



*This chapter provides policy guidance to conserve Pacifica's natural and cultural resources. Topics covered in this element include water resources; biological resources; forest, agricultural, and soil resources; air quality; energy and greenhouse gases; and cultural and historic resources.*

## 7.1 WATER RESOURCES

Pacifica's water resources are unique and numerous, and they provide important benefits to the city, including wildlife habitat, scenic natural corridors, and flood control. Careful management of urban waterways ensures maintenance of water quality, preservation of ecological functions, and safety of surrounding development. Understanding Pacifica's surface water and groundwater resources provides a context for policies for hydrology, water quality, and management.

### Surface Water

The Planning Area is located within all or part of nine watersheds, shown on Figure 7-1, Hydrology. The Planning Area largely drains west towards the Pacific Ocean. From north to south, the major watersheds are Milagra Creek, Sanchez Creek (also known as Sharp Park Creek), Calera Creek, and San Pedro Creek.<sup>1</sup> A small portion of the Planning Area drains to the east, contributing to the upper basin of San Mateo Creek watershed.

#### Milagra Creek

Milagra Creek watershed drains approximately 460 acres. The drainage area has varied land cover types, including undeveloped portions of the GGNRA and

residential and commercial development along Highway 1. The lower reaches of Milagra Creek have been altered and the channel hardened between Highway 1 to the ocean.

#### Sanchez Creek

Sanchez Creek watershed, located almost entirely within the City, drains approximately 1,070 acres. Much of it is within GGNRA, while valley bottoms and flatter portions of the hillsides include residential development, Highway 1, and Sharp Park Golf Course. Sanchez Creek has intermittent flow in most years.

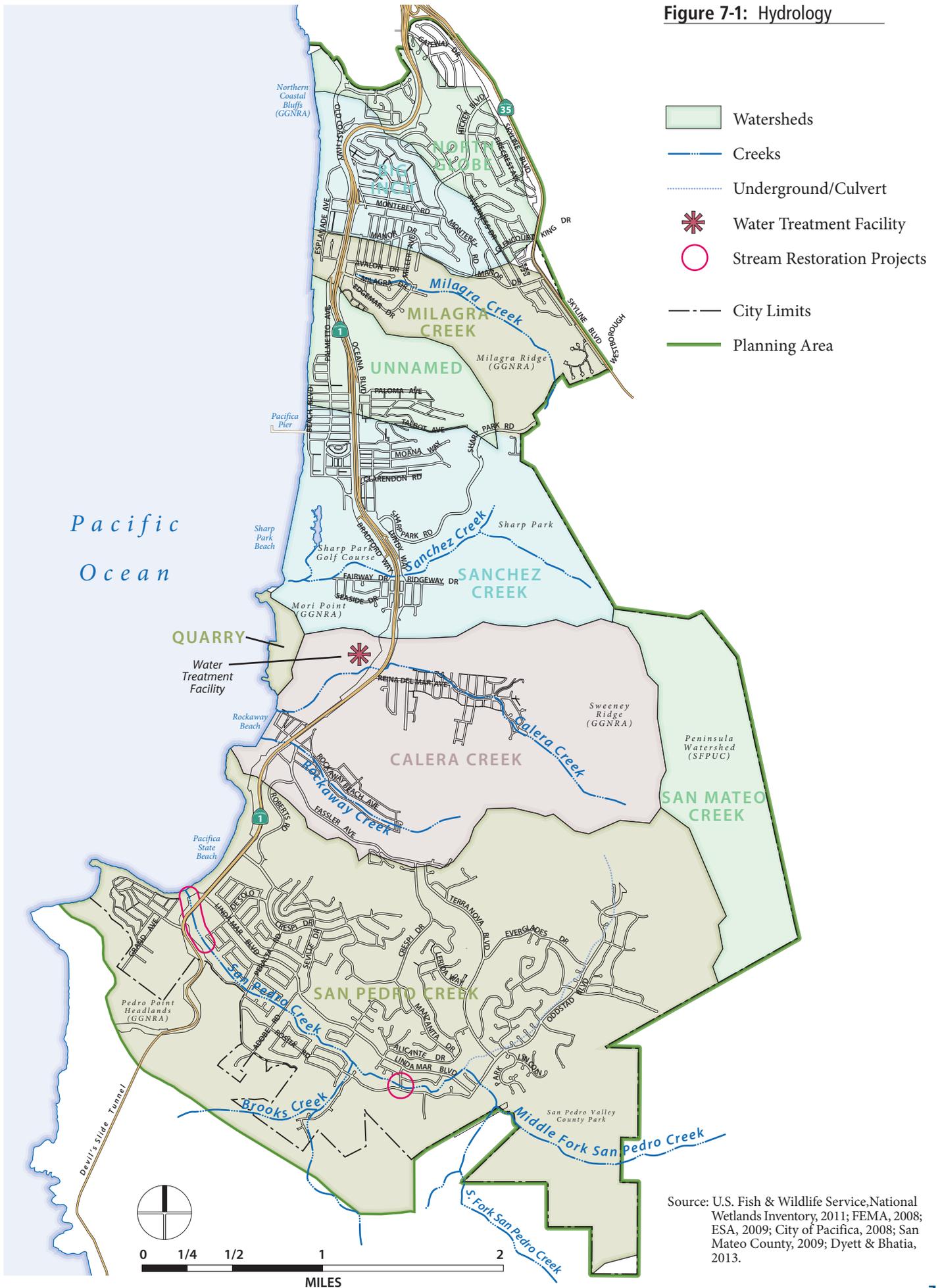
At its mouth within the Coastal Zone, Sanchez Creek flows through Horse Stable Pond and exchanges water with Laguna Salada within the Sharp Park Golf Course. Creek flow is then conveyed through a levee to the ocean via a system of pipes. The discharge point of the pipe(s) is often buried in beach sands and is occasionally excavated to allow for free drainage. During high flows, water from the golf course is pumped over the levee into the ocean. There are also several depressional and formerly estuarine wetlands near the mouth of Sanchez Creek at Horse Stable Pond and Laguna Salada.

<sup>1</sup> Other watersheds shown on Figure 7-1 (North Globe, Big Inch, etc.) are not associated with specific creeks.



The lower reach of Calera Creek was part of a significant restoration project involving the excavation of a new stream channel and habitat restoration. The site receives tertiary-treated wastewater from the City's new Water Recycling Plant.

Figure 7-1: Hydrology



### Calera Creek

Calera Creek drains 16,000 acres in the central portion of the City, flowing onto the north end of Rockaway Beach. Land use in the basin is dominated by residential neighborhoods with some businesses along main roads. The contributing area of Calera Creek is altered along the valley bottom and near the mouth.

The lower reach of Calera Creek was part of a significant restoration project implemented in 1997 and 1998, which included excavation of a new stream channel and restoration of 16 acres of wetlands and 12 acres of uplands. The restoration site receives additional tertiary-treated wastewater from the Calera Creek Water Recycling Plant (CCWRP), adding approximately 3.6 million gallons per day (mgd) to the lower reach. The amount of flow generated by the CCWRP varies with rainfall and usage. The creek is now perennial in the lower reach due to the input from the CCWRP. The creek was likely intermittent in at least some years, and is still intermittent with residual pools above the CCWRP discharge point.

### Rockaway Creek

Rockaway Creek is south of Calera Creek in the larger Calera Creek watershed. Rockaway Creek parallels Rockaway Beach Avenue, and flows into the southern end of Rockaway Beach. The upper portions of the watershed are primarily open space, while the valley bottom is comprised of a small residential area, which follows the creek.

### San Pedro Creek

San Pedro Creek watershed is the largest within Pacifica, draining approximately 5,300 acres. The watershed extends north to Sweeney Ridge, east to Spring Valley Ridge, and south into the slopes of Montara Mountain. San Pedro Creek has several tributaries extending past the City boundaries. These tributaries include the South Fork, Middle Fork, North Fork, and Brooks/Sanchez Creek.

San Pedro Creek supports anadromous steelhead trout, a federally-listed endangered species. This creek also has one of the only functioning estuaries between the Devil's Slide area and the Golden Gate



*San Pedro Creek has undergone numerous restoration projects along its reach through the Planning Area, addressing fish passage, flood control, and water quality.*

Bridge. Wetlands along San Pedro Creek provide habitat for the threatened California red-legged frog.

The upper watershed is largely undeveloped, while the lower portion is highly residential with commercial shopping centers at Park Mall and near Highway 1. Alterations from urban development have resulted in a deep channel with steep banks. Channel down-cutting and erosion throughout the reach has threatened roads and structures, as many residential lots back up against the creek. In order to protect the banks, formal and informal bank stabilization techniques have been installed over the years.

The City and partners (including the California Coastal Conservancy, Go Native, the Pacifica Land Trust, the California Department of Fish and Game, the Army Corps of Engineers, and the State Water Resources Control Board) have implemented restoration projects along the creek resulting in reduced flooding of homes and businesses, reduced erosion of Pacifica/Linda Mar State Beach, and the conservation habitat for steelhead trout.

Other creek restoration efforts included:

- Earthwork and planting completed in 2000 which established a more natural channel, improved flood storage, and restored ecosystem functioning.

### *San Mateo Creek*

A small portion of the Planning Area (600 acres) drains east into the upper San Mateo Creek watershed. This area is within National Park Service and San Francisco watershed lands and is undeveloped.

## Groundwater

The 700-acre San Pedro Valley Groundwater Basin lies within the City. Alluvial deposits consisting primarily of clays, sands, silts, and some gravels are found throughout the majority of the basin and are the primary water-bearing formation in the Planning Area.<sup>2</sup> These deposits are approximately 150 feet thick or more. Water quality, groundwater level,

and groundwater storage data for the basin is minimal. The outflow of water from the aquifer occurs by evapotranspiration and seepage to streams, springs, and the ocean. The water table fluctuates seasonally.

In a 1992 study, groundwater wells in the City were monitored to determine the location of seasonally shallow groundwater. The groundwater was mapped for three depths below the ground surface: less than 1.5 feet; less than 3.0 feet; and less than 6.0 feet. Communities with seasonally shallow groundwater include Pedro Point, Park Pacifica, Vallemar, Fairway Park, Linda Mar, and Sharp Park.

## Seasonal Wetlands and Ponds

Seasonal wetlands occur in smaller drainages and localized depressions, forming ponds or flowing water, and are underlain by saturated soils during the winter and spring. Seasonal wetlands also occur along the banks and sediments that accumulate in creeks. The Coastal Act defines wetlands as “lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, and fens.”

Wetlands in Pacifica are found along riparian areas, drainages, along the coast, and as fresh and brackish water marshes (such as on the Sharp Park Golf Course). The National Wetlands Inventory (USFWS, 2005) has identified different types of wetlands within the Planning Area (Cowardin et al., 1979). These are intertidal marine wetlands and emergent, forested, scrub-shrub, and unconsolidated palustrine wetlands.

## Impaired Water Bodies

The federal Clean Water Act requires a Total Maximum Daily Load (TMDL) be established for the pollutants identified as causing the impairment of surface water quality. TMDL refers to the maximum amount of a pollutant that a water body can receive and still meet water quality standards. Generally, TMDL is the sum of the loads of a single pollutant from point and nonpoint sources. In Pacifica, San Pedro Creek is listed as impaired

<sup>2</sup> Department of Water Resources (DWR), 2004.

by coliform bacteria, and San Mateo Creek is listed as impaired by diazinon (insecticide) (see Table 7-1).

A TMDL for coliform bacteria in San Pedro Creek is to be established by 2019. From 2002 to 2004, San Mateo Countywide Stormwater Pollution Prevention Program (SMCWPPP) collected bioassessment and limited water quality grab samples throughout the San Pedro Creek watershed. The results of the bioassessment generally confirm that the portions of the creek that are higher in the watershed and do not receive as much runoff from developed lands support greater species richness and diversity. A TMDL for diazinon in San Mateo Creek was established in 2007.

## Stormwater

Pacifica’s storm drainage system consists of a collection system and two pump stations. This drainage system acts to convey drainage to area creeks or the ocean. Two areas in the City, Linda Mar and lower Sharp Park, are too low to allow drainage to a creek or the ocean, and are served by pump stations to prevent street flooding. Overall, the City’s system serves 178 miles of roads and 986 inlets.<sup>3</sup>

### San Mateo Countywide Water Pollution Prevention Program

The San Mateo County Water Pollution Prevention Program (SMCWPPP) was established in 1990 with the assistance of the San Mateo County City/County Association of Governments. The primary goal seeks to reduce pollution carried by stormwater, and to maintain compliance with the San Francisco Bay Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) permit.

Participating agencies, including the City of Pacifica, must comply with the NPDES Permit by ensuring that municipal operations, new development and redevelopment, industrial and commercial site controls, and construction site controls mitigate water quality impacts to stormwater runoff during construction and operation phases of projects.

### Stormwater Management and Site Planning

New development and redevelopment projects are subject to NPDES permit requirements, and are grouped into categories based on project type. Depending on their category, projects are required to include stormwater controls, including site design measures, source controls, treatment measures, low impact development, hydromodification management, and construction best management practices (BMPs).

Construction BMPs include scheduling grading and excavation work in dry weather only; installing temporary erosion controls until vegetation is reestablished; effectively managing all run-off within the site and from off-site. Post-construction stormwater treatment measures that remove pollutants from stormwater during project operations include rain gardens, vegetated swales, and flow-through planters.

### San Pedro Creek/Linda Mar Storm Drain Treatment/Diversion Project

In 2004, the City completed the Pacifica State Beach Improvement Project. This project has successfully redirected polluted water from first-flush release into the ocean to two constructed wetland treatment swales, and, together with other elements of the project, improved water quality.

**TABLE 7-1: IMPAIRED WATER BODIES**

Water Body	Pollutant	Potential Source	Status of TMDL Preparation and Approval <sup>1</sup>
San Pedro Creek	Coliform bacteria	Urban runoff/storm sewers	Planned (2019)
San Mateo Creek	Diazinon	Urban runoff/storm sewers	Approved (2007)

1. The date of planned TMDL completion is provided in the 303(d) lists from the SWRCB.

Source: SWRCB, 2007

<sup>3</sup> San Mateo Countywide Water Pollution Preservation Program. Annual Report, 2007-08. August 29, 2008.

## Potable Water Supply

The North Coast County Water District (NCCWD), an independent water purveyor, supplies water to Pacifica and part of San Bruno. The district gets its water from the San Francisco Public Utilities Commission (SFPUC) through the Hetch Hetchy system. The District also has rights to a limited amount of surface water from the South Fork of San Pedro Creek for six months of the year. Pacifica's water is pumped from San Andreas Lake and the Harry Tracey Water Treatment Plant in Millbrae via a main distribution line under Skyline Boulevard, to the Milagra Ridge storage tank. From there, water for northern Pacifica is pumped to the Christian Hill tank on Skyline Boulevard and then distributed by gravity to smaller tanks and to customers. Water for southern Pacifica is piped from the Milagra Ridge tank to the Royce tank, off Fassler Avenue, and then to smaller tanks and to customers. Overall, the system is divided into 34 pressure zones, each separated by pressure-reducing valves.<sup>4</sup>

### Water Capacity and Usage

The NCCWD system's 14 storage tanks have a total capacity of 23.8 million gallons, enough to supply the service area with water for seven days at the District's average daily usage rate of 3.24 million gallons per day (mgd).<sup>5</sup> The District's contract with SFPUC allows for a maximum purchase of 3.84 mgd.

### Water Conservation

Water use in the District has steadily declined in recent years due to conservation programs and infrastructure repairs. Water conservation will continue to be important in coming years. The Water Conservation Act of 2009 sets an overall target to reduce urban per capita water use by 20 percent by the end of 2020, with an interim target of 10 percent by the end of 2015. The Water Conservation in Landscaping Act provides a Model Water Efficient Landscape Ordinance and requires that all jurisdictions adopt it or have one at least as effective.

4 Bay Area Water Supply and Conservation Agency (BAWSCA). BAWSCA Annual Survey-FY 2007-08. January 2009. Accessed at <http://www.bawasca.org>, 2009.

5 BAWSCA, 2009.

The City has established procedures to meet the requirements of the state's Model Ordinance. A coordinated response by the City and the NCCWD will help Pacifica meet the requirements of this legislation, and stay beneath the water supply limit established by the SFPUC.

NCCWD has environmental approval to proceed on the first phase of a project that would pump treated wastewater from the City's Calera Creek Water Recycling Plant through a new system of pipes for use as irrigation water for parks, playing fields, and landscaped areas. The first phase of the project is estimated to have the potential to save up to 40 million gallons of drinking water annually.<sup>6</sup>

### Infrastructure Modernization

Pacifica's water pipes and storage reservoirs are aging and in need of modernization. NCCWD's current Capital Improvement Plan focuses on minimizing the risk to the water supply that could result from a major seismic event. NCCWD replaced three major water tanks in recent years, and has completed the installation of back-up generators at all 14 of its storage tanks. It will add sensors allowing automatic shutdown of key tanks during a major earthquake, and install "jumper nodules" at joints in the pipe system. The transmission main that brings water to Pacifica from the regional system is located above the San Andreas Fault as it follows Skyline Boulevard in San Bruno. NCCWD is committing resources both to short-term pipe inspection and repair along the main line, and to a study of the feasibility of developing an alternative and reliable water source.<sup>7</sup>

Beyond these modernization efforts, Pacifica and NCCWD are dependent upon the safety and durability of the Hetch Hetchy system.

5 San Francisco Public Utilities Commission (SFPUC). Website <http://www.sfwater.org>, accessed May 2009.

7 North Coast County Water District (NCCWD). CIP and Bond Projects Status Report February 20, 2008. Accessed at <http://www.nccwd.com>, February 2008.



*A new system of pipes for treated wastewater would allow Sharp Park Golf Course to be irrigated with recycled water from the Calera Creek Water Recycling Plant (top). Low impact development techniques, such as permeable pavers, allow stormwater to filter into the earth on-site, minimizing runoff (middle left). Pacifica's plan review and code enforcement are responsible for ensuring water quality compliance (middle, right). Pacifica's potable water supply is stored and delivered via a system of tanks at high points throughout the city (bottom).*



### Water Quality

SFPUC monitors water at the source and at local treatment plants for turbidity, organic and inorganic chemicals, microbial quality, mineral content, and radiological quality. NCCWD monitors water as it enters the District's system, and takes weekly water samples from various locations. Pacifica's water is consistently high-quality and safe to drink, meeting all standards set by the California Department of Health Services and the United States Environmental Protection Agency.<sup>8</sup>

### Wastewater

The City operates a wastewater treatment plant, sewage lift stations, and stormwater pump stations, as well as the citywide system of sewer mains and lateral pipes that connect to homes and businesses. Waste water flows through some 82 miles of main pipes to six sewer pump stations, and on to the Calera Creek Water Recycling Plant. The City's topography prevents gravity flow to the plant, and requires pump stations at Linda Mar and Sharp Park.

#### Calera Creek Water Recycling Plant

The Calera Creek Water Recycling Plant (CCWRP), located on the south flank of Mori Point, is a tertiary treatment plant, brought online in 2000 to replace the old Wastewater Treatment Plant in West Sharp Park. The new plant uses ultraviolet disinfection, which allows effluent to be released to wetlands without residual chlorine. The plant has facilitated the creation and restoration of wetlands along Calera Creek, bringing year-round flow to a naturalized stream channel. When NCCWD's water recycling project is completed, the CCWRP will also be the source for a portion of Pacifica's landscape irrigation water.

Testing at the Calera Creek Water Recycling Plant indicates that discharges generally meet applicable water quality standards, although there have been some isolated instances of non-compliance.

<sup>8</sup> NCCWD. Website <http://www.nccwd.com>, accessed May 2009.

### Usage and Capacity

Average annual wastewater flows declined from 3.7 million gallons per day (mgd) on average in 2001 to 2.9 mgd in 2008, but were projected to rise to 3.2 mgd by 2012. The CCWRP has a dry weather capacity of 4.0 million gallons per day (mgd), a peak hourly dry weather capacity of 7.0 mgd, and a peak hourly wet weather capacity of 20 mgd.<sup>9</sup> Because of Pacifica's projected slow growth, the Plant will have adequate capacity for the next 15 to 20 years.

### Planned Improvements

The City intends to undertake the following projects:

- Replacement of the ultraviolet (UV) treatment system at the CCWRP;
- Installation of a new generator at the Linda Mar pump station; and
- Repair of the Palmetto trunk sewer line.

An Inflow and Infiltration study will determine improvement needs in the collection system. This will serve as a basis for project priorities and future master planning.

<sup>9</sup> RWQCB, 2006.

## POLICIES

Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .

### Guiding Policies

- CO-G-1**  **Water Quality.** Support the improvement of Pacifica's water quality, including both surface water and groundwater, through Best Management Practices (BMPs) for stormwater management, stream restoration, and riparian habitat restoration.
- CO-G-2**  **Watershed Management.** Recognize the interrelated nature of Pacifica's hydrology system, its watersheds, and development in the Planning Area, and protect water resources through comprehensive management of entire watersheds.
- CO-G-3**  **Maintain Creeks as a Resource.** Ensure both access to and ecological functionality of the creek system in Pacifica.
- CO-G-4**  **Retain Natural Processes.** Enable natural processes to occur on developed sites, and utilize these processes to enhance the built environment and users' experiences of it.
- CO-G-5**  **Water Conservation.** Work with the Water District to meet State targets for reducing per capita urban water use by 10 percent by 2015 and 20 percent by 2020.
- Pacifica's water conservation efforts will include water efficient landscaping requirements, incentives for water conservation, and development of a system to use recycled wastewater.*
- CO-G-6**  **Wastewater Treatment.** Ensure that the City maintains adequate capacity to handle wastewater, and continue to expand wastewater recycling.

### Implementing Policies

#### *Creeks, Wetlands, and Coastal Waters*

- CO-I-1**  **Creek Protection and Restoration.** Maintain, protect, and restore Pacifica's creeks, including San Pedro, Calera, Sanchez, and Milagra creeks, as environmental and aesthetic resources. Actions will include, but are not limited to:
- Continuing restoration efforts along San Pedro Creek to improve conditions for steelhead by removing obstacles to fish passage, placing rock weirs to facilitate fish passage, and by monitoring the effectiveness of these projects;
  - Partnering with local organizations, such as the San Pedro Creek Watershed Coalition, Go Native, the Pacifica Land Trust, and others, on restoration efforts;
  - Exploring opportunities to collaborate with other agencies and organizations on stream restoration and riparian habitat restoration along Sanchez and Calera creeks;
  - Enforcing restrictions on the planting of invasive species near creek areas;
  - Identifying and working with property owners to take advantage of unique opportunities where human active use (e.g., through trail development) would enhance creek appreciation without disrupting ecological function;
  - Requiring minimum setbacks from the top of creek banks for development proposed adjacent to creeks, in keeping with City regulations and Best Management Practices.

**CO-I-2**  **Improvement of Impaired Waterways.** Strive to increase water quality in San Pedro Creek, an Impaired Waterway that is also habitat for the federally-listed Steelhead Trout, and any other waterway that may be listed as impaired in the future.

*A study is being performed on San Pedro Creek by the San Pedro Creek Watershed Coalition, in which water samples will be analyzed to identify the sources of bacterial pollution.*

**CO-I-3**  **Funding for Creek Maintenance.** Require property owners with land adjacent to creeks to pay for their fair share of creek improvement maintenance.

**CO-I-4**  **Coastal Protection Projects.** Evaluate coastal protection projects, such as flood protection and beach nourishment for potential impacts to beaches, wetlands and other habitats an impose mitigation to minimize impacts.

**CO-I-5**  **Wetlands Preservation.** Prohibit new development in existing wetlands except as allowed under the federal Clean Water Act and the California Coastal Act. Continue to require detailed assessments to delineate wetlands subject to State or federal regulations prior to any proposed development project in an area where wetlands have been potentially identified.

**CO-I-6**  **Limitations on Diking, Filling or Dredging.** Only permit the diking, filling, or dredging of open coastal waters, wetlands, and lakes for the following purposed where there is no feasible, less environmentally damaging alternative, and where feasible mitigation measures have been provided to minimize adverse environmental effects:

- New port, energy, and coastal-dependent industrial facilities, including commercial fishing facilities.
- New boating facilities and the placement of structural pilings for public recreational piers that provide public access and recreational opportunities.
- 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.
- Mineral extraction, including sand for restoring beaches, except in environmentally sensitive areas.
- Restoration activities;
- Nature study, aquaculture, or similar resource-dependent activities.

**CO-I-7**  **Minimize Disruption of Dredging.** Require any proposed dredging and spoils disposal to be planned and carried out in a way that will avoid significant disruption to marine and wildlife habitats.

**CO-I-8**  **Maintain Functional Capacity of Wetlands.** Ensure that any diking, filling, or dredging in existing wetlands maintains or enhances their functional capacity.

*Any alteration of coastal wetlands identified by the Department of Fish and Game must be limited to very minor incidental public facilities, restorative measures, or nature study, according to the California Coastal Act.*

**CO-I-9**  **Continued Movement of Sediment and Nutrients.** Allow sediment removed from erosion and flood control facilities to be placed at appropriate points on the shoreline, where environmental effects will be minimal.

## Stormwater Management

**CO-I-10**  **Countywide Water Pollution Prevention Program.** Continue to participate in the San Mateo Countywide Water Pollution Prevention Program.

*The Program represents a collaborative effort amongst the County and its municipalities, consisting of five major areas of water pollution prevention and control:*

- Municipal maintenance activities
- Industrial and illicit discharge
- Public information and participation
- New development and construction controls
- Watershed monitoring

**CO-I-11**  **Stormwater Discharge.** Ensure compliance with the Municipal Regional Permit, the Construction General Permit, and the Construction Dewatering Permit, which regulate stormwater discharge from new and existing development.

*These permits are established by the National Pollutant Discharge Elimination System (NPDES) and administered by the Regional Water Quality Control Board. They require that new development incorporate Best Management Practices (BMPs) in site design, construction, and management to minimize storm water runoff rates and volumes, control water pollution, and maximize infiltration.*

**CO-I-12**  **Protect Water Quality through Best Management Practices.** Continue to require the use of best management practices to reduce water quality impacts from construction and development. Measures include:

- **Site Design and Source Control.** Ensure that all new development incorporates site design and source control

BMPs into the project design in order to preserve the infiltration, purification, and retention functions of each site's natural drainage systems, and to prevent or minimize the runoff of pollutants, sediments, waste, and pathogens from the site.

- **Construction Pollution Control.** Require all construction projects to adopt measures to minimize erosion and runoff of pollutants and sediments from construction-related activities, and to limit activities that result in the disturbance of land or natural vegetation.

*Construction projects will be required to use appropriate erosion prevention techniques, sediment control measures, and best management practices in accordance with City specifications and the San Mateo Countywide Water Pollution Prevention Program.*

- **Treatment Control.** Require that new development implement treatment control BMPs (or structural treatment BMPs) where the combination of site design and source control BMPs is not sufficient to protect water quality and comply with applicable water quality permits.

*Stormwater treatment systems must meet the numeric sizing criteria established in the NPDES Permit, and must be operated and maintained in compliance with the NPDES Permit.*

**CO-I-13**  **Infrastructure and Water Quality.** Ensure that the design and construction of new infrastructure elements does not contribute to stream bank or hillside erosion or creek or wetland siltation, and incorporates site design and source control BMPs, construction phase BMPs, and treatment control BMPs to minimize impacts to water quality, in compliance with the NPDES Permit.

- CO-I-14**  **Erosion Control.** Manage erosion in the Planning Area, particularly in watershed areas, through on-site erosion control.

*Construction projects will be required to use appropriate erosion prevention techniques, sediment control measures, and best management practices in accordance with City Specifications and General Conditions of Approval and the San Mateo County-wide Water Pollution Prevention Program.*

- CO-I-15**  **Minimize Site Disturbance.** In design and construction, require use of best practices that preserve natural resources, such as soil, trees, native plants, and permeable surfaces.

- CO-I-16**  **Reduce Impervious Surfaces.** Enable natural drainage by reducing the amount of impervious surfaces on a development site, whenever feasible.

*Techniques that help accomplish this objective:*

- *Designing medium and high density residential projects to share driveways;*
- *Placing parking lots under buildings, whenever feasible; and*
- *Using permeable paving materials on walkways and driveways, whenever possible.*

- CO-I-17**  **On-site Stormwater Management.** Continue to require all small projects and detached single-family home projects, as defined under the NPDES Permit, to incorporate site design measures that facilitate groundwater recharge and natural hydrological processes, allowing stormwater to infiltrate the ground on-site and/or be collected for reuse in landscaping and designated to on-site stormwater detention facilities.

*Techniques for on-site stormwater management include use of:*

- *“Rain gardens” or bioretention areas in yards, parks, and parking lots;*
- *Landscaped drainage swales along roadways;*
- *Green roofs;*
- *Permeable pavers for walkways and parking areas;*
- *Rain barrels for harvesting runoff from rooftops;*
- *Tree box filters for on-street filtration;*
- *Parking areas that allow stormwater flow into vegetated areas;*
- *Grading that lengthens flow paths and increases runoff travel time to reduce the peak flow rate; and*
- *Cisterns or sub-surface retention facilities that capture rainwater for use in irrigation and non-potable uses.*

- CO-I-18**  **Prevent Contaminated Runoff.** Ensure that new parking lots and commercial development incorporate BMPs designed to prevent or minimize runoff of oil, grease, solvents battery acid, coolant, gasoline, sediments, trash, and other pollutants from the site.

*Runoff from areas serving vehicle traffic, structures, landscaping, loading areas, repair and maintenance bays, fueling areas, vehicle/equipment wash areas, outdoor material storage areas, and waste storage areas should be prevented or minimized.*

- CO-I-19**  **Oil and Hazardous Substance Spills.** Provide protection against the spillage of crude oil, gas, petroleum products, or hazardous substances in relation to any development of transportation of such materials.

*For any accidental spills that do occur, the City will require effective containment and cleanup facilities and procedures.*

### Water Supply and Conservation

**CO-I-20**  **Water Supply.** Support the Bay Area Water Supply & Conservation Agency in advocating for reliable and fairly priced water from the San Francisco regional water system.

**CO-I-21**  **Water Efficient Landscaping.** Collaborate with the North Coast County Water District (NCCWD) to design and implement a water-conserving landscaping ordinance that meets State requirements.

*The State of California has a Model Water Efficient Landscaping Ordinance, which can be adapted to the City's needs. A coordinated response by the City and the NCCWD will help Pacifica reduce water use and stay beneath the water supply limit established by San Francisco Public Utilities District.*

**CO-I-22**  **Incentives for Water Conservation.** Encourage the NCCWD to continue and expand its water conservation incentive programs, including free water-efficient fixtures and rebates for water-efficient appliances.

**CO-I-23**  **Water Recycling.** Collaborate with the NCCWD to implement a water recycling project, involving new pipes and pumping stations, to allow treated wastewater from the Calera Creek Water Recycling Plant to be used for irrigation of landscaped areas.

*The feasibility of expanding this project to include other potential uses of recycled water such as linkages with fire hydrants will be evaluated.*

**CO-I-24**  **Water Storage.** Support the NCCWD in its efforts to provide adequate emergency water storage in Pacifica.

### Wastewater Collection and Treatment

**CO-I-25**  **Wastewater Treatment Capacity.** Continue to monitor wastewater generation rates so decision-makers are aware of the impacts on the treatment plant on new development, and plan for additional capacity in advance of projected need.

**CO-I-26**  **Sewer System Connections.** Require all new development to be connected to the City's sewer system.

**CO-I-27**  **Sanitary Sewer Discharge.** Ensure that discharges of treated wastewater from the Calera Creek Wastewater Recycling Plant continue to comply with the Sanitary Sewer System Permit.

*The City will manage the release of treated wastewater as part of habitat restoration along Calera Creek, and pursue the use of recycled water for irrigation and other uses.*

## 7.2 BIOLOGICAL RESOURCES

Pacifica contains some of the most natural habitat on the San Francisco Peninsula, providing for a wide variety of plant and animal species and natural communities. Some of these species and communities, both plant and animal, have special legal status, having been listed under the federal or state Endangered Species Acts, or having been identified as sensitive in the California Natural Diversity Database. Portions of the Planning Area have been noted for high habitat values (providing important resources to plants and wildlife), use as a migration corridor, or their potential to be designated an Environmentally Sensitive Habitat Area (ESHA) under the California Coastal Act.

### Plant Communities And Wildlife Habitats

Plant communities and habitats found in Pacifica are briefly described below and depicted in Figure 7-2, Vegetation. The General Plan EIR includes a more detailed description of each of these communities and habitats. Species identified with various plant communities or habitats are not necessarily present in the Planning Area. Some of these communities are recognized as “special status communities,” or provide critical habitat for special status species.

#### Annual Grasslands

Annual grasslands in Pacifica occur most often in a mosaic with coastal scrub and are dominated by non-native annual grass species and a variety of other non-native weeds. Grasslands attract reptiles and amphibians including several lizard species and the western rattlesnake. Annual grasslands are important foraging grounds for bats and other mammals such as coyote, black-tailed deer, jackrabbits, and various rodents. Small rodents attract raptors (birds of prey) including hawks, owls, and turkey vultures.

#### SPECIAL-STATUS SPECIES IN GRASSLAND HABITATS

Special-status species<sup>10</sup> that have the potential to occur in grassland habitats around Pacifica include the Mission blue butterfly, San Bruno elfin butterfly, Crystal Springs fountain thistle, Marin western flax, San Mateo thorn-mint, white-rayed pentachaeta, Crystal Springs lessingia, pappose tarplant, and San Francisco owl’s clover.<sup>11</sup>

#### Coastal Bluff Scrub

Coastal bluff scrub, found along Highway 1, consists of a mosaic of open sand, native low growing shrubs and herbaceous perennials. Native species present include dwarf coyote brush, silver bush lupine, yellow bush lupine, seaside woolly sunflower, bunchgrass, buckhorn plantain, beach evening primrose, beach bur, yellow sand verbena, beach saltbush, and beach morning glory. Other exotic species are Italian ryegrass, bull thistle, and fennel.<sup>12</sup>

#### SPECIAL-STATUS SPECIES IN COASTAL BLUFF SCRUB HABITAT

Special-status species that may be found in this habitat around Pacifica are bumblebee scarab beetle, sandy beach tiger beetle, Hickman’s cinquefoil, blue coast gilia, coast yellow leptosiphon, coastal marsh milk-vetch, coastal triquetrella, compact cobwebby thistle, Franciscan thistle, Point Reyes horkelia, rose

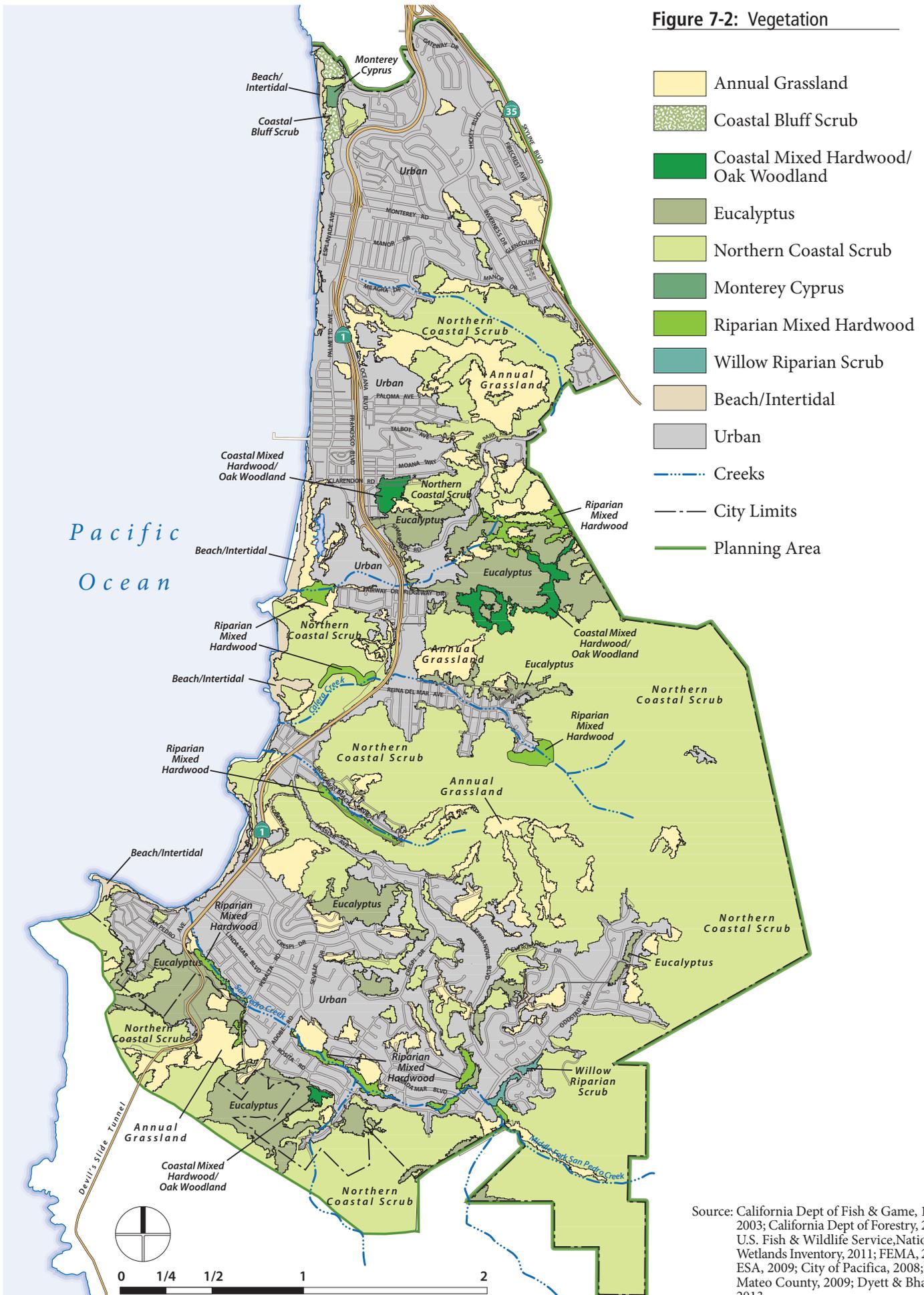
<sup>10</sup> “Special-status” plant and animal species are defined in more detail in the Special-status Species section of this chapter. Briefly, they are:

- Species listed under the Federal Endangered Species Act, Marine Mammal Protection Act, California Endangered Species Act, California Fish and Game Code, and the Native Plant Protection Act as endangered, threatened, or depleted; species that are candidates or proposed for listing; or species that are designated as rare or fully protected
- Locally rare species defined by CEQA Guidelines Sections, which may include species that are designated as sensitive, declining, rare, locally endemic, or as having limited or restricted distribution by various federal, state, and local agencies, organizations, and watch lists.

<sup>11</sup> John Northmore Roberts & Associates et al., 1992; State of California Department of Parks and Recreation, 1990.

<sup>12</sup> State of California Department of Parks and Recreation, 1990; ESA surveys, 2008

**Figure 7-2: Vegetation**



Source: California Dept of Fish & Game, 1988, 2003; California Dept of Forestry, 2005; U.S. Fish & Wildlife Service, National Wetlands Inventory, 2011; FEMA, 2008; ESA, 2009; City of Pacifica, 2008; San Mateo County, 2009; Dyett & Bhatia, 2013.

leptosiphon, San Francisco Bay spineflower, and short-leaved evax. Bank swallows, double-crested cormorants, and big free-tailed bats may use cliff sides for nesting.

### *Northern Coastal Scrub*

Northern coastal scrub habitat is found on undeveloped slopes, often in a mosaic with annual grasslands. Northern maritime chaparral, a special-status community, is included in this category. Northern coastal scrub is dominated by either coyote brush or California sagebrush, depending on slope aspect. North facing slopes support a greater diversity of shrub species and canopy cover than south facing slopes. Coastal scrub habitat, often interspersed with other habitats, provides foraging and nesting habitat for species that are attracted to edges of plant communities. These include various bird species, including hummingbirds; small mammals including skunks, rabbits, gophers, and rodents; larger predators such as fox, coyotes, and bobcat; and small reptiles.<sup>13</sup>

#### **SPECIAL-STATUS SPECIES IN NORTHERN COASTAL SCRUB HABITAT**

Special-status animals that may use northern coastal scrub around Pacifica include merlins, dusky-footed woodrat, Mission blue butterfly, and San Bruno elfin butterflies. Special-status plants with the potential to occur include: Pacific manzanita, Presidio manzanita, San Bruno manzanita, San Francisco lessingia, Choris' popcorn-flower, Davidson's bush-mallow, fragrant fritillary, Kellogg's horkelia, Montara manzanita, Oregon polemonium, pale yellow hayfield tarplant, San Francisco campion, San Francisco collinsia, and San Francisco gumplant.

### *Coastal Mixed Hardwood/Oak Woodland*

This habitat type includes woodlands dominated by coast live oak, black oak, blue oak, as well as other hardwood species. In addition to birds, wildlife commonly associated with woodlands in general includes the ringneck snake, California newt, and California slender salamander. Seeds and fruit provide food for

black-tailed deer, jays, and woodpeckers, while tree branches and cavities can provide areas for nesting. This community is not found in the Pacifica Coastal Zone.

#### **SPECIAL-STATUS SPECIES IN COASTAL MIXED HARDWOOD/OAK WOODLAND HABITAT**

Special-status species that are likely to use coastal mixed hardwood/oak woodland habitat in Pacifica are the hoary bat, San Mateo woolly, bent-flowered fiddleneck, Diablo helianthella, Franciscan onion, Hillsborough chocolate lily, and Indian Valley bush-mallow.

### *Eucalyptus*

This habitat type is dominated by planted Eucalyptus species, primarily blue-gum eucalyptus. Stands of eucalyptus are dense and form a closed canopy, restricting other native overstory trees to clearings. Eucalyptus trees have allelopathic properties, releasing chemicals into the soil to reduce or inhibit growth of other plants. In addition, they produce extensive leaf and bark litter which further inhibits the growth of understory plants. Eucalyptus trees provide perching, roosting, and nesting sites for larger birds, such as crows, ravens, red-tailed hawks, red-shouldered hawks, and barn owls. The migratory monarch butterfly frequently roosts in eucalyptus trees in the winter.

### *Monterey Cypress*

Small patches of Monterey cypress occur throughout the Planning Area in planted stands surrounded by a mosaic of scrub and grasslands. The largest stand occurs at the north end of the Planning Area. Although the small patches of Monterey cypress found in Pacifica are unlikely to support significant wildlife populations, they complement surrounding habitats by providing nesting and roosting substrates for birds as well as shelter for other animals.

### *Riparian Mixed Hardwood*

Areas with riparian mixed hardwood habitat occur along San Pedro Creek, Rockaway Creek, Calera Creek, and Laguna Salada. Native trees that are found include red alder, various willow species, and

<sup>13</sup> John Northmore Roberts & Associates et al., 1992

creek dogwood. Riparian areas also host native herbs and emergent vegetation, as well as various nonnative ivies, grasses, blackberry, and other plants.<sup>14</sup> Riparian areas provide foraging ground for birds and small mammals, and habitat for small reptiles and amphibians.

#### **SPECIAL-STATUS SPECIES IN RIPARIAN MIXED HARDWOOD HABITAT**

Special-status wildlife that could be present in the riparian corridor includes tricolored blackbirds, raptors such as Cooper's hawk, sharp-shinned hawk, and great blue heron.

#### *Willow Riparian Scrub*

Willow riparian scrub in Pacifica is dominated by arroyo willow, with red willow and dogwood. This habitat occurs in the upper reaches of San Pedro Creek, in San Pedro Valley County Park. Where an overstory is present it is dominated by non-native trees. Species found in upper reaches of San Pedro Creek are bluegum eucalyptus, Monterey pine, coast redwood, French broom, cape ivy, common periwinkle, Algerian ivy, and wax myrtle. In San Pedro Valley County Park the species include arroyo and red willow, alder, coastal wood fern, lady fern, western sword fern, and alumroot.

#### *Seasonal Wetlands and Ponds*

Seasonal wetlands occur in smaller drainages and localized depressions, forming ponds or flowing water, and are underlain by saturated soils during the winter and spring. Seasonal wetlands also occur along the banks and sediments that accumulate in creeks. Wetlands in Pacifica are found along riparian areas, drainages, along the coast, and as fresh and brackish water marshes (such as on the Sharp Park Golf Course). Vegetation and wildlife found in wetlands varies with water characteristics, inundation patterns, surrounding habitat, and level of disturbance.

#### **SPECIAL-STATUS SPECIES IN SEASONAL WETLANDS**

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<sup>14</sup> San Pedro Creek Watershed Coalition, 2005

#### **AND PONDS**

The California red-legged frog, San Francisco garter snake, Leech's skyline diving beetle, San Francisco forktail damselfly, Tomales isopod, western pond turtle, and bristly sedge are special-status species that may be found in wetlands around Pacifica. The wetlands in Sharp Park are also known to support salt-marsh common yellowthroat. Seasonal wetlands and ponds at Mori Point and Sharp Park Golf Course support the California red-legged frog as well as the San Francisco Garter Snake.

#### *Streams*

Streams are important habitat features in Pacifica as they can function as movement corridors as well as providing protective cover. Wildlife species that are associated with stream habitat include river otters, great blue heron, snowy egret, belted kingfisher, dark-eyed junco, and black phoebe. Black-tailed deer, raccoon, opossum, and grey fox may use the creeks as movement corridors. Fish species present include the prickly sculpin, the Pacific lamprey, and the threespine stickleback.

#### **SPECIAL-STATUS SPECIES IN STREAMS**

The federally threatened steelhead trout use parts of San Pedro Creek for spawning, including the main portion parallel to Linda Mar Boulevard, as well as the middle and south forks in San Pedro County Park.<sup>15</sup> This is the only stream with a steelhead population between the Golden Gate Bridge and Half Moon Bay. Lower Calera Creek on the Quarry site supports the federally-threatened California red-legged frog and the Endangered San Francisco garter snake.

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<sup>15</sup> San Pedro Creek Watershed Coalition, 2005



*San Pedro Creek is the only perennial stream in the planning area and provides important habitat for steelhead trout, a federally listed species.*

### *Beach/Intertidal*

Significant expanses of continuous sandy shoreline occur along the San Mateo coastline, including in Pacifica. Beaches are dynamic systems that change with wind and waves; generally, sand is eroded from beaches in the winter and re-deposited in the summer, resulting in annual changes in beach slope and width.

Beach habitats can be divided into upper tidal, intertidal, and subtidal. The upper tidal beach fauna consists of sand crabs, California beach flea, amphipods, polychaete worms, flies, and isopods that feed on detritus; these species in turn are fed on by a variety of birds. The by-the-wind sailor, a jellyfish-like colony of organisms, frequently washes up on the upper beach areas. Exposed rocks or cobble, especially at the lower intertidal areas, can have attached algae, mussels, and barnacles. Intertidal areas are home to the Pacific egg cockle and spiny mole crab. The Subtidal zone is primarily inhabited by fish such as surf perch, striped bass, salmon, anchovies, sanddabs, California halibut, and the starry flounder.<sup>16</sup>

<sup>16</sup> BLM, 1981; State of California Department of Parks and Recreation, 1990

### **SPECIAL-STATUS SPECIES IN BEACH/INTERTIDAL HABITAT**

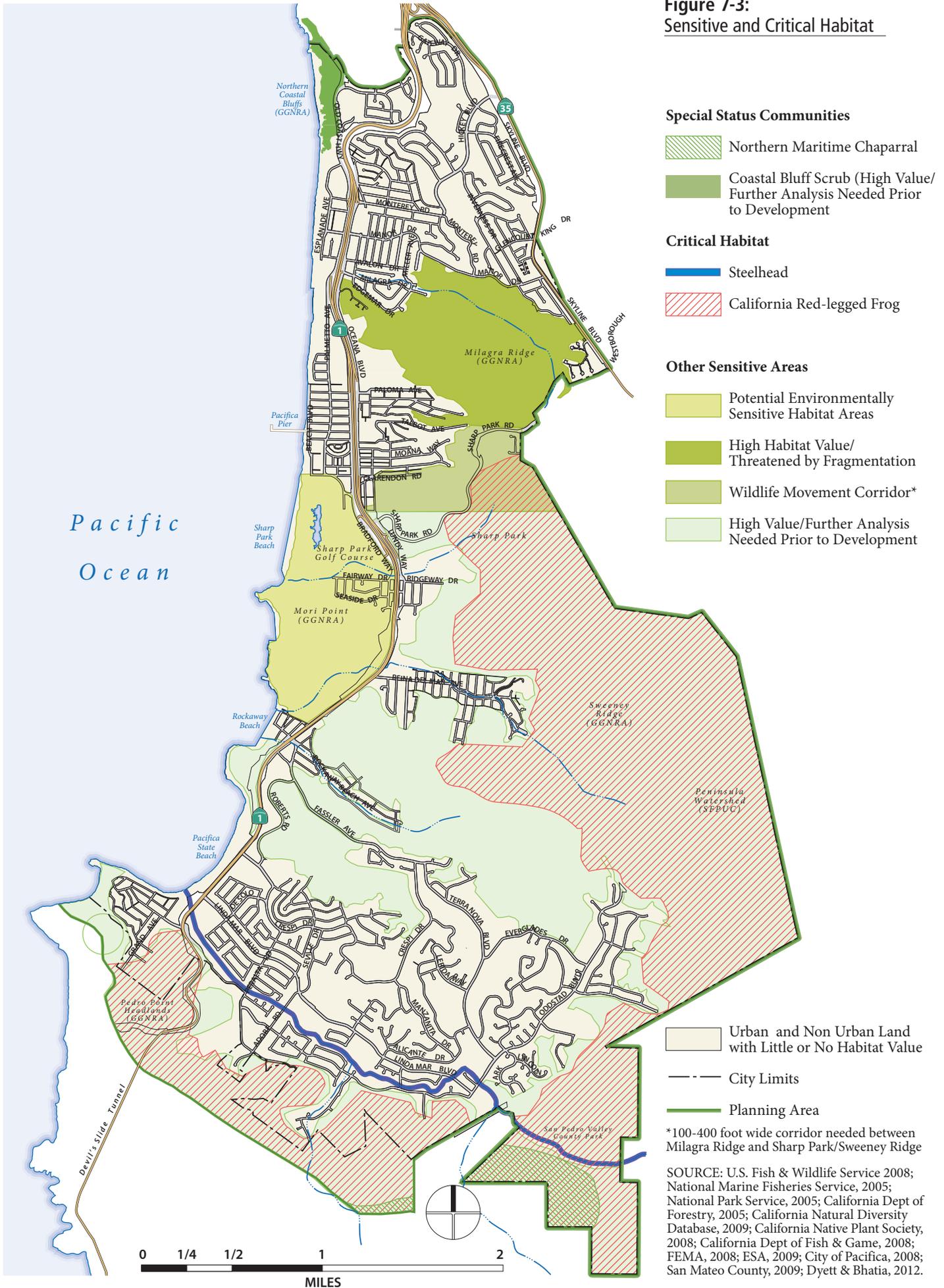
Some special-status species may be found in the shallow waters off of Pacifica. Harbor seals and sea lions haul out on isolated beaches and sands spits. The endangered black abalone may be present in intertidal areas attached to rocks. The threatened green sturgeon may also forage in the shallow waters off of Pacifica. Both the gray whale and southern sea otter use the nearshore waters, and the California brown pelican is also frequently observed.

### **Sensitive and Critical Habitat**

The Planning Area hosts numerous areas of sensitive, critical, and special-status habitats and natural communities. These areas are those with unique, rare, or sensitive biological characteristics and/or possess special legal status.<sup>17</sup>

<sup>17</sup> A “special-status natural community” is a natural habitat community that is unique in its constituent components, restricted in distribution, supported by distinctive soil conditions, considered locally rare, potentially supporting special-status plant or wildlife species, and/or that receives regulatory recognition from municipal, county, state, and/or federal entities such as the California Natural Diversity Database (CNDDDB).

**Figure 7-3:**  
Sensitive and Critical Habitat



### *Critical Habitat*

Critical habitat areas are for species listed under the Federal Endangered Species Act. These areas contain features that are essential for the conservation of the species and may require special management and protection.

Critical habitat for the California red-legged frog has been designated in the southeast portion of the Planning Area (see Figure 7-3, Sensitive and Critical Habitat). This area contains both aquatic and upland areas with suitable breeding and non-breeding habitat. A final ruling was issued in March 2010 to expand the critical habitat from 450,288 acres to 1,636,609 acres statewide, including additional parts of the Planning Area, including on Pedro Point Headlands.

San Pedro Creek is known to support steelhead trout, a federally listed threatened species. They spawn in the main portion of the creek that runs parallel to Linda Mar Boulevard, as well as the middle and south forks in San Pedro County Park.<sup>18</sup> However, conditions in parts of the creek limit its suitability for steelhead habitat, including barriers to fish passage at main stem road crossings, low base flows, mobilization and accumulation of fine sediments in the main stem, deterioration of water quality, disturbance, and exploitation.

Nearshore marine areas off of Pacifica are part of the Green Sturgeon Critical Habitat. The National Oceanic and Atmospheric Administration found that this, which includes Pacifica's shoreline, is of high conservation value.

### *Special-Status Communities*

The CNDDDB indicates that there is an area of northern maritime chaparral at the south end of the Planning Area, in San Pedro Valley County Park and on Whiting Ridge and Montara Mountain. This community is fairly open chaparral, with about 50–80 percent cover, and it is dominated by Manzanita or *Ceanothus* species.

<sup>18</sup> San Pedro Creek Watershed Coalition, 2002

An area of coastal bluff scrub has been identified at the north end of Pacifica. Coastal bluff scrub communities are found on steep, exposed bluffs along the ocean and are dominated by low shrubs and ground-hugging herbaceous species. It is particularly important for stabilizing sand dunes. Both bluff and northern coastal scrub habitat has been damaged by unauthorized vehicle activity and pedestrian use.

### *Potential Environmentally Sensitive Habitat Areas*

Environmentally Sensitive Habitat Areas are defined by the California Coastal Act as “any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.” These areas are to be protected against any significant disruption of habitat values, and only uses dependent on those resources are to be allowed within those areas. Development in areas adjacent to environmentally sensitive habitat areas must be sited and designed to prevent impacts which would significantly degrade those areas, and be compatible with the continuance of those habitat and recreation areas.

Figure 4-3 identifies potential ESHAs in the Planning Area. Potential ESHAs include all designated critical habitat for Endangered or Threatened Species; special status communities<sup>19</sup>; areas designated as “other potential Environmentally Sensitive Habitat Areas;” and areas identified as “High Value/Further Analysis Needed Prior to Development” within the Coastal Zone. Areas around Mori Point and Sharp Park Golf Course are likely to qualify as an Environmentally Sensitive Habitat Area.

Any proposed development on land designated on the Sensitive and Critical Habitat map (Figure 7-3)

<sup>19</sup> A “special-status natural community” is a natural habitat community that is unique in its constituent components, restricted in distribution, supported by distinctive soil conditions, considered locally rare, potentially supporting special-status plant or wildlife species, and/or that receives regulatory recognition from municipal, county, state, and/or federal entities such as the California Natural Diversity Database (CNDDDB).



Portions or all of the area around Moris Point and Sharp Park Golf Course supports the California red-legged frog and the San Francisco garter snake, and are a potential Environmentally Sensitive Habitat Area under the California Coastal Act.

as having potential to include an Environmentally Sensitive Habitat requires a site-specific evaluation by qualified biologists. The site evaluation will determine the precise location and extent of sensitive resources, if any, and establish appropriate development setbacks and standards to ensure that resources are protected.

### Wildlife Movement Corridors

Wildlife movement corridors link together areas of suitable habitat that are otherwise separated by rugged terrain, changes in vegetation, or by areas of human disturbance or urban development. They allow wildlife to access additional areas with food, water, and other resources such as shelter that would otherwise be blocked by impenetrable barriers such as highways. Topography and other natural factors in combination with urbanization can fragment or separate large open-space areas, creating isolated “islands” of vegetation that may not provide sufficient area to accommodate sustainable populations of animals or plants. Movement corridors mitigate the effects of fragmentation by allowing animals to move between remaining habitats. This allows depleted populations to be replenished and promotes genetic exchange with separate populations.

Natural wildlife corridors in Pacifica include riparian corridors and drainages such as San Pedro Creek, canyons, ridgelines, and corridors across valley floors where impermeable barriers have not yet eliminated options for wildlife movement. An area on the south side of Sharp Park Road may function as a viable corridor between Milagra and Sweeney Ridges. This area has also been identified as part of the Mission Blue butterfly migration corridor.<sup>20</sup>

While a wildlife movement corridor is needed somewhere within the area designated on Figure 7-3, the entire area need not be designated as a wildlife movement corridor. Corridors typically range from 100 to 400 feet in width, within which habitat is continuous and suitable for wildlife movement.

<sup>20</sup> NPS, 2005

### *High Habitat Value Areas Threatened by Fragmentation or Requiring Further Analysis*

San Francisco garter snake and California red-legged frog are known to occur on Milagra Ridge (depicted as “High Habitat Value/Threatened by Fragmentation” on Figure 7-3). This portion of Milagra Ridge could become a biological island, isolating its inhabitants from other populations of the same species, as well as preventing access to suitable habitat. Isolated populations are at greater risk of population losses due to a lack of genetic diversity or catastrophic events (including environmental, human-induced, and genetic).

“High Value/Further Analysis” areas are those occupied by special-status species or containing sensitive natural communities, but sufficiently dispersed to accommodate some degree of impact if, in project-specific environmental documents, sufficient mitigation measures are applied. This category applies to most undeveloped land that isn’t otherwise categorized above, including land on Pedro Point and Rockaway Headlands in the Coastal Zone.

### **Special-Status Species**

Several species known to occur in the vicinity of the Planning Area are accorded “special-status” because of their recognized rarity or vulnerability to various causes of habitat loss or population decline. Some of these

receive specific protections defined in federal or state endangered species legislation. Others have been designated as “sensitive” by state resource agencies or organizations with acknowledged expertise. For purposes of this General Plan, special-status species include:

- Plant and animal species designated as rare, threatened or endangered under the federal or state endangered species acts (ESA);
- Species that are candidates for listing under either federal or state law;
- Species designated by the USFWS as species of concern or species of local concern, or by CDFG as species of special concern;
- Species protected by the federal Migratory Bird Treaty Act (16 U.S.C. 703711);
- Bald and golden eagles protected by the federal Bald Eagle Protection Act (16 U.S.C. 668); and
- Species such as candidate species and CNPS List 1 and 2 species that may be considered rare or endangered pursuant to Section 15380(b) of the CEQA Guidelines.

Of particular interest are the Mission Blue Butterfly and the San Francisco garter snake, federally listed as Endangered; the California red-legged frog and the Central California Coast Steelhead trout, federally listed as Threatened; the Western snowy plover, which



*Milagra Ridge provides high habitat value for endangered or threatened species, and is at risk of becoming fragmented by development, which would isolate its inhabitants from other populations of the same species.*

is federally listed as Threatened and a California Species of Special Concern; and Myrtle's Silverspot big free-tailed bat, a California Species of Special Concern. A comprehensive list and description of species that are either known or presumed to be in the Planning Area based on suitable habitat is in the EIR.

### *Special-Status Wildlife Species*

In addition to these species, additional migratory birds, raptors, and common bat species are subject to general protections provided by state and federal regulations.

### *Special-Status Plant Species*

The large number of special-status plants and the severity of their population declines are reflective of the degree of habitat loss that has occurred throughout the San Francisco Peninsula. Outside of San Bruno Mountain, Pacifica encompasses the northernmost natural habitat on the peninsula. Due to extensive coastal development throughout neighboring counties, beach and bluff species have also become rare.

Of the special-status plant species listed in the EIR, 38 special-status plants have the potential to occur within the Planning Area. These species have been recorded in the vicinity and/or may be present in suitable habitat on site.

## **Protected Trees**

Certain trees within the city limits are also protected, including heritage trees and street trees. Heritage trees are any trees in the city that have a trunk with a circumference of 50 inches or more, at 24 inches above grade, excluding eucalyptus. The City Council may also designate any tree or grove of trees with historical, environmental, or aesthetic value as Heritage Trees. These require special permits for removal, substantial trimming, or construction within its drip-line; in some cases, a Tree Protection Plan prepared by a qualified arborist, landscape architect, or horticulturalist may be required prior to project approval.

## POLICIES

Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .

### Guiding Policies

**CO-G-7  Wildlife and Critical Habitat.** Conserve and protect indigenous threatened, endangered, and other special status species by preserving critical habitat.

*Habitat can be protected by allowing very limited or no development, by identifying habitat areas as top priorities for permanent conservation, and by managing public land to ensure species protection. Critical Habitat in the Coastal Zone is considered Environmentally Sensitive Habitat Area (ESHA).*

**CO-G-8  Coastal Environment and and Special Status Communities.** Conserve and protect beaches, sand dunes, coastal bluffs, and special status communities, particularly the Coastal bluff scrub on the northern bluffs.

*Special status communities in the Coastal Zone are considered Environmentally Sensitive Habitat Area (ESHA).*

**CO-G-9  Creeks and Riparian Areas.** Protect year-round creeks and their riparian habitats.

*San Pedro Creek has been designated an “impaired waterway” by the Regional Water Quality Control Board and provides critical habitat to a federally-listed threatened species, the California coast population of steelhead.*

**CO-G-10  Trees.** Conserve trees and encourage native forestation and planting of appropriate trees and vegetation.

**CO-G-11  Other Environmentally Sensitive Areas.** Protect other potential Environmentally Sensitive Habitat Areas

(ESHAs), High Value or High Habitat Value areas, and Wildlife Movement Corridors from development that would significantly disrupt habitat values.

### Implementing Policies

**CO-I-28  Protection of Biological Resources with New Development.** Protect sensitive habitat areas and special-status species through implementation of the following measures:

- 1) The City shall avoid development and/or buildout in critical habitat of special status species.
- 2) Pre-construction plant and wildlife surveys: Project applicants shall engage a qualified biologist to conduct presence/absence biological surveys for sensitive plant and wildlife species prior to construction adjacent to or within identified special status communities and other sensitive areas identified in Figure 7-3 of the proposed General Plan. If special status species are identified, the qualified biologist shall consult with the California Department of Fish and Wildlife (CDFW) and establish no-disturbance buffers around avian nests, bat roosts, and sensitive plants to avoid disturbance and direct impacts to these resources during construction. If no special status species are detected during surveys, then construction-related activities may proceed. Nesting birds, in particular, are protected by two means; they receive protection under the Migratory Bird Treaty Act, and nesting raptors (in the order Falconiformes or Strigiformes) are protected under the State Fish and Game Code, §3503.5.

- 3) Require biological resource assessments be conducted prior to approval for any development within 300 feet of creeks, wetlands, or other sensitive habitat areas shown on Figure 7-3 of the proposed General Plan.
- 4) Require on-site monitoring of biological resources by a qualified biologist throughout the duration of construction activity.
- 5) Require compensatory mitigation by means of habitat preservation, restoration, and enhancement; for the loss of any critical habitat and/or special status communities.

*The City will coordinate with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, California Department of Fish and Wildlife, and Regional Water Quality Control Board in providing developers with the best guidance to avoid impacts to special status species and habitat areas including creeks, wetland features, woodlands, or other sensitive natural features.*

**CO-I-29**  **Protection of Environmentally Sensitive Habitat Area (ESHA).** Update zoning regulations to protect all sensitive species with defined or potential habitat by establishing specific habitat survey requirements, development limitations, and other requirements to mitigate potential impacts.

**CO-I-30**  **Verification of ESHA.** Prior to any proposed development in an ESHA or potential ESHA, require that a habitat survey be conducted by a qualified botanist or biologist. The habitat survey will verify whether the site is an ESHA, and document the extent of the sensitive resources, document potential negative impacts to the habitat, and recommend appropriate mitigation measures. Verifi-

cation of an ESHA shall be based on the following considerations:

- Presence of natural communities identified as rare by the California Department of Fish and Wildlife (determined by a state rarity ranking of S1 to S3).
- Recorded or potential presence of plant or animal species designated as rare, threatened or endangered under State or federal law.
- Recorded or potential presence of plant or animal species for which there is compelling evidence or rarity, such as a designation of 1B (rare or endangered in California or elsewhere) or 2 (rare, threatened, or endangered in California, but more common elsewhere) by the California Native Plant Society.
- Presence of coastal waterways.
- Integrity of the habitat and its connectivity to other natural areas.

**CO-I-31**  **Management of ESHA.** If the area qualifies as an ESHA under the California Coastal Act, the following regulations apply:

- No new development shall be allowed within primary habitat areas with the exception of resource-dependent uses that can be demonstrated to have no significant adverse impact.
- Buffer areas shall be established around all sensitive resources, providing a minimum of 100 feet, and varying as needed to account for feeding, breeding, nesting, and other habitat requirements. New buildings in buffer areas shall be allowed only if there are no other feasible development areas on the parcel.
- Development shall be sited and designed to prevent impacts that would degrade

adjacent habitat areas, taking into account drainage, vegetation, topography, and other considerations.

- Alteration of landforms, removal of vegetation, impervious surfaces, noise, light, and glare shall be minimized.
- Exterior lighting shall be minimized through the use of low-intensity fixtures and shielding, and directed away from ESHA to have the lowest impact on wildlife.

**CO-I-32**  **Fencing.** Any fencing or barriers located within riparian ESHAs or wildlife corridors shall permit the free passage of wildlife.

**CO-I-33**  **Fuel Modification.** Ensure that new development is sited and designed to minimize the need for fuel modification and vegetation clearance in order to avoid or minimize the disturbance or destruction of habitat and existing hydrology while still providing for fire safety as necessitated by the North County Fire Authority's Vegetation Management Program. Prohibit new development that would require fuel modification within ESHAs.

**CO-I-34** **Habitat Preservation.** Require a habitat survey be prepared by a qualified botanist or biologist for any development proposed for the following areas, as shown in Figure 7-3.

- Designated Critical Habitat for Endangered or Threatened Species;
- Potential Environmentally Sensitive Habitat Area (ESHA);
- High Habitat Value/Threatened by Fragmentation;
- Wildlife Movement Corridor; and
- High Value/Further Analysis Needed Prior to Development.

*The survey will be used to determine the exact location of habitat areas and to recommend mitigation measures that minimize potential impacts.*

**CO-I-35**  **Monitoring Requirements.** Require a Restoration and Monitoring Proposal for any proposed habitat restoration or mitigation. The Proposal should describe the methods and practices to be employed, and include:

- A clear statement of the goals of the restoration or mitigation for all habitat types;
- Sampling of reference habitat, with reporting of resultant data;
- Designation of a qualified biologist as the Restoration or Mitigation Manager responsible for all phases of the restoration;
- A specific grading plan, if the topography must be altered;
- A specific erosion control plan, if soil or other substrate will be disturbed during restoration;
- A weed eradication plan designed to eradicate existing weeds and control future invasion by exotic species;
- A planting plan based on the natural habitat type;
- An irrigation plan that describes the method and timing of watering and ensures removal of watering infrastructure by the end of the monitoring period;
- An interim monitoring plan with performance goals, assessment methods, and a schedule; and
- A final monitoring plan to determine whether the restoration has been successful.

**CO-I-36**  **Construction during Nesting Season.** If site work or construction occurs during the nesting season (February 1 through August 31), then pre-construction breeding bird surveys shall be performed by a qualified wildlife biologist prior to any site disturbance to ensure that no nests will be disturbed or destroyed during Project implementation. If an active nest is found sufficiently close to work areas to be disturbed by construction activities, then the biologist shall create a no-disturbance buffer of 250 feet around passerine nests and a 500 foot buffer around raptor nests. Work-free buffer zones shall be maintained until after the breeding season or until after the qualified biologist determines the young have fledged (usually late June through mid-July).

*Nests initiated during construction activities would be presumed to be unaffected by the activity, and a buffer zone around such nests is not necessary. However, nests shall be flagged and construction activity shall avoid killing and/or injuring nesting birds.*

**CO-I-37**  **Pre-Construction Bat Surveys.** Pre-construction surveys for special-status and non-listed bat species will be performed by a qualified biologist if large trees (>4 ft. diameter at breast height) are to be removed or underutilized or vacant buildings are to be demolished. A no-disturbance buffer of 100 feet shall be created around active bat roosts being used for maternity or hibernation purposes.

**CO-I-38**  **Protection of the Californian Red-Legged Frog and San Francisco Garter Snake during Construction.** To minimize disturbance, require all grading activity within 100 feet of aquatic habitat shall be conducted during the dry season (May 1 and October 15) to

protect California red-legged frog and San Francisco garter snake. A qualified biologist shall conduct presence/absence surveys for California red-legged frog and San Francisco garter snake prior to construction in or adjacent to riparian areas, grasslands near ponds/wetlands, or other sensitive habitat. Any individuals identified shall be treated in consultation with USFWS. Construction shall follow accepted procedures for exclusion and avoidance of California red-legged frog and San Francisco garter snake and their habitat. Additionally, the biologist shall supervise the installation of exclusion fencing along the boundaries of the work area, shall conduct environmental awareness training for construction workers, and shall be present during initial vegetation clearing and ground-disturbing activities.

**CO-I-39**  **Invasive Plant Species.** Prohibit the use of invasive plant species, such as pampas grass, adjacent to wetlands, riparian areas, or other sensitive habitat.

**CO-I-40**  **Beach Grooming.** Work with the State of California, GGNRA, and other partners in the management of beaches in Pacifica to ensure biological resources are adversely affected by beach grooming. Specifically, protect beach wrack (the piles of plant and animal debris that wash ashore), which plays an important role in the beach ecosystem.

**CO-I-41**  **Biological Productivity.** Maintain—and where feasible, restore—the biological productivity and the quality of coastal waters, streams, wetlands, and lakes in order to maintain optimum populations of marine organisms and to protect human health.

*Techniques may include:*

- *Minimizing adverse effects of wastewater discharge;*
- *Controlling runoff, preventing depletion of ground water supplies and substantial interference with surface waterflow;*
- *Encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect riparian habitats; and*
- *Minimizing alteration of natural streams.*

**CO-I-42 Heritage Trees.** Protect trees designated by the City Council as having special value, according to the terms of the Heritage Tree Ordinance.

**CO-I-43  Regulations and Incentives to Preserve Habitat.** Ensure that sensitive or critical habitat is protected, maintained, enhanced, or restored.

*Possible techniques include:*

- *Zoning for very low density and clustered development where appropriate;*
- *Requiring the preparation of a habitat survey in certain areas; and*
- *Identifying appropriate “sending sites” in the City’s Transfer of Development Rights program.*

**CO-I-44  Protection Protection by Land Acquisition or Conservation Easements.** Explore opportunities for public acquisition of land or conservation easements on parcels not currently designated for Conservation that have significant habitat value.

**CO-I-45  Public Land Management.** Coordinate with GGNRA, State and County Parks, and the City and County of San Francisco to ensure that public open space lands are managed to optimize habitat protection for special status species while also providing for public access and other goals.

*Key issues include maintaining viable habitat for the Mission Blue butterfly on Milagra and Sweeney ridges; for the California red-legged frog and San Francisco garter snake populations associated with Mori Point and Laguna Salada; and supporting migrating Western snowy plover at Pacifica State Beach.*

**CO-I-46  Management of Public Coastal Access.** Ensure regular public access, determining locations on a site-specific basis by considering:

- The capacity of the access way to sustain use;
- The intensity of access that can be sustained;
- The fragility of the natural resources in the accessing, and
- The proximity of the access to adjacent residential uses.

*Innovative access management techniques include but are not limited to agreements with private organizations that would minimize management costs and the use of volunteer programs.*

## 7.3 LAND AND SOIL RESOURCES

Conservation of soils and other resources in the earth, and conservation of agricultural and forestry resources are the subject of this section.

### Soils

The U.S. Department of Agriculture Natural Resources Conservation Service has mapped soils in the Planning Area. Soils are characterized according to various properties and grouped into soil associations. These include the Barnabe-Candlestick complex, the Candlestick-Kron-Buriburi complex, Orthents Cut and Fill-Urban Land complex, and Candlestick-Barnabe Complex. In the upland regions these soils are generally shallow and found on slopes ranging from 30 to 75 percent. The Orthents and Urban Land complex soils are often located in the more gentle slopes of 0 to 30 percent. Soils found in developed areas have generally been reworked to the point that most of the native soils are only found at depth, if at all.

Hazards associated with soils, including erosion, landslides and slope failure, subsidence, and liquefaction are discussed in Section 8.1, Geologic and Seismic Hazards.

### Agriculture

While agricultural operations are not predominant, approximately 360 acres currently have agriculture-related uses, mainly as horse boarding. These include the Park Pacifica Stables at the southwestern edge of Sweeney Ridge; Millwood Ranch, north of Terra Nova High School; and Shamrock Ranch south of the city limits. None of these properties are engaged in commercial food production and no land in the Planning Area is classified as farmland by the California Department of Conservation's Farmland Mapping and Monitoring Program.

### Forestry

A significant portion of the Pacifica Planning Area is forested, including Eucalyptus, Coastal Mixed Hardwood/Oak Woodland, Riparian Mixed Hardwood, and Monterey Cypress.

#### Logging

The City defines logging operations as any removal, destruction or harvesting of 20 or more trees within one year from any parcel or contiguous parcel in the same ownership, and exhibits logging operations unless one of the following conditions is met:

- Operations have received Planning Commission and/or City Council;
- Operations are necessary immediately for the safety of life or property, as determined by the Director of Public Works; or
- Operations occur on city-owned property and are necessary to maintain public health and safety.

### Mineral Resources

The Planning Area is a source of some mineral resources, including limestone, which is used for making cement. The Rockaway Quarry produced limestone from the early 20th century until 1987. Picardo Ranch (now Millwood Ranch) also produced limestone and chert for road construction, but the site is no longer operational. Other limestone deposits found in the southern portion of the Planning Area, underlying development, are not mined.

### Coastal Sediment

Coastal sediment, generally consisting of sand, gravel, silt, and clay, provides many benefits for coastal communities, providing habitat for a variety of species, creating recreational opportunities for residents and tourists, and protecting shorelines and adjacent development. Coastal sediment occurs, accumulates, and moves via natural processes (precipitation, wind, landslides, stream flow, etc.). However, urban development and flood control can disrupt these processes and alter the quantity, quality, and location of coastal sediment depo-

sition over time. Eventually, additional intervention (such as armoring, dredging, and other methods) is required to stabilize the shoreline as the natural system is unable to do so. Such interventions often have adverse impacts on shoreline erosion downshore, and may accelerate sand loss from beaches.

Pacifica participates in the Coastal Regional Sediment Management Plan (CRSMP) process for the San Francisco Littoral Cell (the stretch of coastline in which Pacifica is included). The CRSMP will establish policies for management of coastal sediment resources in the area, addressing:

- Shoreline erosion and coastal storm damage reduction;
- Environmental restoration and protection, including beach nourishment, sediment transportation, and natural sediment supply to the coast;
- Sea level rise;
- Coastal access and recreation;
- Water quality along beaches; and
- Identification of beneficial uses for dredged sediment.

## POLICIES

*Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .*

### Guiding Policies

**CO-G-12**  **Preserve Agricultural Open Space.** Promote the preservation of agricultural open space in the Planning Area.

**CO-G-13**  **Protect Significant Mineral Resources.** Cooperate with regional agencies to protect coastal sediment and significant mineral resources in the Planning Area.

### Implementing Policies

**CO-I-47**  **Shoreline Protection.** Continue to prohibit new development requiring shoreline alterations.

*Shoreline-altering construction such as revetments, breakwaters, groins, channels, seawalls, cliff retaining walls, and similar structures is permitted only when required to serve coastal-dependent uses or to protect*



*The San Pedro Creek restoration project involved augmenting the dunes at Pacifica State Beach, helping to reduce erosion.*

existing structures and public beaches in danger of erosion. Such structures, where permitted, must be designed to eliminate or mitigate adverse impacts on local shoreline sand supply.

**CO-I-48**  **Regional Sediment Management.** Participate in regional approaches to protecting, enhancing and restoring coastal beaches and watersheds through the California Coastal Sediment Management Workgroup, with a goal of minimizing coastal erosion.

*Shoreline protection strategies may include:*

- *Beach nourishment, using cleaned dredge material, clean material from flood control structures, clean excavation material and other innovative sources;*
- *Multi-purpose reefs placed offshore of critical erosion areas to retain sediment and reduce wave exposure in specific locations;*
- *A armor constructed along the coastline to protect infrastructure and/or impede erosion of the backshore, in selected locations;*
- *No action with natural processes occurring without intervention on a targeted scale;*
- *“Managed retreat,” involving landward setback of infrastructure and restoration of shoreline areas.*

**CO-I-49**  **Pacifica State Beach.** Continue to manage sedimentation at Pacifica State Beach, and undertake structural protective measures only if non-structural measures (i.e., relocation of facility, set back, redesign, or beach replenishment) are not feasible.

*If a protective structure is constructed (i.e., riprap, rock revetment, seawall, etc.) the structure should not:*

- *Significantly reduce or restrict beach access*

- *Adversely affect shoreline processes and sand supply;*
- *Significantly increase erosion on adjacent properties;*
- *Cause harmful impacts on vegetation, wildlife or fish habitats;*
- *Be placed further than necessary from the development requiring protection; or*
- *Create a significant visual intrusion.*

**CO-I-50**  **Sharp Park Beach.** Work with other public agencies, to implement a “natural management” strategy and refrain from further armoring or heightening of the levee to protect the beach from erosion, allowing the beach and lagoon system to reestablish itself.

*This approach has been formally recommended by the Sharp Park Working Group, as part of the San Francisco Recreation & Parks Department’s Significant Natural Resource Areas Management Plan.*

**CO-I-51**  **Continuation of Agricultural and Related Uses.** Where agricultural and related uses exist, allow compatible uses to continue.

**CO-I-52** **Mineral Resources.** If significant mineral resources are discovered with regional agencies to determine a course of action to protect the resources and, if applicable, extract them in an environmentally sensitive manner.

**CO-I-53**  **Recreational Uses.** Promote recreational uses, such as horse boarding and trail riding, which retain open space character while contributing to a visitor-based economy.

## 7.4 AIR QUALITY

Protecting and improving air quality is important to Pacifica and communities across California, as certain kinds of air pollutants are directly harmful to human health and the health of the natural environment, including water quality, plant and animal life.

Due to its position relative to wind flow patterns and topography, air quality in Pacifica is better than it is in the Bay Area overall. Still, pollutants emitted locally have regional consequences. Since air quality is a regional issue, this General Plan also has referred to Bay Area 2010 Clean Air Plan for guidance.

### Climatic Conditions

Atmospheric conditions, such as wind speed, wind direction, and air temperature interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. Pacifica lies in the northwestern portion of the Bay Area's peninsula climatological sub-region within this sub-region, air

pollution potential is highest in the vicinity of Redwood City, the area most protected from high winds and most susceptible to pollution transported from upwind urban areas. At Pacifica's location, winds bring air from the ocean and are generally strong enough to carry away local emissions.

### Existing Air Quality

The Bay Area has attained Federal and state standards for carbon monoxide, nitrogen dioxide, and sulfur dioxide but has not met Federal and state standards for California's standards for annual concentrations of coarse (PM 10) and fine (PM 2.5) particulate matter, as well as the federal 24-hour standard for PM 2.5.

The Bay Area Air Quality Management District operates a regional monitoring network that measures six criteria pollutants. Since the closest monitoring station is approximately ten miles northeast of Pacifica on Arkansas Street in San Francisco, air quality in Pacifica can be inferred but not precisely

**TABLE 7-2: QUALITY DATA SUMMARY (2006-2010) FOR THE PLANNING AREA**

Pollutant	Standard	Monitoring Data by Year <sup>1</sup>				
		2006	2007	2008	2009	2010
<b>Ozone</b>						
Highest 1 Hour Average (ppm) <sup>3</sup>	0.09	0.053	0.060	0.082	0.072	0.079
Days over State Standard <sup>2</sup>		0	0	0	0	0
Highest 8 Hour Average (ppm) <sup>3</sup>	0.07	0.046	0.053	0.066	0.057	0.051
Days over State Standard <sup>2</sup>		0	0	0	0	0
<b>Particulate Matter (PM-10)</b>						
Highest 24 Hour Average (mg/m <sup>3</sup> ) <sup>3</sup>	50 <sup>3</sup>	<u>61.4</u>	<u>69.8</u>	41.3	36.0	39.7
Days over State Standard <sup>2</sup>		17	12	0	0	NA
Annual Average (mg/m <sup>3</sup> ) <sup>3</sup>	20 <sup>3</sup>	<u>22.9</u>	<u>21.8</u>	<u>21.9</u>	18.6	NA
<b>Particulate Matter (PM-2.5)</b>						
Highest 24 Hour Average (mg/m <sup>3</sup> ) <sup>4</sup>	35	<u>54.3</u>	<u>45.2</u>	29.4	<u>35.5</u>	<u>45.3</u>
Days over National '06 Standard <sup>2</sup>		3	5	NA	NA	3
State Annual Average (mg/m <sup>3</sup> ) <sup>3</sup>	12 <sup>3</sup>	9.7	8.9	11.7	NA	NA

**Note:** Values underlined are in excess of applicable standard.

1. Data are from the Arkansas Street station in San Francisco.

2. Generally, state standards are not to be exceeded and National standards are not to be exceeded more than once per year. ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter.

3. State measurement and standard.

4. National Standard.

Source: California Air Resources Board, Summaries of Air Quality Data, 2002, 2003, 2004, 2005, 2006, 2007; <http://www.arb.ca.gov/ladam>.

gauged from BAAQMD's measurements. Table 7-2 shows measured pollutant concentrations for ozone, PM<sub>10</sub> and PM<sub>2.5</sub> from the Arkansas Street station over the last five years, and ambient air quality standards for these criteria pollutants.

Based on data in Table 7-2, there appears to have been no violations of the state or national ozone standard in San Francisco over the five years between 2006 and 2010. However, because ozone is a regional pollutant and precursors can travel long distances before they react to form ozone, local emissions of reactive organic gases (ROG) and nitrogen oxides (NO<sub>x</sub>) may contribute to regional ozone levels. The regional monitoring network has recorded ozone levels exceeding the State standard for 15 days per year over the past five years, with fewer violations of the national standards.

In general, particulate levels are relatively low near the coast, and peak in dry, sheltered valleys. Therefore, Pacifica's air is generally less polluted than the region's, though local emissions play a role in the region's air quality issues. PM<sub>10</sub> concentrations violated the state's 24-hour average standard 17 and 12 days per year at the Arkansas Street station in 2006 and 2007, and not at all in 2008-2010. By contrast, PM<sub>10</sub> concentrations violated the same standard for the San Francisco Bay Air Basin as a whole 77 days in 2006 alone.

The BAAQMD maintains an Emissions Inventory, which estimates the total volume of air pollutants generated each day by approximately 100 "areawide" sources, point sources such as factories, gas stations and power plants, and mobile sources (primarily vehicles). In general, the proportion of air pollution generated by different sources varies by pollutant. Cars, trucks, airplanes and boats are responsible for most of the smog-producing pollutants (nitrogen oxides and reactive organic gases) in the air and nearly all of the carbon monoxide. Areawide sources, especially dust from roads, produce most of the particulate air pollutants. Ships account for virtually all of the sulfur dioxide emitted in San Mateo County.

While the region is in compliance for carbon monoxide (CO) emissions, concentrations of CO can still be a local concern. In Pacifica, congestion on Highway 1 has the potential to produce high concentrations, negatively impacting the health of sensitive populations (children, the elderly, etc.).

## Sensitive Receptors

Some people are more sensitive to air pollution than others. Heightened sensitivity may be caused by pre-existing health problems, proximity to the emissions source, and duration of exposure to pollutants. Land uses such as schools, children's day care centers, hospitals, and convalescent homes are more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress and other air quality-related health problems. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality.

## POLICIES

Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .

### Guiding Policies

**CO-G-14 Improve Air Quality.** Reduce emissions of ozone-producing pollutants and particulate matter to improve regional air quality and protect the health of Pacifica and Bay Area residents.

### Implementing Policies

**CO-I-54 Regional Cooperation.** Cooperate with the Bay Area Air Quality Management District (BAAQMD) and other public agencies in implementing plans to achieve State and Federal Ambient Air Quality Standards.

**CO-I-55 Impact Guidelines.** Use the BAAQMD's *Air Quality Guidelines*, to determine and mitigate project air quality impacts.

*The City consults with the BAAQMD during CEQA review for projects that require air quality impact analysis and BAAQMD is on the distribution list for CEQA documents.*

**CO-I-56 Sensitive Receptors.** Work with BAAQMD to develop and implement a Community Risk Reduction Plan to address the exposure of sensitive populations to toxic air contaminant emissions in Pacifica.

**CO-I-57 Construction Equipment.** Require all construction equipment to be maintained and tuned to meet appropriate EPA and CARB emission requirements.

**CO-I-58 Dust Abatement.** Require contractors to use best management practices to reduce particulate emissions and dust associated with construction activities.

*BMPs include, but are not limited to: regular materials and vehicle tire watering; covering of stockpiles; phasing or extension of grading operations; suspension of grading during high wind periods; and revegetation of graded areas.*

**CO-I-59 Transportation Control Measures.** Ensure compliance with the most current Bay Area Clean Air Plan by implementing the Plan's recommended Transportation Control Measures.

*The 2010 Clean Air Plan identifies 17 TCMs aimed at reducing vehicle trips and vehicle miles traveled; increasing access to and support of alternative modes of transportation; promoting compact, walkable land use patterns; and increasing public education and awareness.*

## 7.5 ENERGY AND GREENHOUSE GASES

Like air quality, greenhouse gas emissions and potential effects of global climate change are environmental issues whose causes and impacts extend far beyond the boundaries of any one city. However, given its coastal location and fragile environmental assets, the City is acutely aware of the impacts that global climate change may have, and actively engaged in working to reduce greenhouse gas emissions in the Planning Area and adapting to the changing physical environment.

### Global Climate Change

Global climate change (GCC) refers to a change in the average weather of the earth that may be measured by wind patterns, storms, precipitation, and temperature. Historically, the rate of temperature change has typically been incremental, with warming and cooling occurring over the course of thousands of years. In the past 10,000 years the earth has experienced incremental warming as glaciers retreated across the globe. However, scientists have observed an unprecedented increase in the rate of warming over the past 150 years, roughly coinciding with the global industrial revolution.

Although GCC is now widely accepted as a concept, the extent and speed of change to be expected, and the exact contribution from human sources, remains in debate. Nonetheless, the world's leading climate scientists, the Intergovernmental Panel on Climate Change (IPCC), have reached consensus that global climate change is "very likely" caused by humans, and that hotter temperatures and rising sea levels will continue for centuries no matter how much humans control their future emissions.

In its 2007 report, the IPCC predicted that global mean temperature increase from 1990-2100 could range from 2.0 to 11.5 degrees Fahrenheit, with the most likely scenario between 3.2 and 7.1 degrees. The same report projects a sea level rise of seven to 23 inches by the end of the century, with a greater rise possible depending on the rate of polar ice sheet

melting. Observations since then have led to projections for more significant change. A 2009 study done for a consortium of California state agencies has projected a sea level rise of 39 to 55 inches along the California coast by 2100.<sup>21</sup>

According to the California Climate Action Team (CCAT), accelerating GCC has the potential to cause a number of adverse impacts in California, including but not limited to: a shrinking Sierra snowpack that would threaten the state's water supply; public health threats caused by higher temperatures and more smog; damage to agriculture and forests due to reduced water storage capacity, rising temperatures, increasing salt water intrusion, flooding, and pest infestations; critical habitat modification and destruction; eroding coastlines; increased wildfire risk; and increased electricity demand. These impacts have and will continue to have considerable costs associated with them.

While all of these impacts may be felt to some extent in Pacifica, of particular concern are coastal erosion, flooding, and habitat modification, as well as water supply issues.

### Greenhouse Gases

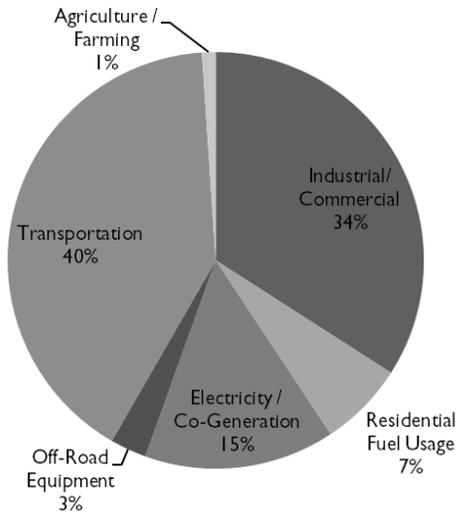
Gases that trap heat in the Earth's atmosphere are called greenhouse gases (GHGs). These gases play a critical role in determining the Earth's surface temperature. Part of the solar radiation that enters Earth's atmosphere from space is absorbed by the Earth's surface. The Earth reflects this radiation back toward space, but GHGs absorb some of the radiation. As a result, radiation that otherwise would have escaped back into space is retained, resulting in a warming of the atmosphere. This phenomenon is known as the greenhouse effect.

There are many types of GHGs. The six that are identified explicitly in California legislation as being of primary concern are:

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<sup>21</sup> California Climate Change Center, May 2009.

**Figure 7-4: 2007 Bay Area Greenhouse Gas Emissions by Sector**



Source: Bay Area Air Quality Management District, Source Inventory of Bay Area Greenhouse Gas Emissions, 2008

- **Carbon dioxide (CO<sub>2</sub>)**, emitted as a result of fossil fuel combustion, with contributions from cement manufacture;
- **Methane (CH<sub>4</sub>)**, produced through the anaerobic decomposition of waste in landfills, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion;
- **Nitrous oxide (N<sub>2</sub>O)**, typically generated as a result of soil cultivation practices, particularly the use of commercial and organic fertilizers, fossil fuel combustion, nitric acid production, and biomass burning;
- **Hydrofluorocarbons (HFCs)**, primarily used as refrigerants;
- **Perfluorocarbons (PFCs)**, originally introduced as alternatives to ozone depleting substances and typically emitted as by-products of industrial and manufacturing processes; and
- **Sulfur hexafluoride (SF<sub>6</sub>)**, primarily used in electrical transmission and distribution systems.

GHGs have varying potentials to trap heat in the atmosphere, known as global warming potential (GWP), and atmospheric lifetimes. Often, GWP is expressed in terms of “carbon dioxide equivalents”, or CO<sub>2</sub>e, which allows emissions of different gases to be summed by a common metric. GWP ranges from one (carbon dioxide) to 23,900 (sulfur hexafluoride). GHG emissions with a higher GWP have a greater global warming effect on a molecule-by-molecule

**TABLE 7-3: COMPARATIVE GREENHOUSE GAS EMISSIONS**

Area	Population	Emissions (CO <sub>2</sub> e)	Per Capita Rate (metric tons/ year/ person)
San Mateo County (2007)	729,000	11 million	15.09
Bay Area (2007)	7,036,000	103 million	14.64
California (2004)	35,055,000	500 million	14.26
United States (2006)	299,398,000	7,054 million	23.56

Note: Emissions are measured in metric tons of carbon dioxide equivalent (CO<sub>2</sub>e)

Sources: Data for San Mateo County and the Bay Area are for 2007, BAAQMD, 2008. Emissions for California from California Energy Commission 2007 Integrated Energy Policy Report, population U.S. Census Bureau, 2004 American Community Survey. Emissions for the United States from EPA 2008. Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2006. U.S. Environmental Protection Agency, Washington, D.C. April 15, 2008, population U.S. Census Bureau, 2006 American Community Survey.

basis. For example, one ton of CH<sub>4</sub> has the same contribution to the greenhouse effect as approximately 21 tons of CO<sub>2</sub>. The parameter “atmospheric lifetime” describes how long it takes to restore the system to equilibrium following an increase in the concentration of a GHG in the atmosphere. Atmospheric lifetimes of GHGs range from tens to thousands of years.

### Greenhouse Gas Emissions

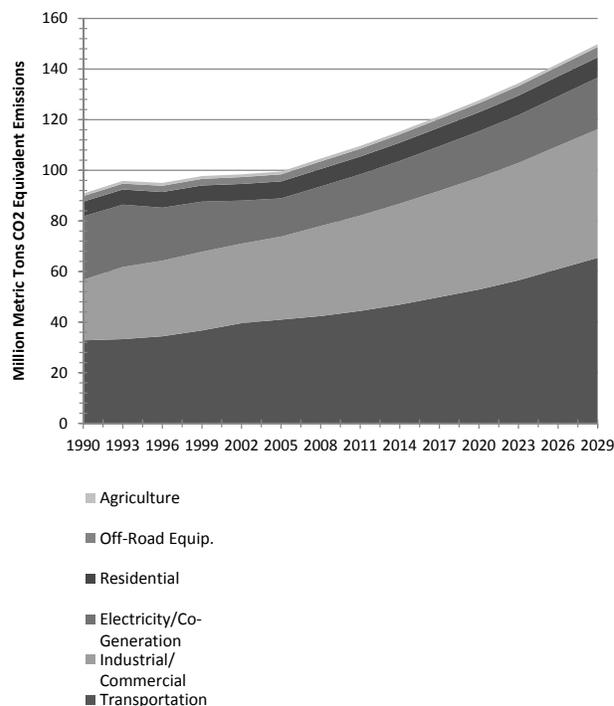
According to the California Energy Commission’s 2007 Integrated Energy Policy Report, California’s emissions in 2004 were nearly 500 metric ton carbon dioxide equivalent, making it second only to Texas among American states. Per capita, however, California’s emissions were the fourth lowest in the United States in 2001.<sup>22</sup> Per capita rates of emissions in the Bay Area and San Mateo County are slightly higher than the California average.

In 2008, the BAAQMD completed a baseline inventory of GHG emissions for the year 2007, shows carbon dioxide accounting for 91 percent of greenhouse gas emissions, with methane, nitrous oxide, and other compounds making up the remainder.

The Bay Area’s transportation sector is the primary source of Bay Area greenhouse gas emissions, contributing about 40 percent of the region’s CO<sub>2</sub>e, followed by industrial and commercial sources (34 percent), electricity and co-generation (15 percent), residential fuel usage (7 percent), off-road equipment (3 percent), and agriculture and farming (1 percent). These proportions are illustrated in Figure 7-4.

Absent any policy changes, the Bay Area’s greenhouse gas emissions are expected to grow at a rate of approximately 1.4 percent a year due to population growth and economic expansion (See Figure 7-5). Economic activity variations and the fraction of electric power generation in the region will cause year-to-year fluctuations in the emissions trends.

**Figure 7-5: Bay Area Greenhouse Gas Emissions Trends by Sector**



Source: Bay Area Air Quality Management District Source Inventory of Bay Area Greenhouse Gas Emissions, 2008

<sup>22</sup> California Energy Commission 2007, 18.

San Mateo County countywide CO<sub>2</sub> emissions were 5.91 million metric tons in 2006, averaging 8.1 metric tons per capita. By contrast, emissions in Pacifica were estimated as 4.5 metric tons per capita (See Table 7-4).

## Electricity and Gas

Pacific Gas & Electric (PG&E) provides gas and electric services to Pacifica homes and businesses. With energy obtained from power plants, natural gas fields, and renewable energy sources in northern California. The availability of electricity and gas services is not expected to become an issue during the planning horizon. However, electricity and natural gas use account for 40 percent of greenhouse gas emissions in Pacifica. Thus, while supply is not anticipated to be an issue in Pacifica, reducing demand for these resources will help reduce carbon emissions.

### California Green Building Standards

Green building refers to methods in the construction and operation of buildings intended to conserve natural resources, reduce waste from construction and demolition, increase energy efficiency and reduce operating costs, and promote healthy indoor air quality.

The California Building Code (Title 24 of the State Code of Regulations) includes the country's first Green Building Standards (CalGreen), parts of which became mandatory as of January 2011. Among these are requirements to reduce water consumption, divert construction waste from landfills, and install low pol-

lutant-emitting finish materials. Requirements vary for residential and nonresidential buildings.

The Green Building Standards are a key part of the State's efforts to achieve the State's goal of reducing greenhouse gas emissions to 1990 levels by 2020. Future updates are expected to continue to strengthen environmentally responsible building requirements as these practices become widely adopted. Local jurisdictions are responsible for ensuring that State standards are met, at a minimum. The 2010 Green Building Standards Code also establishes a system designed to give cities and counties the option of adopting local codes that go beyond the minimum standards.<sup>23</sup> Pacifica has adopted CalGreen.

## Solid Waste Collection and Recycling

Although solid waste accounts for just 2 percent of Pacifica's carbon emissions, solid waste has the potential to be a much larger contributor to global warming overall because of methane produced byproducts. Solid waste can be reduced through recycling, composting, and reduction and reuse of material goods.

Solid waste collection and recycling services in Pacifica are provided by Recology of the Coast, a division of Recology. Recology, based in San Francisco, operates a number of landfills, waste transfer and materials recovery facilities, including the recycling yard at 1046 Palmetto Avenue in Pacifica. Recology emphasizes waste reduction and diversion, and is the largest compost facility operator by volume in the United

<sup>23</sup> California Building Standards Commission, 2010.

**TABLE 7-4: 2006 CO<sub>2</sub> EMISSIONS IN SAN MATEO COUNTY AND PACIFICA**

	San Mateo	% of Total	Pacifica	% of Total
Transportation	3,427,800	58%	98,000	58%
Electricity	1,182,000	20%	25,000	15%
Natural gas	1,182,000	20%	42,000	25%
Solid Waste	118,200	2%	4,000	2%
Total	5,910,000		169,000	
Per Capita CO <sub>2</sub> emissions	8.1		4.5	

Note: This inventory considers only CO<sub>2</sub>, and not CO<sub>2</sub>e emissions, as is reflected in the BAAQMD study.

Source: Sustainable San Mateo, U.S. Census Bureau, 2005-2007 American Community Survey

States. In Pacifica, Recology of the Coast currently provides curbside pick-up of garbage, recyclables, and green waste for both residential and commercial customers.

The City has enacted an ordinance requiring all food vendors to use biodegradable or compostable service ware. Also, both the City and San Mateo County have recycling divisions that provide information to help residents and businesses reduce and divert waste from landfills.

### Sea Level Rise

Of the various potential effects of global climate change, sea level rise is particularly relevant to Pacifica because of urban and infrastructure located near the coastline. Areas of the Sharp Park Golf Course, the Rockaway Beach district, and the West Linda Mar and West Sharp Park neighborhoods could be vulnerable to inundation or coastal flooding. Coastal erosion processes that have caused significant damage along the high bluffs of Pacifica's northern coastal neighborhoods increase in magnitude. In addition to raising the average tide lines, sea level rise has the potential to alter the frequency and magnitude of coastal flood events. The potential for sea level rise to exacerbate coastal flooding and erosion in the Planning Area is discussed in more detail in Chapter 8, Safety.

## POLICIES

*Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .*

### Guiding Policies

**CO-G-15 Renewable Energy.** Support the use and development of renewable energy through City purchasing, and facilitation of local renewable energy generation.

**CO-G-16 Energy Conservation.** Support efforts to reduce energy use by increasing energy efficiency in buildings and promoting awareness of energy use.

**CO-G-17 Waste Reduction.** Seek to reduce overall solid waste by limiting packaging, controlling construction and demolition waste, and promoting composting and recycling.

### Implementing Policies

*See Chapter 3, Community Design; Chapter 4, Land Use; and Chapter 5, Circulation for related policies that seek to improve air quality and reduce emissions through urban design, land use, and transportation strategies.*

**CO-I-60 Climate Action Plan for Greenhouse Gas Reductions.** Maintain and update the Climate Action Plan that focuses on feasible actions the City can take to reduce greenhouse gas emissions from government, businesses, and residents in Pacifica.

*The CAP should:*

- *Establish a baseline inventory of all known or reasonably discoverable sources of GHGs that currently exist in Pacifica and that existed in 1990;*
- *Projected GHG emissions expected in 2030 under this General Plan and foreseeable municipal operations;*

- *Set a target for the reduction of GHG emissions, in line with targets established by the California Air Resources Board;*
- *Present a list of feasible—and to the greatest extent possible, quantifiable—GHG reduction measures to meet the reduction target, in the areas of energy use (in all sectors), transportation and land use, solid waste, water, and education/outreach; and*
- *Establish an implementation plan, including strategies and funding for monitoring and making improvements..*

**CO-I-61 Green Building.** Monitor the effectiveness of the California Green Building Code in bringing about energy efficiency in architectural design and building construction.

**CO-I-62 Solar Orientation.** When possible, require buildings to be oriented such that the use of passive and active solar strategies is maximized, in order to promote energy efficiency.

*To achieve ideal solar orientation conditions, the long axis of the building should be oriented east-west, within 15 degrees.*

**CO-I-63 Encourage Solar Power Generation.** Promote use of passive and active solar devices such as solar collectors, solar cells, and solar heating systems in buildings and parking areas by incentive programs and streamlining review.

**CO-I-64 Clean City Fleet.** Establish City budget for clean fuels and electric or hybrid vehicles to replace and improve the existing fleet of gasoline and diesel powered vehicles.

**CO-I-65 City Purchasing of Renewable Energy.** Pursue opportunities for the City to lower the cost of purchasing and producing renewable energy, such as through Silicon Valley Joint Venture's Aggregate Renewable Energy Project.

**CO-I-66**  **Waste Collection.** Periodically evaluate the City's waste collection contract to ensure that Pacifica residents and businesses receive high-quality and cost effective service.

**CO-I-67 Waste Reduction and Diversion.** Seek to continually reduce Pacifica's output of solid waste and increase the proportion of waste diverted from landfills, setting targets and monitoring progress.

**CO-I-68 Energy Efficiency in Public Buildings.** Prepare and implement a plan to increase energy efficiency in existing public buildings.

*Measures may include:*

- *Conduct energy audits for all municipal facilities;*
- *Retrofit municipal facilities for energy efficiency where feasible and when remodeling or replacing components, including increased insulation, installing green or reflective roofs, installing automated lighting controls, and retrofitting heating and cooling systems.*
- *Require that any newly constructed, purchased, or leased municipal space meet minimum standards, such as exceeding Title 24 energy efficiency by 20 percent;*
- *Educate employees on energy conservation.*

**CO-I-69 Wastewater and Water System Efficiency.** Maximize the efficiency of City-operated wastewater treatment, water treatment, pumping, and distribution equipment.

**CO-I-70 Outdoor Lighting.** Establish outdoor lighting performance standards to minimize energy use while ensuring appropriate light levels. These can be met by :

- Greater use of photocells or astronomical time switches;

- Directional and shielded LED lights;
- Security lights with motion detectors; and
- Prohibitions against continuous all-night outdoor lighting unless needed for security reasons.

## 7.6 CULTURAL RESOURCES AND HISTORIC PRESERVATION

One objective of the General Plan is to protect community assets, including sites with historical and cultural significance. Cultural resources include prehistoric or archaeological sites, properties of cultural or historic significance, or paleontological sites. Pacifica has a rich history with regional and statewide significance, as it was home to several Native American villages as well as the site of the discovery of the San Francisco Bay. The Sanchez Adobe Historical Site along San Pedro Creek, which features physical evidence of several significant periods in California history.

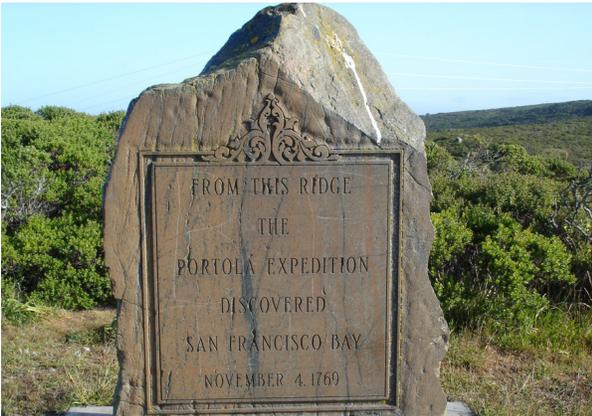
### Historic Context

Native Americans had an extensive presence in the Planning Area. When Europeans arrived, the area was home to persons speaking the Costanoan/Ohlone language, and living in and around two villages: Pruristac, in San Pedro Valley, and Timiigtac, in Calera Valley. In 1769, an expedition led by Gaspar de Portola, governor of the Spanish territory covering California, discovered San Francisco Bay from a point on Pacifica's Sweeney Ridge, and camped in San Pedro Valley. Not long after, Mission San Francisco de Asis (Mission Dolores in present-day San Francisco) was established, and in 1786 the Mission developed an outpost in San Pedro Valley, alongside Pruristac. The Costanoan village was wiped out by disease in 1791.<sup>24</sup>

Mexican independence from Spain was followed by a "secularization" program, and in 1839 the San Pedro mission outpost and its *rancho*, covering the majority of the Planning Area, was granted to Francisco Sanchez, who built the adobe house that stands today as the oldest structure in San Mateo County. Following his death, the land was divided and the area developed slowly.

In 1905 construction began on the Ocean Shore Railway, which was to connect San Francisco with Santa Cruz. The line was never completed, but operated

<sup>24</sup> California Historical Resources Information System (CHRIS), 2009



*In 1769, an expedition led by Gaspar de Portola discovered San Francisco Bay from a point on Pacifica's Sweeney Ridge (top). The Sanchez Adobe, built in 1842, is the oldest surviving structure in San Mateo County. The site was once the Costanoan village of Pruristac (middle). The Little Brown Church, built in 1910, is being restored by the Pacifica Historical Society (bottom).*

as far south as Half Moon Bay until 1921, supporting a string of stops in present-day Pacifica including Tobin, Salada Beach, and Rockaway Beach. The communities surrounding the railway stops, including Edgemar, Sharp Park, Pacific Manor, Vallemar, Rockaway Beach, and San Pedro Terrace-by-the-Sea, grew slowly until the building boom following World War II. Pacifica incorporated as a City in 1957, as the union of these unincorporated communities.

### Native American Cultural Resources

Five Native American archaeological resources have been found and recorded in Pacifica, all classified as habitation sites. Two additional resources contain both Native American and historic-era archaeological value. The Sanchez Adobe's State Historical Landmark and Point of Historical Interest is listed on the National Register of Historic Places and operated by the San Mateo County Historical Association as an historical site. The Sanchez Adobe Park, site of the Pruristac village and the San Pedro mission outpost, also is listed in the National Register of Historic Places and the California Register of Historical Resources.

The Planning Area is rich with the types of environments where Native American cultural resources have been found: permanent and intermittent streams, productive coastal environments, and sheltered locations for permanent habitations, as well as ridgelines, terraces, spurs and saddles. The Planning Area also includes a significant amount of alluvial soil, which in some cases is overlaid by artificial fill, increasing the probability for buried archaeological deposits. There is considered to be a high likelihood that unrecorded Native American cultural resources are present.

### Contemporary Native American Resources

As part of the General Plan update process, the Native American Heritage Commission (NAHC) conducted a record search of the sacred lands file in 2009. The search did not indicate the presence of additional Native American cultural resources within the Planning Area. The NAHC response listed six tribes that may have historic ties to the Planning Area, and letters of inquiry were sent to the six tribal representatives; however, no responses were received.

## Historic Resources

The Portola Expedition Camp at San Pedro Creek, the Discovery Site, and the Sanchez Adobe are State Historical Landmarks. Tobin Station, one of two remaining structures from the Ocean Shore Railroad, is a State Point of Historical Interest.

A Master Plan for the Sanchez Adobe Historical Site, completed in 2007 aims to increase visitation and improve visitors' educational experience while ensuring that the site is preserved for future generations.

The City has nine local historical landmarks: Sanchez Adobe; the Little Brown Church; the former San Pedro Schoolhouse (now City Hall); the 1907 Anderson's Store building on Paloma Avenue; the Sharp Park Golf Course club house, from 1932; Vallemar Station; the former Dollaradio Station; and two private residences (see Table 7-5).

The Little Brown Church's ongoing renovation is the work of the Pacifica Historical Society, which envisions a local history museum there. The Historical Society also owns the last remaining car from the Ocean Shore Railroad, and has stated its interest in moving the railcar alongside the Church. All of the different types of historic resources in Pacifica are shown in Figure 7-6 and listed in Table 7-5.

### Historic Preservation Ordinance

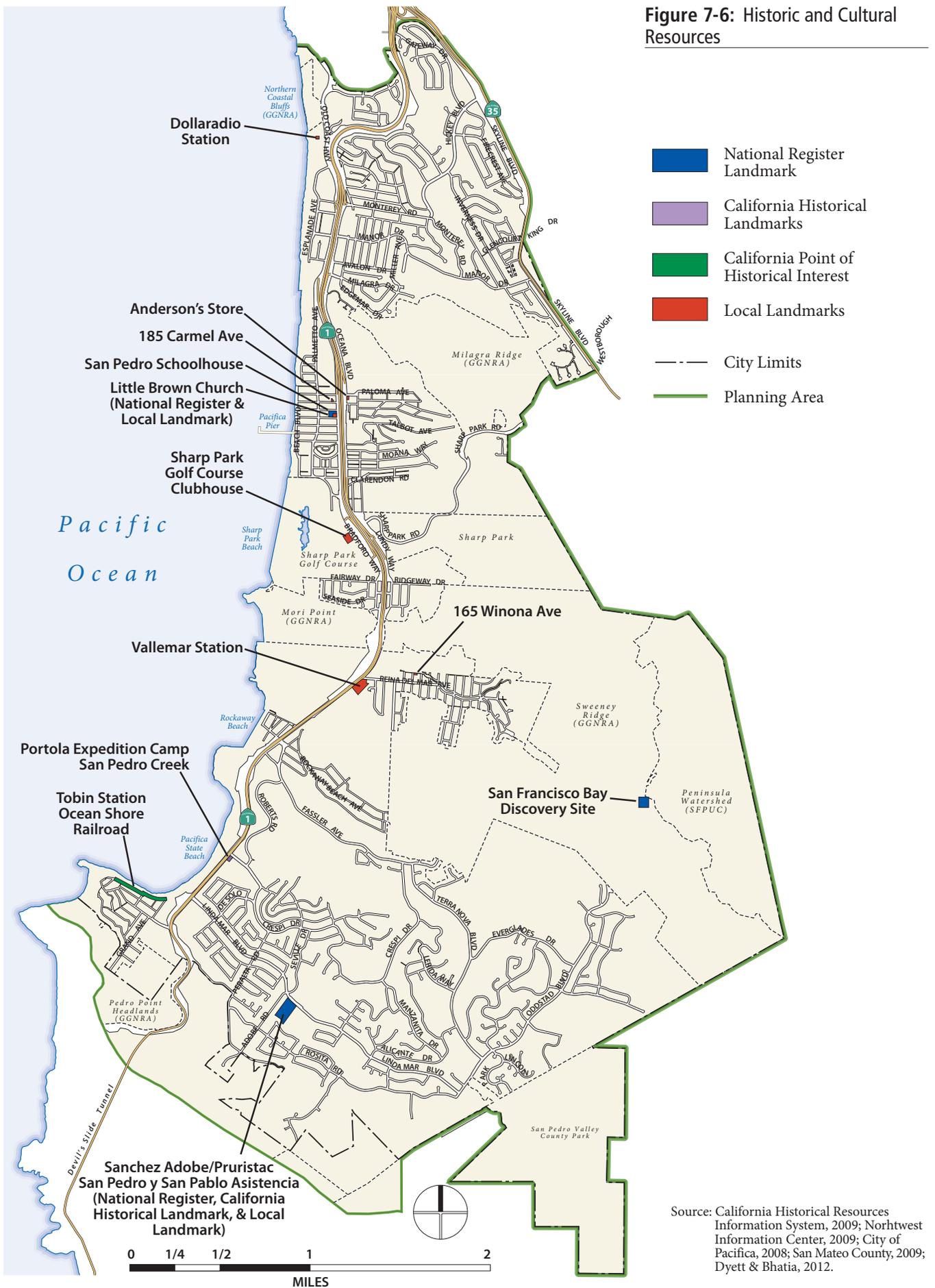
The Historic Preservation Ordinance protects structures and sites of historic significance in the city. The ordinance outlines procedures for designating historic landmarks, describes the permit process for the alteration, demolition, or relocating of any historic structure, and includes a section pertaining specifically to the Little Brown Church. It also acknowledges the role of the Pacifica Historical Society in designation of sites and the permit process.

**TABLE 7-5: HISTORIC SITES IN PACIFICA**

Site	Address	Year Constructed
<b>National Register Landmarks</b>		
Little Brown Church	1850 Francisco Boulevard	1910
San Francisco Bay Discovery Site	Sweeney Ridge	NA
Sanchez Adobe / Pruristac / San Pedro y San Pablo	1000 Linda Mar Boulevard	1842
<b>California Historical Landmarks</b>		
Portola Expedition Camp at Pedro Creek	Southeast of SR 1 and Crespi Drive	NA
San Francisco Bay Discovery Site	Sweeney Ridge	NA
Sanchez Adobe / Pruristac / San Pedro y San Pablo	1000 Linda Mar Boulevard	1842
<b>California Point of Historical Interest</b>		
Tobin Station-Ocean Shore Railroad	Shoreside Drive, Pedro Point	
<b>Local Landmarks Identified in Pacifica Zoning Code</b>		
Anderson's Store	220 Paloma Avenue	1907
Little Brown Church	1850 Francisco Boulevard	1910
San Pedro Schoolhouse	170 Santa Maria Avenue	1914
Sanchez Adobe / Pruristac / San Pedro y San Pablo <sup>1</sup>	1000 Linda Mar Boulevard	1842
Sharp Park Golf Course Clubhouse	Sharp Park Road & SR 1	1932
Vallemar Station	2125 Coast Highway	
Private residence	165 Winona Avenue	
Private residence	185 Carmel Avenue	
Dollaradio Station (private residence)	100 Palmetto Avenue	1926

Sources: California Historical Resources Information System, 2009, City of Pacifica, 2012.

**Figure 7-6: Historic and Cultural Resources**



## POLICIES

Policies included in both the General Plan and Local Coastal Land Use Plan are indicated with a .

### Guiding Policies

- CO-G-18**  **Historic and Cultural Sites.** Conserve designated historic and cultural sites and structures that help define Pacifica's identity and character and increase public awareness and appreciation them.
- CO-G-19**  **Ensure Mitigation.** Require mitigation for any new development that would adversely affect archaeological or paleontological resources.

### Implementing Policies

- CO-I-71** **Historic Preservation Ordinance.** Continue to evaluate development projects for their historical significance and preservation value, using the criteria in the Historic Preservation Ordinance.
- CO-I-72** **Integration of Historic and Cultural Resources with City Identity.** Incorporate historic and cultural resources into the City's marketing and branding efforts. Specific initiatives might include:
- Identifying historic sites in the City's wayfinding scheme;
  - Giving priority to streetscape and public realm improvements around historic structures that are visitor destinations;
  - Hosting/supporting events and educational programs that feature Pacifica's history and promote its relevance; and
  - Linking related historical sites through the City's open space and trail system.
- CO-I-73** **Public Agency Support for Local Historic Sites.** Seek support from public agencies, such as GGNRA, for local historic preservation programs for designated sites.

*Two documents have been prepared for San Mateo County that should guide agency involvement in Pacifica's historic resources: the Sanchez Adobe Historical Site Master Plan (2007) and the Historic Resource Study for Golden Gate National Recreation Area in San Mateo County (2010).*

- CO-I-74**  **Resource Impact Mitigation.** Ensure that new development analyzes and avoids potential impacts to historic, archaeological, and paleontological resources by:

- Requiring a records review for development proposed in areas that are considered archaeologically or paleontologically sensitive;
- Requiring pre-construction surveys and monitoring during any ground disturbance for all development in areas of historic or archaeological sensitivity; and
- Implementing appropriate measures as a condition of project approval—such as avoidance, preservation in place, and excavation,—to reduce or avoid impacts.

*In the event that historical, archaeological, or paleontological resources are accidentally discovered during construction, grading activity in the immediate area shall cease and materials and their surroundings shall not be altered or collected. A qualified archaeologist or paleontologist must make an immediate evaluation and avoidance measures or appropriate mitigation should be completed, according to CEQA Guidelines. The State Office of Historic Preservation has issued recommendations for the preparation of Archaeological Resource Management Reports that may be used as guidelines.*

**CO-I-75 Adaptive Reuse.** Promote adaptive reuse of historic structures—preserving their original design and character—as an option for preserving sites that are threatened with demolition or degradation.

**CO-I-76**  **Native American Sites.** Work with local Native American tribes to protect recorded and unrecorded cultural and sacred sites, and educate developers and the community-at-large about the connections between Native American history and the environmental features that characterize the local landscape.

*Development on archaeologically sensitive sites requires on-site monitoring by appropriate Native American consultant(s) and a qualified archaeologist of all grading, excavation, and site preparation activities that involve earth-moving operations. This*

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