials should be used whenever possible.

D.3.2.3 Outdoor gathering spaces should be provided for residents and tenants that provide opportunities for 'eyes on the street' and amenities such as benches, barbeques and bocce ball courts that will encourage people to socialize communally.



Parking buffered by landscaping.

Pedestrian paseo to parking located at the rear of buildings.

D.4 Parking

INTENT: To minimize the impact of surface parking on the aesthetic character desired for quality commercial mixed-use development in the West Broadway Urban Village.

D.4.1 Parking Area Design

Standards

D.4.1.1 Surface parking areas facing a public street are discouraged. If unavoidable, they shall be buffered by landscaping or low walls and fencing. For security purposes, openings shall be incorporated into the design of buffers to provide views into the site.

Guidelines

D.4.1.2 Parking areas should be located in the rear of projects, or beneath buildings, with pedestrian connections between the parking areas and the street.

D.4.1.3 Parking should be integrated within the project and visually de-emphasized.

D.4.1.4 Landowners should be encouraged to enter into shared parking agreements that allow uses with different peak hours of operation to utilize off-street parking facilities provided by another building or use.

D.4.1.5 All outdoor parking areas should be divided into smaller units to decrease visual impacts associated with large expanses of pavement and vehicles, and to facilitate safe and efficient pedestrian movement between parking and residential and commercial development.

D.4.1.6 Permeable paving materials should be used whenever possible.

D.4.2 Access Drives

Guidelines

D.4.2.1 Building siting and parking design should maximize opportunities for shared parking, access entries and driveways in order to minimize the number of curb cuts and thus limit possible conflict between pedestrians and automobiles.

D.4.2.2 Whenever possible, vehicle access should be provided from side streets and alleys to limit the number of driveways along the main thoroughfares.

D.4.2.3 Access on corner lot driveways should be located as far as possible from intersections, but no less than the minimum required by City standards.

D.4.2.4 All new projects should provide bicycle racks that are located close to the buildings and do not impede pedestrian or auto circulation. Whenever possible, bicycle areas should be covered and located in areas that are clearly visible to site users.

Shared access to parking lot.

Bicycle parking located in front of buildings.

D.5 Building Design

INTENT: To guide in shaping the urban form of the West Broadway Urban Village in a manner that is consistent with the City's vision for the area, displaying a human-scaled rhythm through materials and architectural elements such as façade articulation, accented entries, window patterns and roof forms.

D.5.1 Façade Articulation

Standards

D.5.1.1 Buildings shall be articulated to reflect a small-scale street frontage rhythm, with building storefront widths of approximately 30 to 50 feet.

D.5.1.2 Where multiple tenant spaces are incorporated into a building, individual tenant spaces shall be located within the building bays. This can be achieved by any of the following:

- Placing a column, pier or pilaster between façade elements.
- Applying a vertical slot or recess between façade elements.
- Providing variation in plane along the building wall.
- Varying the building wall by recessing the storefront entrance or creating a niche for landscaping or for a pedestrian area.

Multiple tenants in one building.

D.5.1.3 Buildings shall have a clearly defined base and roof edge so that the façade has a distinct base, middle and top at a scale that relates to an individual person.

D.5.1.4 Building façades shall have elements that relate to the scale of a person.

Building façade with distinctive base, middle, top and pedestrian-scale elements.

D.5.1.5 All façades shall emphasize three-dimensional detailing such as cornices, window moldings, textures and reveals to cast shadows and create visual interest on the façade.

Guidelines

D.5.1.6 Façades without openings or changes in wall planes should be avoided.

D.5.1.7 Articulation should add three dimensional interest to the façade and not rely on "false" detailing.

D.5.1.8 Projecting elements such as awnings, trellises and overhangs should be used as an effective means of integrating the architectural edge with the adjoining pedestrian areas, adding three-dimensional interest to the façades and enhancing the sense of entry into the building.

D.5.1.9 One or more of the following elements should be used to articulate a building façade:

- Design details for the top of a building, including cornice lines, parapets, eaves, brackets and other detailing.
- Design details for the body, or middle, of the building, including windows, awnings, trellises, canopies, pilasters, columns, decorative lighting and window boxes.
- Design details for the base of a building, including recessed entry areas, covered outdoor areas and alcoves.
- Vertical architectural features, such as columns, piers, pilasters and slots.

Facade detailing.

Awnings shaping pedestrian space at the base of buildings.

Relief sculptures and murals add character to facades.

D.5.1.10 Ground-floor façades should be designed to give individual identity to each retail establishment. Each shop should have a distinct façade with a unique character.

Recessed entry to upper level floor uses.

D.5.2 Entries

Standards

D.5.2.1 Entries to ground-floor retail areas shall occur from main streets, and shall be accented with features such as moldings, lighting, overhangs or awnings.

Guidelines

D.5.2.2 Main building entries or entries to upper story uses should be recessed into entry bays to create transitional spaces between the street and buildings.

D.5.2.3 Entrances should incorporate one or more of the following treatments:

- ♦ Marked by a taller mass above, such as a tower or volume that protrudes from the rest of the building surface.
- ♦ Accented by special architectural elements, such as columns, overhanging roofs, awnings and ornamental light fixtures.
- ♦ Indicated by a recessed entry or recessed bay in the façade.
- ♦ Sheltered by a projecting awning or canopy, designed as a canvas or fabric awning or as a permanent architectural canopy utilizing materials from the primary building.

Entrance accented by columns and recession.

D.5.3 Doors and Windows

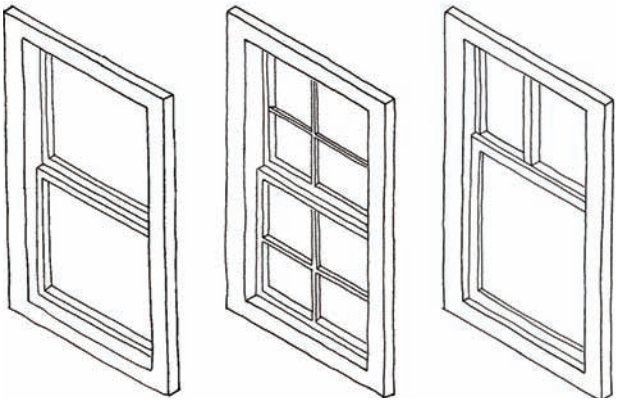
Standards

D.5.3.1 Where unique use or occupancy requirements preclude the addition of windows, such as theaters or parking structures, exterior walls shall be painted with murals, designed to provide architectural relief, or shall be screened by landscaping and pedestrian amenities, such as trellises, benches, sculpture or shade structures.

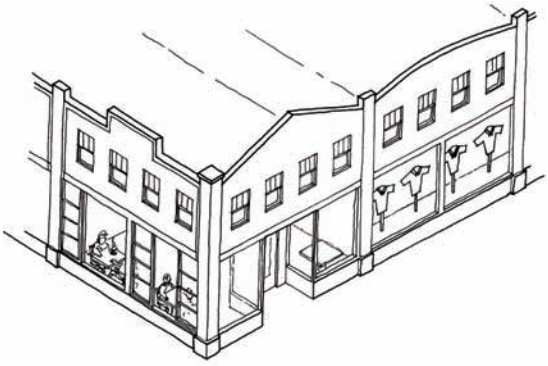
D.5.3.2 Upper story windows shall be detailed with architectural elements, such as sills, molded surrounds, lintels and sliding devices.

D.5.3.3 Operable windows shall be used.

D.5.3.4 Window size and design shall be proportional to the size of the facade and architectural treatments.



Upper store window detailing.



Windows distinguish first-floor retail and comprise most of the façade at street-level.

D.5.3.5 Multi-pane window for all uses shall be either true divided or simulated divided. "Simulated divided light grids," snap-in muntins (i.e. post or bars used to separate glass in a sash into multiple panes) and those located within double-paned glass should not be used.

D.5.3.6 Clear glass shall be used in ground-floor windows and doors. Deeply tinted glass or applied films shall not be permitted on ground floors.

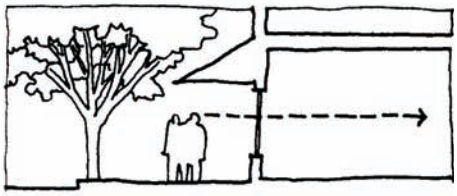
Guidelines

D.5.3.7 Window patterns should architecturally distinguish a building's first floor retail character, with a higher percentage of windows than on upper floors.

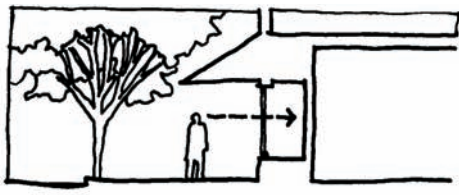
D.5.3.8 A minimum of 60 percent of linear store frontage at the primary street façade should be used for windows.

D.5.3.9 Doors at main entries should use high quality materials such as crafted wood, stainless steel, bronze and other ornamental metals.

D.5.3.10 Commercial storefronts should include street-oriented display windows. These windows should provide visual access to the inside of the building, while also serving as an area for merchandise display. Enclosed display window areas should be provided where actual windows cannot be provided.



Visual access through storefront windows.



Enclosed display window area.

D.5.3.11 The function and design of windows should be consistent with the use within.

D.5.3.12 Windows should maintain consistency in shape and location across the façade and be coordinated with façades of adjacent buildings. Unifying patterns should include a common window header line and aligned vertical centerlines of windows and doors.

D.5.3.13 Non-reflective films, coatings, low emissivity glass, and external and internal shade devices should be used for heat and glare control.

D.5.4 Awnings and Canopies

Standards

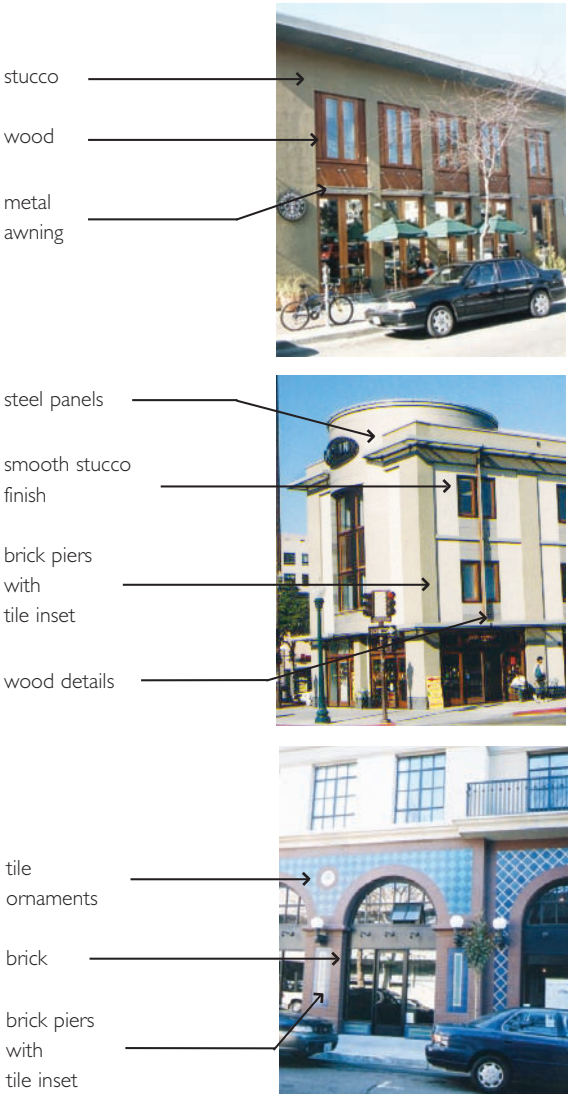
D.5.4.1 Canopies over building entries shall be incorporated into the design of the building, including colors and material detailing.

D.5.4.2 Backlighting of transparent or translucent awnings shall not be allowed.

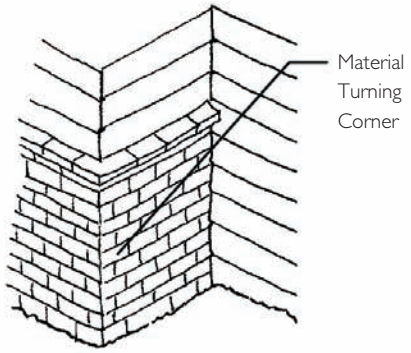
Guidelines

D.5.4.3 Awnings are encouraged, and if used, should be provided over each storefront of buildings with multiple storefronts. These awnings should be located within the individual structural bays and should not hide architectural detailing.

D.5.4.4 Awnings should be made of durable materials that can withstand high winds, weathering by salt laden air and be easily maintained and cleaned.



Variety of materials articulating and creating an interesting and attractive building façade.



Brick veneer wraps around building corner.

D.5.5 Building Materials

Guidelines

D.5.5.1 A wide variety of materials is strongly encouraged to articulate different building elements, including the ground-floor façade, vertical elements such as columns and pilasters, roof and parapet terminations and window sills.

D.5.5.2 Within a design theme, a variety of durable materials and textures is strongly encouraged. Such materials may include both traditional materials, such as wood and stucco, and materials such as concrete, structural steel, corten steel and other high-quality durable metals which have not been used traditionally.

D.5.5.3 Metals that are not treated or coated should be avoided.

D.5.5.4 Genuine materials should be utilized rather than simulated materials. Where simulated materials are used, they should be used in keeping with the character and properties of the material being simulated.

D.5.5.5 Materials should be harmonious with adjacent buildings.

D.5.5.6 Quality materials shall turn corners to indicate depth and to prevent "false front" appearances.

D.5.5.7 Artwork should be incorporated into building design.

D.5.6 Color

Guidelines

D.5.6.1 Exterior building colors should be compatible with surrounding buildings.

D.5.6.2 Primary colors and other bright colors can be used as accents to enliven the

architecture, but should be used sparingly. Accent colors should be used to enhance visual interest.

D.5.6.3 Color should be used to enhance architectural elements.

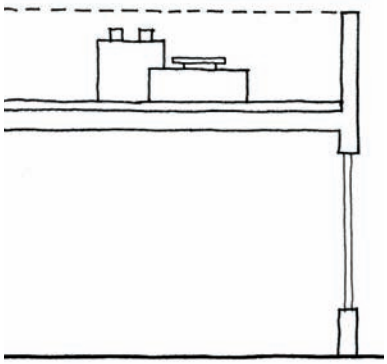
D.5.7 Roofs and Parapets

Standards

D.5.7.1 The form, color and texture of the roof shall be an integral component of the building design.

D.5.7.2 All buildings shall provide cornice or parapet detailing in order to delineate a strong roofline along the primary façades.

D.5.7.3 All roof-mounted mechanical, electrical and external communication equipment, such as satellite dishes and microwave towers, shall be screened from public view and architecturally integrated into the building design. The screen shall be architecturally consistent with the building and coordinate with existing building materials.



Properly-screened roof-mounted equipment.

Guidelines

D.5.7.4 The roof shape should reflect the configuration of the building's mass and volume, and should be consistent in its character from all vantage points.

D.5.7.5 Cornices and horizontal bands of genuine materials such as wood trim or precast concrete rather than foam trim are encouraged.

D.5.7.6 False fronts and thinly applied mansard forms should be avoided.

D.5.7.7 Roofs should be proportionate to building mass and incorporate cornices, eaves and overhangs.

Distinct roof shapes help distinguish individual buildings.

D.6 Landscape Design

INTENT: To give design guidance for the amount, layout and materials of landscaping components of public and private development.

D.6.1 Function

Standards

D.6.1.1 Where pedestrian paths or walkways cross parking areas or driveways, the paths shall incorporate landscaping and decorative paving to define the pedestrian space.

D.6.1.2 Pedestrian entries into sites shall be enhanced with landscaping and decorative paving, trellis structures, pedestrian-scaled lighting and seating.

Pedestrian crossing distinguished by unique paving.

Guidelines

D.6.1.3 Landscaping should be used to provide an attractive setting for development, soften hard building contours, shade walkways, parking areas and other large expanses of pavement and to screen unsightly uses.

D.6.1.4 Where walkways cross traffic lanes, special design features should be used to increase safety for the pedestrian. Potential design features include raised or textured pavement, curb extensions to narrow the travel lane, and low-level lighting such as a bollard light.

Raised median and bollards at pedestrian crossing increases pedestrian safety.

D.6.2 Street Frontage

Standards

D.6.2.1 Street trees shall be included along all street frontages of commercial mixed-use development. Trees should be selected from a list of City-approved trees.

Street trees lining a mixed-use street.

Guidelines

D.6.2.2 Selected trees should be broad branching with a minimum mature canopy spread of 20 feet and a high canopy to allow visibility of buildings.

D.6.2.3 The City should develop detailed street tree plans that establish specific species and planting details for the City's major mixed-use and commercial corridors.

D.6.2.4 Landscape beds should be created at curbs, where possible, including pots, planters and sustainable stormwater retention features.

D.6.3 Plants and Materials

Standards

D.6.3.1 All landscaped areas shall have automatic irrigation systems installed to ensure that plant materials survive. It is particularly important in commercial mixed-use development that irrigation systems are designed so as not to overspray public walks, paved areas, buildings and fences.

D.6.3.2 Landscaped areas, including trees and other planting, as well as paving, walls and fences shall be regularly maintained.

Two types of succulents.

A variety of succulents and daisies.

Artemesia.

Potted phormium and festuca glauca.

Mexican feather grass.

Phormium and erigeron.

Guidelines

D.6.3.3 Plant and landscape materials should be selected and sited to reflect both ornamental and functional characteristics. Full-headed shade trees, greenery and brightly colored flowering materials all add to the overall impression of Seaside.

D.6.3.4 A well-coordinated palette of plant species should be selected for general landscaping purposes, such as parking lots and street frontages, as listed in Appendix B.

D.6.3.5 Plant species should be generally hardy and not require extensive maintenance. Species that are native or well-adapted to the climate in Seaside are preferable, as they will generally require less water and maintenance.

D.6.3.6 Both seasonal and year-round flowering shrubs and trees should be used where they can be most appreciated, such as adjacent to walks and recreational areas, and as a frame for building entrances and stairs.

D.6.3.7 Evergreen shrubs and trees should be used for screening along rear property lines (not directly adjacent to residences), around trash/recycling areas and mechanical equipment, and to obscure grillwork and fencing associated with parking structures.

D.6.4 Landscaping in Plazas and Open Space

Standards

D.6.4.1 Outdoor pedestrian spaces shall include appropriate outdoor furniture, such as seating, walls, trash receptacles, bike racks and other elements.

D.6.4.2 Publicly-accessible private plazas and open spaces shall be landscaped and incorporate high-quality paving materials, such as stone, concrete or tile.

D.6.4.3 All screening shall be designed as an integral part of the overall building design.

Plaza with furniture.

Landscape as screening.

Guidelines

D.6.4.4 Projects should develop a comprehensive open space network that uses plazas and other open space elements to connect uses.

D.6.4.5 Pedestrian amenities, such as plazas, courtyards, paseos and other open spaces should be considered for spaces between buildings.

D.6.4.6 Ample landscaping with fountains and well-shaded seating areas are highly encouraged. Plant materials, where appropriate, should provide variety while being consistent with the architectural design of the building.

D.6.4.7 Paving in plazas and open spaces should be permeable whenever possible.

D.6.4.8 Public art should be incorporated into open space projects whenever possible.

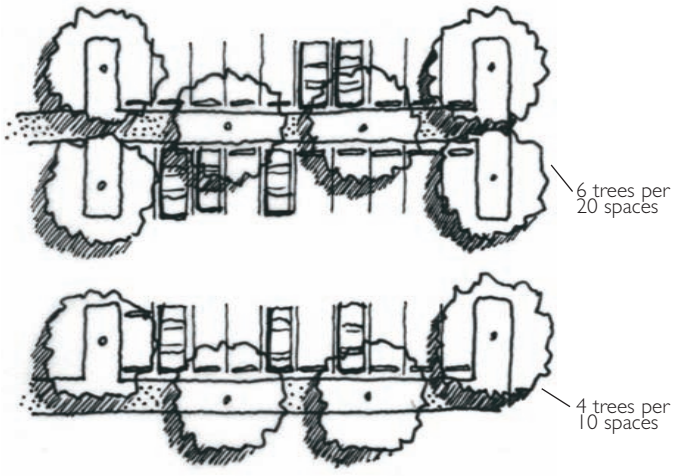
D.6.5 Parking Area Landscaping

Standards

D.6.5.1 All surface parking areas shall provide interior landscaping for shade and aesthetic enhancement.

D.6.5.2 Parking lots shall be landscaped with broad branching shade trees at a minimum ratio of:

- 6 trees per 20 parking spaces for double-loaded stalls
- 4 trees per 10 parking spaces for single-loaded stalls
- One tree for every 3 parking spaces for parking bays with less than 10 spaces.



Minimum tree ratios for parking areas.

High-quality, permeable brick paving.

Guidelines

D.6.5.3 Permeable surfaces for paving should be considered and used when possible.

D.6.5.4 Recycled materials should be considered for use in paving whenever possible.

D.6.5.5 Planter areas should provide a 4-foot minimum width of clear planting space.

D.6.5.6 Wheel stops should be used adjacent to tree wells and planter areas to protect landscaping from car overhangs. In place of wheel stops, the planter curb may be used for car overhangs, provided a 4-foot minimum clear planting area is maintained.

D.6.5.7 Drainage into swale areas is encouraged and may be accommodated through design elements such as flush curbs, perforated curbs and tree offsets.

D.7 Signs

INTENT: To ensure that signs are designed and constructed to make a positive contribution to the overall character of the commercial mixed-use project.

D.7.1 Function

Standards

D.7.1.1 The primary purpose of signs shall be to identify a business or businesses and residences located at a specific site.

Guidelines

D.7.1.2 The design of a sign should be simple and easy to read.

D.7.1.3 The sign's message should be limited to the business name or the logo of the business occupying the site.

Simple signs showing business names.

D.7.2 Architectural Context and Placement

Standards

D.7.2.1 Signs shall not be permitted on top of any roof, and no sign attached to a wall or eave shall project above the eave line of the building.

D.7.2.2 Where residential use is limited to the second floor, signs shall be limited to the first floor.

Guidelines

D.7.2.3 Sign design should conform to and be in harmony with the architectural character of the building.

D.7.2.4 Signs attached to a building should be designed as integral components of the building and not obscure or conceal architectural elements.

Signs incorporated into building architecture.

D.7.2.5 Standardized or corporate signs, which do not relate to the building architecture, should not be permitted.

D.7.2.6 Building signs should be located within an area of the façade that enhances and complements the architectural design.

D.7.2.7 Signs should generally be symmetrically located within a defined architectural space.

D.7.3 General Design

Standards

D.7.3.1 Where internally illuminated lighting is used, only individual letter signs shall be permitted.

D.7.3.2 No "can" (box type) signs with translucent plastic sign panel front with applied or painted lettering shall be permitted except for tenant logos.

D.7.3.3 Signs with opaque faces and cutout lettering shall only be permitted where the sign ties into the architecture of the building.

Corporate retail given unique signage appropriate to neighborhood architecture.

Guidelines

D.7.3.4 Sign design should be appropriate to the business establishment, building architecture and area in which it is located.

D.7.3.5 Exposed neon signs are strongly discouraged.

D.7.4 Wall or Window Signs

Standards

D.7.4.1 Painted signs and letters shall present a neat and aligned appearance. The services of a professional sign painter are strongly recommended.

D.7.4.2 Externally illuminated or halo lit signs are encouraged and where used shall have an opaque face.

D.7.4.3 All exterior sign lights shall be downlit and shielded to direct light toward the sign and reduce glare and impacts to the night sky.

D.7.4.4 Window signs advertising temporary sales or events shall not be permitted.

D.7.4.5 Window signs shall not be placed in a manner which obscures primary views into and out from the storefront.

Guidelines

D.7.4.6 Where individual letters are used, letters should be three dimensional, created by raised letter forms mounted to the building façade or sign panel, or by incised openings cut-out from the sign panel.

D.7.4.7 For signs identifying hours of operation, menus, newspaper reviews and other customer information, it is recommended that these be framed, board-mounted or plastic laminated for a finished appearance.

D.8 LIGHTING

INTENT: To ensure that the design of fixtures and the light provided contributes to the character of development and does not impact adjacent development or the night sky.

D.8.1 Function and Location

Standards

D.8.1.1 Site plans and architectural plans shall include the location of fixtures, their design and the nature and level of the illumination they will provide.

D.8.1.2 Exterior lighting shall be designed as an integral part of the building and landscape design.

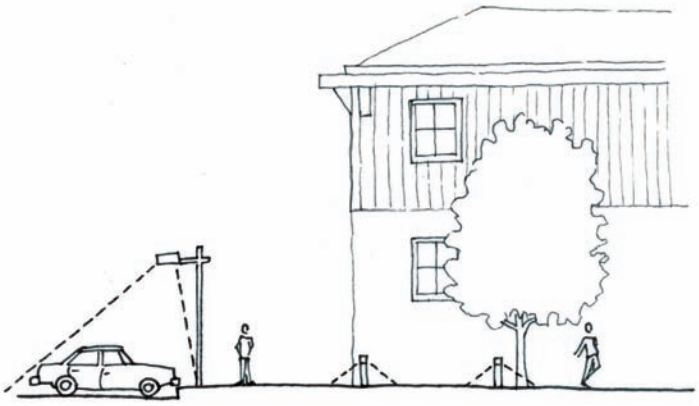
D.8.1.3 Lighting locations shall be concentrated at areas with security concerns such as parking lots, pedestrian paths, outdoor gathering spaces, at building entries and any other pedestrian accessible areas, and limited in other areas.

D.8.1.4 Lighting of outdoor service, loading and storage areas shall not be visible from the street or adjacent properties.

D.8.1.5 The height of luminaries shall be in scale with the building and site design and in no case shall they exceed 18 feet in height from grade.

D.8.1.6 The light source for externally-illuminated signs must be positioned so that light does not shine directly on adjoining properties or cause glare or shine in the eyes of motorists of pedestrians.

D.8.1.7 No outdoor lights shall be permitted that blink, flash or change intensity.



Lighting focused on pedestrian areas and parking.

Sign and supports coordinated with architecture.

Multi-tenant complex sign.

D.7.5 Projecting Signs

Guidelines

D.7.5.1 Projecting signs should be located near the front entry of a store.

D.7.5.2 Structural supports for projecting signs should be designed so that their visual appearance is minimized, and/or coordinated with the overall architecture and color scheme of the storefront. These signs should not appear to be "tacked on" without regard for the alignments, proportions, colors and forms of their adjacent buildings and signs.

D.7.5.3 Sign fonts should be selected to provide both visual clarity and artistic expression.

D.7.6 Multiple-Tenant Complexes

Standards

D.7.6.1 Multiple-tenant buildings and complexes shall develop a Master Sign Program that minimizes the potential visual conflicts and competition among tenant signs yet ensures adequate identification for each tenant.

Guidelines

D.7.6.2 Free-standing signs may include the names of major tenants.

D.7.6.3 Free-standing signs used to identify such complexes should include the name and address of the complex.

D.8.1.8 All outdoor lighting shall be downlit and fully shielded.

D.8.1.9 Area lighting shall be designed to minimize the negative effects of lighting the night sky and employ control features so as to avoid light being directed off-site.

Guidelines

D.8.1.10 Along street frontages, lighting should be employed to cast illumination by lighting walls and architectural features on buildings rather than employing features casting light outwards.

D.8.1.11 Lighting sources should be kept as low to the ground as possible while ensuring safe and functional levels of illumination.

D.8.1.12 If security lighting is needed, it should be integrated into the site design. Shielded fixtures should be located as low to the ground as possible.

D.8.1.13 In general, the location of lighting should respond to the anticipated use and not exceed the amount of illumination required by users. Illumination over an entire area or use of overly bright lighting is strongly discouraged. Flood lighting is strongly discouraged.