



Ensuring the safety of community members, through protection from hazards, is an essential service of public agencies and a critical priority for maintaining community health and welfare. The purpose of the Safety Element is to establish goals and policies to mitigate the potential impacts from natural and man-made hazards that pose a threat to public health and safety. Specifically, this chapter addresses seismic and geologic hazards, flooding, fire, and other hazards, as well as related aspects of law enforcement, emergency preparedness, and coordinated response measures.

8.1 SEISMIC AND GEOLOGIC HAZARDS

The Planning Area lies within the geologically complex region of California known as the Coast Range geomorphic province. Much of the Coast Range province is composed of marine sedimentary deposits and volcanic rocks that form northwest trending mountain ridges and valleys, running subparallel to the San Andreas Fault Zone. West of the San Andreas Fault lies the Salinian Block, a granitic core that extends from the southern end of the province to north of the Farallon Islands.

Seismic Hazards

Earthquakes can cause surface rupture from faulting or seismically induced effects, such as ground shaking and landslides. The challenge is to:

- **Minimize Earthquake-Related Hazards, Liquefaction, and Landslides.** The San Andreas Fault, which traverses the northeast corner of Pacifica, is active and capable of causing a large earthquake. Areas located on or immediately adjacent to the mapped fault traces must be investigated prior to any development to ensure that fault rupture hazards be avoided or minimized.

Areas located within the alluvial valleys could have a high potential for liquefaction. Site-specific geotechnical investigations can confirm the presence of liquefiable materials and provide foundation design criteria to mitigate the potentially damaging effects of liquefaction.

The Planning Area also includes slopes that are susceptible to landslides, especially areas with greater than 50 percent inclines. Geotechnical engineering can typically overcome the challenges of development on steep terrain through drainage improvements, anchoring foundations in deeper materials, re-grading slopes, and other methods.

- **Minimize Hazards Related to Winter Storms and Coastal Erosion.** Much of Pacifica's coastline is subject to severe coastal erosion. Short term erosion hazards are generally mitigated through best management practices and use of soft stabi-

lization techniques. In areas that are experiencing active coastal erosion, the most effective mitigation is to relocate development. With sea level rise, there is potential for more serious long-term coastal erosion, which could be a critical challenge within the Planning Area.

Modern seismic activity within the Coast Range continues to be associated with movement along the San Andreas system of faults. Regionally, this fault system is the boundary between large sections, or plates, of the earth's crust known as the North American Plate and Pacific Plate. The Bay Area is considered an area of high seismic activity, with an estimated 63 percent probability of an earthquake of magnitude 6.7 or higher occurring in the region over the next 30 years.¹

The **San Andreas Fault** is the principal strike-slip boundary between the Pacific plate to the west and the North American plate to the east. Its main trace trends northwest through the Santa Cruz Mountains and the eastern side of the San Francisco Peninsula. Between Pacifica and San Mateo, Crystal Springs Reservoir and San Andreas Lake clearly mark the rupture zone.

The **Hayward Fault** trends to the northwest within the East Bay, extending from San Pablo Bay in Richmond, 60 miles south to San Jose. Although large earthquakes on the Hayward Fault have been rare since 1868, a large earthquake could occur on the Hayward fault over the planning period.

The **Calaveras Fault**, located in the eastern San Francisco Bay region, trends along the eastern side of the East Bay Hills, west of San Ramon Valley, down

1 United States Geological Survey (USGS) Working Group on California Earthquake Probabilities (WG07). Fact Sheet 2008-3027, Forecasting California's Earthquakes – What Can We Expect in the Next 30 Years?, <http://pubs.usgs.gov/fs/2008/3027/fs2008-3027.pdf>. 2008.

into the western Diablo Range, and eventually joining the San Andreas Fault Zone south of Hollister. The Calaveras Fault has been the source of numerous moderate magnitude earthquakes but the probability of a large earthquake is much lower than on the San Andreas or Hayward faults.

Fault Rupture

Fault rupture is the surface displacement of the earth's surface due to the movement along a fault associated with an earthquake. Ground displacement is generally experienced on or within the immediate vicinity of the mapped fault trace. The Alquist-Priolo Earthquake Fault Zoning Act of 1972 established the requirement to regulate development within Earthquake Fault zones associated with active faults. Development is feasible but requires detailed geologic and seismic evaluations by certified professionals prior to approval of a building permit.

An Alquist-Priolo fault hazard zone associated with the San Andreas Fault is located within the Planning Area, as shown in Figure 8-1. According to the City's Local Hazard Mitigation Plan Annex, there are approximately 952 single-family homes, 399 multiple-family units, 200 acres, and six miles of road within the Alquist-Priolo Study Zone.

Ground Shaking

Ground movement during an earthquake can vary depending on the overall magnitude, distance to the fault, focus of earthquake energy, and type of geologic material. The composition of underlying soils, even those relatively distant from faults, can intensify ground shaking. The strongest ground shaking anticipated to occur in Pacifica would come from the San Andreas Fault, and could cause strong to very violent ground shaking.

Liquefaction

Liquefaction is a transformation of soil from a solid to a liquefied state during which saturated soil temporarily loses strength resulting from the buildup of excess pore water pressure, especially during earthquake-induced cyclic loading. Soil susceptible to liq-

uefaction includes loose to medium dense sand and gravel, low-plasticity silt, and some low-plasticity clay deposits. Four kinds of ground failure commonly result from liquefaction: lateral spread, flow failure, ground oscillation, and loss of bearing strength. Liquefaction and associated failures could damage foundations, roads, underground cables and pipelines, and disrupt utility service. The depth to groundwater influences the potential for liquefaction, in that sediments need to be saturated to have a potential for liquefaction.

The majority of the Planning Area has a very low potential to experience liquefaction, although areas surrounding some of the alluvial drainages (i.e., San Pedro Creek Valley and Sanchez Creek Valley) contain some areas of very high potential. Medium liquefaction potential exists in many low-lying neighborhoods, including West Edgemar-Pacific Manor, West Sharp Park, Rockaway Beach and Quarry, and parts of Pedro Point, as well as in the valley neighborhoods along San Pedro, Rockaway, and Calera creeks.² The Seismic Hazards map (Figure 8-1) shows more detail.

Other Hazards

A tsunami is a wave generated by abrupt movement of the seabed, which can occur as an earthquake or after a significant landslide. By contrast, seiche is a standing wave in an enclosed body of water. Within Pacifica, only Laguna Salada might be subject to seiche, but the potential for significant risk is low.

There are no dams within or above Pacifica, and therefore the city is not at risk from a seismically induced dam failure. However, water tanks located in the hills above populated areas could burst and inundate areas below due to a seismic event.

2 Association of Bay Area Governments (ABAG). Liquefaction Susceptibility <http://www.abag.ca.gov/bayarea/eqmaps/liquefac/liquefac.html>. 2003.

Slope Failure and Erosion

Slope Failure

Slope failures, commonly referred to as landslides, include many phenomena that involve the downslope displacement and movement of material, either triggered by static (i.e., gravity) or dynamic (i.e., earthquake) forces. The geology, structure, and amount of groundwater in the slope affect slope failure potential, as do external processes (i.e., climate, topography, slope geometry, and human activity). Slope failure may occur on slopes of 15 percent or less; however, the probability is greater on steeper slopes that exhibit old landslide features such as scarps, slanted vegetation, and transverse ridges. Landslide-susceptible areas are characterized by steep slopes and downslope creep of surface materials, and are more common in zones of active faulting.

Figure 8-2 shows three slope failure threat categories: Mostly Landslides, Few Landslides, and Not Landslide prone.³ Mostly Landslide areas consist of mapped landslides, intervening areas typically narrower than 1,500 feet, and narrow borders around landslides; defined by how groups of mapped landslides are clustered. Areas mapped as Few Landslides contain few, if any, large mapped landslides, but locally contain scattered small landslides and questionably identified larger landslides; defined in most of the region by excluding groups of mapped landslides. Steep slopes on Mori Point, Sweeney Ridge, Cattle Hill, Gypsy Hill, and San Pedro Mountain are identified as likely sites of slope failures, as are small portions of areas in or near development in the Pedro Point and Fairmont neighborhoods and along the west side of Skyline Boulevard. According to the City's Local Hazard Mitigation Plan Annex, 45 acres of residential property and 37 acres of infrastructure are located in areas classified as mostly landslide area in the Planning Area.



Devil's Slide has a long history of slope failures and rock slides that have resulted in the construction of a tunnel bypass.

SUBSIDENCE

Subsidence—the sinking of a portion of the ground surface—can occur from immediate settlement, consolidation, shrinkage of expansive soil, and liquefaction. Earthquakes could also cause subsidence and it can also occur due to excess extraction of groundwater.

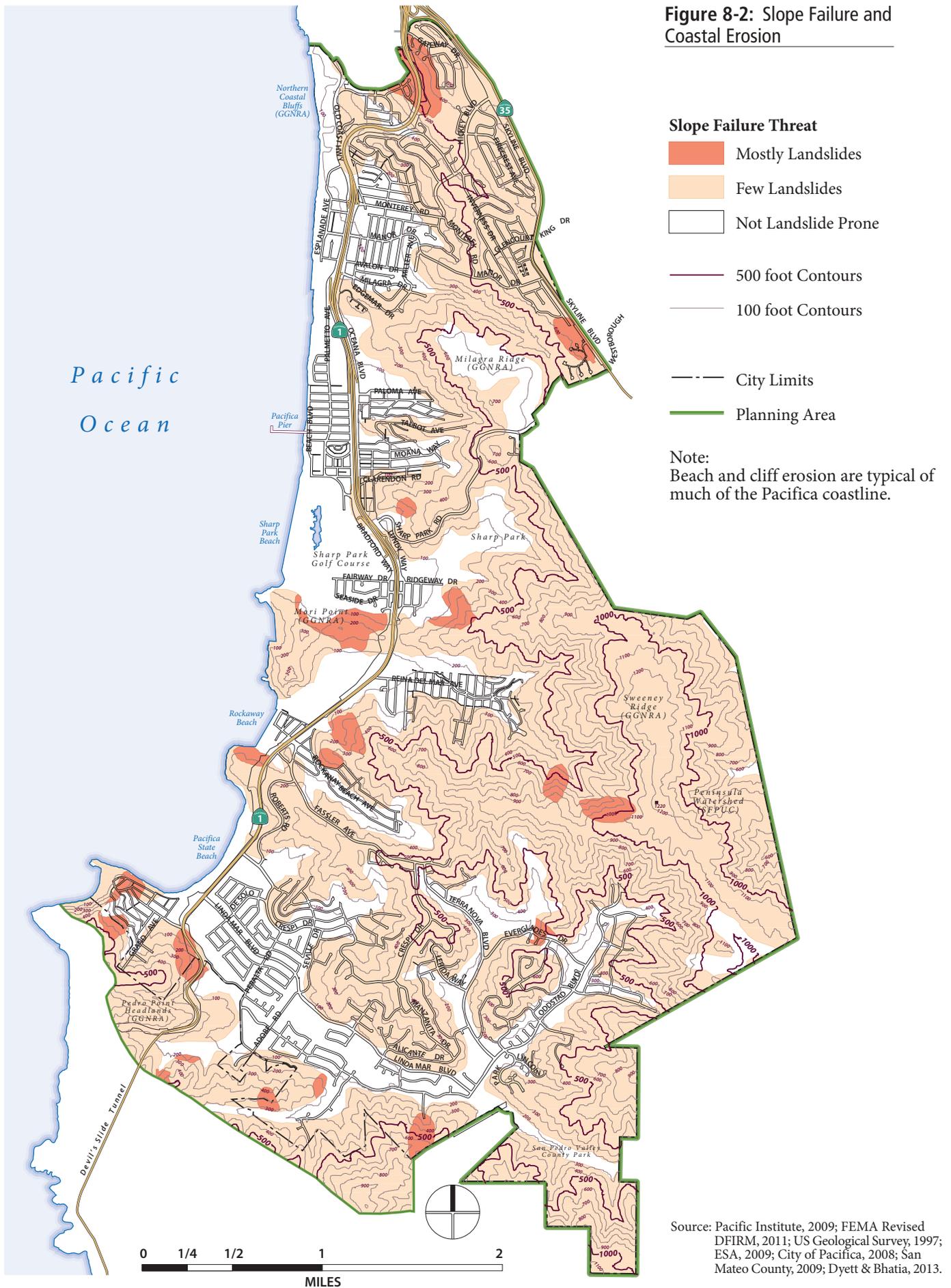
Portions of Pacifica are underlain by relatively clean, poorly consolidated granular material, such as sand. In places there are perched layers of groundwater so that conditions may exist for liquefaction. Also, where materials are poorly consolidated, there may be ground subsidence or other forms of ground failure. Because the conditions at any particular site control the potential for any type of ground failure, only specific geotechnical investigations, including subsurface testing, can provide a basis for assessing such hazards.

Soil Erosion

Erosion is the wearing away of soil and rock by processes such as mechanical or chemical weathering, mass wasting, and the action of waves, wind and underground water. Excessive soil erosion can eventually lead to damage of building foundations and roadways. The parts of the Planning Area where soils are most susceptible to erosion caused by wind or rainfall include the northern slope of Mori Point; upper Sharp Park; Shamrock Ranch; and along San Pedro Creek in San Pedro Valley County Park.

³ United States Geological Survey (USGS), Open File Report 97-745, San Francisco Bay Landslide Folio, <http://pubs.usgs.gov/of/1997/of97-745/>. 1997.

Figure 8-2: Slope Failure and Coastal Erosion



In 2009-10, erosion on the northern coast of Pacifica resulted in the evacuation of two apartment buildings in the 300 block of Esplanade Avenue. Coastline segments that have experienced significant coastal erosion are shown in Figure 8-2.

Within the Coastal Zone, the City requires new development to be set back from coastal bluffs enough to accommodate a 100-year event, whether caused by seismic, geotechnical, or storm conditions (unless this limitation makes a property undevelopable). Areas determined by the study to be unsuitable for development shall be set aside for permanent environmental protection as part of any development.

Similarly, a site stability survey is required for any new development proposed on or adjacent to coastal bluffs or the coastline. New development that would require the use of seawalls or other shoreline alterations for protection either now or in the future shall not be permitted unless this would make the property undevelopable. New coastline alteration is permitted only where necessary to protect existing development or public resources, and must minimize adverse impacts to natural coastal processes.

Increased Coastal Erosion from Potential Sea Level Rise

The potential for sea level rise and increased coastal erosion has very serious implications for Pacifica. Areas of the Sharp Park Golf Course, the Rockaway Beach district, and the West Linda Mar and West Sharp Park neighborhoods could be inundated. Meanwhile, coastal erosion processes that have caused damage along the high bluffs of Pacifica's northern neighborhoods would very likely increase in magnitude.

Sea level rise resulting from global climate change is projected to cause more extensive erosion of beaches, dunes, bluffs and cliffs. The 2009 Pacific Institute study of the impacts of sea level rise on the California Coast developed erosion models for dune and cliff/bluff backshore environments. Mean lateral erosion

of dunes is estimated at 115 to 116 meters by 2025, 119 meters to 128 meters by 2050. Bluffs, meanwhile, are projected to have eroded by 8 meters to 9 meters by 2025, with geology, wave exposure, and bluff toe elevation all playing important roles in producing variation.⁴ These models indicate that there could be new risks of erosion along the length of Pacifica's coastline in areas that are not currently exposed to wave action erosion, which could impact all of the coastal neighborhoods and coastal habitats.

4 Heberger, M., H. Cooley, P. Herrera, P.H. Gleick, E. Moore of Pacific Institute. The Impacts of Sea Level Rise on the California Coast. A paper from the California Climate Change Center. May 2009.

POLICIES

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

Guiding Policies

SA-G-1  **Reduce Risk.** Minimize risks of property damage and personal injury posed by geologic and seismic hazards.

Implementing Policies

SA-I-1  **Fault Zone.** Continue to review projects located in identified fault zones subject to the Alquist-Priolo Earthquake Fault Zone Act. (See the Seismic Hazards map, Figure 8-1).

SA-I-2  **Development in Hazardous Areas.** Prohibit development in areas of mostly landslides or high or very high liquefaction risk as shown in Figure 8-2, or on slopes steeper than 35 percent, unless detailed site investigations ensure that risks can be reduced to acceptable levels and the structure will be protected for its design life.

SA-I-3  **Real Estate Disclosure.** Require real estate transactions, development approval processes, and property titles to declare known or suspected seismic or geologic hazards on a property, including Alquist-Priolo Fault Zones and areas suspected of high or very high risk of liquefaction, subsidence, or landslide.

SA-I-4  **Code Enforcement.** Continue to maintain and enforce appropriate standards to ensure new development is designed to meet current safety standards associated with seismic activity.

SA-I-5  **Seismic Rehabilitation Flagging.** Identify and catalogue structures that may be subject to serious structural damage in the event of a major earthquake, and provide information to property owners on ways to pay for rehabilitation of existing buildings.

SA-I-6  **Restrictions on Mitigation Measures.** Prohibit mitigation measures for potential geotechnical hazards if those measures could adversely affect surrounding property, including the use of public rights-of-way or adversely affect public health, safety, and welfare.

SA-I-7  **Erosion Prevention.** Require erosion prevention of hillside areas by revegetation or other acceptable methods.

SA-I-8  **Geotechnical Studies.** Within the Coastal Zone and hillside areas, continue to require geotechnical site investigation for proposed development on sites located in any of the following areas, prior to allowing site development:



New development in the Coastal Zone must not require the construction of riprap or other protective devices that would substantially alter natural landforms (left). New development is required to be set back from coastal bluffs enough to accommodate a 100-year event, whether caused by seismic, geotechnical, or storm conditions (right).

- On slopes greater than 15 percent.
- In areas showing evidence of landslides or landslide potential.
- In areas showing evidence of ground shaking or earth movement
- Within 50 feet of a coastal bluff
- Within sand dune areas.

Geotechnical studies shall identify any geologic hazards affecting the proposed project site, any necessary mitigation measures, and a statement of the site's suitability for the proposed development and whether or not it will be safe from geologic hazard for its expected life. The study shall identify net developable areas, if any, based on landslide or ground shaking potential or erosion risk. Impacts from the development, such as those resulting from increased water runoff, shall also be determined. Such studies must be signed by a licensed Certified Engineering Geologist or Geotechnical Engineer and are subject to review and approval by City staff and/or contracted employees.

- SA-I-9**  **Maintain Restrictions on Hazardous Areas.** Continue enforcing the existing Coastal Zone Combing District and Hillside Preservation District regulations that restrict development in hazardous areas where access is impractical and areas prone to hillside and coastal erosion, landslides, seismic shaking, tsunami inundation, or flooding.
- SA-I-10**  **Soil Study.** Require any geotechnical studies to include study of expansive and creeping soils, as well as analysis of erosion, seismic, tsunami, and other geotechnical hazards and make recommendations, as warranted.
- SA-I-11**  **Grading and Drainage Plans.** Continue to require a grading and drainage plan for proposed development requiring a coastal development permit and a grad-

ing permit. The Plan should demonstrate how the project will maintain natural surface drainage and existing vegetation to the greatest extent feasible, by minimizing alteration of natural topography and removal of existing trees and vegetation; stabilizing cut-and-fill surfaces with native vegetation; restricting the movement of heavy equipment and machinery; and other means. Prohibit development-related grading and vegetation clearance on slopes steeper than 35 percent. Driveways and utilities may be allowed in the case that there is no less environmentally damaging alternative for providing access to the building site.

- SA-I-12**  **Blufftop Development.** Require that any new development located on coastal bluffs be set back from the bluff edge an adequate distance to ensure safety for the economic life of the development. All new development proposed on or adjacent to a coastal bluff shall require a site stability survey conducted by a licensed Certified Engineering Geologist or Geotechnical Engineer to determine the necessary setback, taking into account bluff retreat projected over the economic life of the development.
- SA-I-13**  **Water Tank Rupture.** Work with the NCCWD to determine areas potentially affected by flooding from ruptured water tanks in the event of a seismic event and inform property owners.
- SA-I-14**  **Geologic Hazard Abatement District.** Amend the Municipal Code to include provisions for formation of geologic hazards abatement district for coastal bluffs and hillside areas at risk of landslides in Pacifica to enable cooperative efforts among property owners for protection of coastal bluffs from erosion and improvement and maintenance of drainage and protective infrastructure.

The Geologic Hazard Abatement District (GHAD) is a potentially useful tool to effectively abate a landslide hazard that crosses property boundaries. It is a mechanism that responds to the physical realities of landslides, and allows property owners to cooperate in solving a common problem. It removes much of the stigma of legal liabilities among adjacent landowners and allows them to cooperate rather than litigate. It also provides for a cost-effective solution, requiring only one geotechnical engineering firm and one plan to solve the problems of several landowners. The City may require the establishment of GHADs as a condition for new development proposed in areas of known bluff erosion or geologic hazard, such as areas identified in Figure 8-2 of the proposed General Plan as “mostly landslides.” The City will undertake the following actions to facilitate formation of GHADs:

- *Identify where GHADs are appropriate or necessary;*
- *Advance funds for preparation of a Plan of Control for each proposed GHAD by a Certified Engineering Geologist describing the GHAD’s boundaries, the geologic hazards affecting the GHAD, and a plan for the prevention, mitigation, abatement, or control of the hazards, with costs to be reimbursed by the GHADs.*
- *Establish a public education and outreach program to inform property owners of the benefits and responsibilities of participating in a GHAD; and*
- *Provide ongoing support of GHADs, with funding provided by the districts.*

The establishment of a GHAD would not allow development that is otherwise restricted on the basis of hazard risk, bluff erosion or geologic instability.

SA-I-15  **New Development in Coastal Zone.** Continue to enforce provisions of the California Coastal Act requiring new development within the Coastal Zone to:

- Minimize risks to life and property in areas of high geologic, flood, or fire hazard;
- Assure stability and structural integrity, and neither create nor contribute significantly to erosion, geologic instability, or destruction of the site or surrounding area or in any way require the construction of protective devices that would substantially alter natural landforms along bluffs and cliffs;
- Not accelerate the need for a shoreline structure or increase the likelihood of a future seawall beyond the existing development’s expected life; and
- Not violate required setback provisions.

Small improvement projects are exempt, including improvements that would increase height, bulk or floor area by less than ten percent.

SA-I-16  **Seawalls and Shoreline Protection.** Prohibit any new development that would require the use of seawalls or other shoreline alterations for protection either now or in the future. Alterations to the coastline shall be permitted only where necessary to protect existing development or public resources, and must minimize adverse impacts to natural coastal processes. Wherever feasible, shoreline protection shall take the form of non-structural measures, such as setback, redesign, relocation or beach replenishment.

SA-I-17  **Subdivision Limits in Coastal Zone.** Update the Zoning Ordinance to prohibit the division of coastal fronting property that creates hazardous or unbuildable par-

cells. Only allow new lots to be created if they can be developed without ever requiring shoreline protection for the development.

SA-I-18  **TDR Program in Coastal Zone.** Continue the City's Transfer of Residential Development Rights program to encourage the relocation of existing structures threatened by shoreline erosion, rather than constructing shoreline protective devices.

SA-I-19  **Accessory Structures in Coastal Zone.** Amend the Zoning Ordinance to require new accessory structures within the Coastal Zone to be constructed so they can be easily relocated should they become threatened by erosion.

SA-I-20  **Wave Up-Rush Studies.** Update the Zoning Ordinance to require wave up-rush studies for new development at beach level and in low-lying areas. The study should be completed by a licensed civil engineer with expertise in coastal engineering.

- At a minimum, require wave up-rush studies to evaluate the consequences of a low-probability wave event (1 percent annual probability) with the following beach and water conditions:
 - Seasonally eroded beach with long-term erosion comparable to what could be expected to occur over the life of the proposed development; and
 - High tide combined with the increase in mean sea level expected to occur over the life of the proposed development.
- Require development to be sited to avoid the zone of wave run-up. If complete avoidance is not practical, avoidance should be maximized, and development should be designed, through features such as elevation, to protect against the consequences of unavoidable hazards.

SA-I-21  **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.

SA-I-22  **Sea Level Rise Model.** When an adequate model with sufficient local detail is available to project the impacts of sea level rise, take into account potential erosion caused by sea level rise by the year 2050 in the determination of developable area and the assessment of whether coastline-altering structures would be needed in the future to protect new development.

8.2 FLOODING AND DRAINAGE

Flooding has been an ongoing issue for low-lying areas of Pacifica, and likely will continue to be a challenge in the future, including possible inundation from a tsunami wave. Strategies to minimize flooding impacts will include limiting development in flood-prone areas and incorporating Federal Emergency Management Agency (FEMA) guidelines and suggested mitigation activities into the City's plans and procedures for managing flood hazards.

Flood Zones

Flood hazards mapped by FEMA to support the development of Flood Insurance Rate Maps (FIRMs) generally identify areas of greater flood risk (100 and 500 year events) in the lower reaches of the main stream channels, and the risk of coastal flooding along the shoreline. Flood zones based on the FIRMs are shown in Figure 8-3.

Areas of flood risk include:

- Broad flood inundation in several parts of Sharp Park Golf Course, the Rockaway Beach district, and in the Linda Mar neighborhood along San Pedro Creek.
- More narrowly confined flood hazards along the creeks; limiting potential flooding in these areas. For example, along Milagra Creek mapped flood hazards are typically within the active channel.

San Pedro Creek has a history of significant flooding in the Linda Mar area. The low area of Linda Mar has pump systems to provide drainage to the ocean, but these systems can be overwhelmed during high flow/tide events. An area of West Linda Mar was removed from high flood risk classification with the completion of the San Pedro Creek flood protection project.

Coastal Flooding

Pacifica can also experience flooding from coastal sources, which occurs as some combination of high tides, large wind-driven waves, storm surge, and/or tsunami wave. Areas with the potential for coastal

flooding are the low lying areas along the coast, including the Sharp Park Golf Course/Laguna Salada area and the residential and commercial area in West Linda Mar near the mouth of San Pedro Creek.

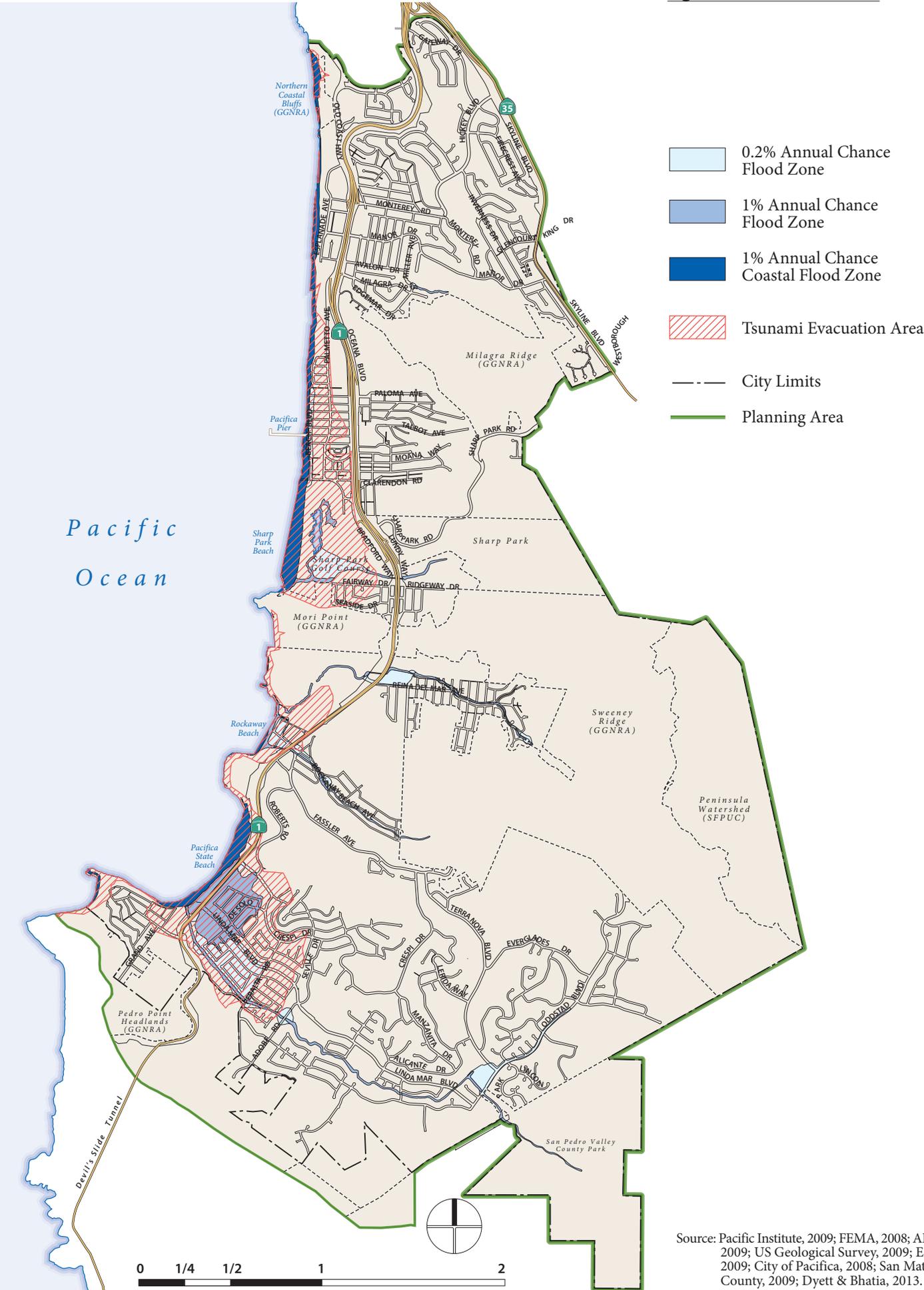
The only section of coastline protected by levees is the Sharp Park Golf Course area. However, drainage from Sanchez Creek and Laguna Salada to the ocean can be insufficient to prevent lowland flooding during high tide/high flow events. A seawall/revetment structure protects the area north of the Sharp Park Golf Course, generally along Beach Boulevard, including the Pacifica Pier. This structure has required maintenance to repair areas where beach erosion has undermined it.

Tsunami

A tsunami can occur after an earthquake significant landslide falling into the ocean. Coastal flooding, potentially severe damage, and threats to human health and safety can result from a tsunami. Recorded tsunami runup magnitude is generally lower at Pacifica than other locations from San Francisco to Monterey, likely due to offshore bathymetry and shoreline alterations along the city. Tsunami hazards are generally coincident with the coastal flooding zones: at the Sharp Park Golf Course/Laguna Salada area, Lower Calera Creek, portions of Rockaway Beach, and the residential and commercial area at Linda Mar near the mouth of San Pedro Creek.

Tsunamis can reach Pacifica from several sources, including 'far-field' sources throughout the Pacific Ocean, a substantial earthquake along the Cascadia Subduction Zone in northern California north to Vancouver Island, movement along local fault lines, and local coastal landslides. Travel times, the degree of warning, and the magnitude of the wave will vary depending on the source and initial strength of the tsunami-generating event. Earthquakes along the Cascadia Subduction Zone are likely the most hazardous to Pacifica because of the potential for very large wave generation, and a relatively short travel time (on the order of one to three hours). However, smaller events along local faults could result in a wave that reaches Pacifica with essentially no warning time.

Figure 8-3: Flood Zones



Source: Pacific Institute, 2009; FEMA, 2008; ABAG, 2009; US Geological Survey, 2009; ESA, 2009; City of Pacifica, 2008; San Mateo County, 2009; Dyett & Bhatia, 2013.



Flood hazards in West Linda Mar have been reduced by the San Pedro Creek flood protection project, which included dune restoration and the creation of a drainage swale (top). Sharp Park Golf Course is protected by a levee. Drainage from Sanchez Creek and Laguna Salada to the ocean can be insufficient to prevent lowland flooding during high tide/high flow events. (middle). A seawall/revetment structure protects the West Sharp Park area. The structure has required maintenance to repair areas undermined by beach erosion (bottom).

According to the City's Local Hazard Mitigation Plan Annex, there are approximately 900 existing dwelling units within Pacifica's tsunami run-up area.

San Mateo County has an established emergency proposal for tsunamis. As part of this program, the City recently installed a tsunami warning system, consisting of three solar powered alarm towers. One is located in the Sharp Park neighborhood, the second is located in the Rockaway Beach neighborhood, and the third tower stands at Pacifica State Beach. This system links into a San Mateo County alert system that can reach email and cell phones.

Increased Coastal Flooding from Potential Sea Level Rise

Sea level rise resulting from global climate change has the potential to alter the frequency and magnitude of coastal flood events in Pacifica. Estimates of sea level rise vary, so trends and potential increases are typically reported in ranges. Present projections used by the State of California are for between 40 and 55 inches by 2100, depending upon the emission scenario used.⁵

A 2009 report from the Pacific Institute funded by a consortium of California state agencies has developed approximate mapping to indicate potential increases in the 1 percent annual chance of coastal inundation, assuming a 55.1-inch rise in sea level by 2100.⁶ This mapping suggests that areas of West Linda Mar, lower Pedro Point, Rockaway Beach, and West Sharp Park neighborhoods, as well as the Sharp Park Golf Course, could be vulnerable to increased coastal flooding.

⁵ Sea-Level Rise Task Force of the Coastal and Ocean Working Group of the California Climate Action Team, State of California Sea-Level Rise Interim Guidance Document, October 2010.

⁶ Pacific Institute, The Impacts of Sea Level Rise on the California Coast. A paper from the California Climate Change Center. Available online at: http://www.pacinst.org/reports/sea_level_rise/. 2009.

POLICIES

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

Guiding Policies

- SA-G-2**  **Development in Hazardous Areas.** Protect new development in 100-year floodplains and tsunami hazard zones with flood damage prevention programs.
- SA-G-3**  **Sea Level Rise Adaptation.** Establish policies to minimize the risk to persons and property posed by potential sea level rise.

Implementing Policies

- SA-I-23**  **Floodplain Management.** Continue to manage floodplains through zoning, development requirements, and ordinances, and take other actions necessary, in order to remain within the National Flood Insurance Program.
- SA-I-24**  **Flood Map Review.** Periodically review maps prepared by FEMA and the State Department of Water Resources to identify changes in mapping of areas subject to flooding and amend the General Plan or Municipal Code as warranted.
- SA-I-25**  **NDPES Enforcement.** Enforce NDPES permits, as well as the San Mateo Countywide Water Pollution Prevention Program, to mitigate potential flooding risks.
- SA-I-26**  **Flood Hazard Reduction.** Continue to enforce Provisions for Flood Hazard Reduction in the Municipal Code.
- SA-I-27**  **Flood Insurance.** Inform households and businesses located in flood-prone areas about opportunities to purchase federal flood insurance.
- SA-I-28**  **Flood Control Maintenance.** Regularly maintain flood control structures,

including, but not limited to drainage channels, pipes, culverts, and stream beds.

- SA-I-29**  **Flood Control Structures.** Require flood control devices that alter streams to incorporate best mitigation measures feasible, and only permit them where no other method for protecting existing structures in the flood plain is feasible and where such protection is necessary for public safety or to protect existing development.

- SA-I-30**  **Storm Drainage Impact Assessment.** Require developers to provide an assessment of a project's potential impacts on the local storm drainage system as part of the development review process.

If development is found to have a negative impact on storm drainage, the City should require applicable and effective mitigation measures, such as the creation of permanent or temporary detention or retention basins, provision of additional landscaped areas and green roofs, installation of pump stations, and the use of permeable paving in driveways, walkways and parking areas.

- SA-I-31**  **No Adverse Impact Approach.** Update the Flood Hazard Reduction regulations to establish a "No Adverse Impact" standard to floodplain and coastal development.

No building permits should be issued for projects that increase the potential for flooding or erosion on and off site, degrade water quality, or increase potential public service costs for things such as emergency personnel and storm-water management, unless such projects are designed and completed in such a way that they will not:

- Pose a threat to public safety; and

- *Substantially increase flood or storm damage risk to public or private property.*

- SA-I-32**  **Tsunami Evacuation Zone.** For new development in the tsunami evacuation zone, require use of low impact engineering techniques, such as elevating structures above projected water levels, to mitigate impacts to people and structures.
- SA-I-33**  **Critical Facilities Location.** Site critical public facilities including hospital and healthcare facilities, emergency shelters, police and fire stations, and emergency communications facilities outside of the tsunami evacuation zone and 100-year flood plains.
- SA-I-34**  **Infrastructure.** Evaluate existing public infrastructure, including the wastewater and stormwater distribution systems, for vulnerability to coastal flooding and erosion and identify areas in need of protection.
- SA-I-35**  **Sea Level Rise Surveys.** Periodically conduct surveys of sea level rise studies to determine the expected frequency and extent of coastal flooding and the rate of coastal erosion, with a focus on at-risk areas, and propose General Plan amendments, as warranted.
- SA-I-36**  **Managed Retreat.** Incorporate “managed retreat” strategies into master planning for public land and large projects in the Coastal Zone.

8.3 HAZARDOUS MATERIALS AND OPERATIONS

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. The California Code of Regulation defines a hazardous material as a substance that, because of physical or chemical properties, quantity, concentration, or other characteristics, may either (1) cause an increase in mortality or an increase in serious, irreversible, or incapacitating, illness or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of, or otherwise managed. Hazardous materials have been and are commonly used in commercial, agricultural, and industrial applications and, to a limited extent, in residential areas.

Hazardous wastes are defined in the same manner. Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, discharged, spilled, contaminated, or are being stored prior to proper disposal. Hazardous materials and hazardous wastes are classified according to four properties: toxic (causes human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), and reactive (causes explosions or generates toxic gases).

Pacifica currently has sites undergoing remediation for contamination with hazardous materials. Some contaminated sites are on vacant parcels or properties with the potential to redevelop. Contamination does not render these sites unusable, but may require time and funding for cleanup.

Hazardous Materials Sites

Releases, leaks, or disposal of chemical compounds, such as petroleum hydrocarbons, on or below the ground surface can lead to contamination of underlying soil and groundwater. Disturbance of a previously contaminated area through grading or excavation operations could expose the public to health hazards from physical contact with contaminated

materials or hazardous vapors. Improper handling or storage of contaminated soil and groundwater can further expose the public to these hazards, or potentially spread contamination through surface water runoff or air-borne dust. In addition, contaminated groundwater can spread downgradient (the direction that groundwater flows), potentially contaminating subsurface areas of surrounding properties.

Areas with known or suspected release of hazardous materials to soil and groundwater, and where current clean-up activities monitored by the State Water Quality Control Board or the California Department

of Toxic Substances are active, are shown in Figure 8-4 and listed in Table 8-1.

Ten of the twelve active cleanup sites in Pacifica are classified as Leaking Underground Storage Tanks (LUSTs); most are associated with gasoline. Most of the identified sites are automobile-related: gas stations and auto body or repair shops. One former drycleaners is the site of a cleanup program targeting potential contamination with tetrachloroethylene (PCE). The former Sharp Park Rifle Range, identified by both the California Department of Toxic Substances Control and the State Water Resources Board, is undergoing a voluntary cleanup of residual lead from past activities.

TABLE 8-1: CONTAMINATED SITES IN PACIFICA

Map ID	Site Name	Address	Site Type	Potential Contaminants	Cleanup Status
Sites Identified by the California Department of Toxic Substances Control					
1	Sharp Park Rifle Range	Rifle Range Rd.	Voluntary Cleanup	Lead	Active
Sites Identified by the State Water Resources Board					
1	Sharp Park Rifle Range	Rifle Range Rd.	Cleanup Program Site	Lead	Open – Site Assessment
2	One Hour Martinizing, Former	5556 Cabrillo Hwy.	Cleanup Program Site	Tetrachloroethylene (PCE)	Open – Site Assessment
3	BP #11203	700 Hickey Blvd.	LUST Cleanup Site	Waste Oil, Motor, Hydraulic, Lubricating	Open – Site Assessment
4	Lion Oil Station (Former)	500 Linda Mar Blvd.	LUST Cleanup Site	Gasoline	Open – Site Assessment
5	Sunset Garage	2251 Oceana Blvd.	LUST Cleanup Site	Gasoline	Open – Site Assessment
6	Tosco #5898 (Former Unocal)	765 Oddstad Blvd.	LUST Cleanup Site	Gasoline	Open – Site Assessment
7	Arco #0433	498 Palmetto Ave.	LUST Cleanup Site	Gasoline	Open – Remediation
8	Olympic Sharp Park	1518 Francisco Blvd.	LUST Cleanup Site	Gasoline	Open – Remediation
9	Pacifica Fire Station #2	1100 Linda Mar Blvd.	LUST Cleanup Site	Gasoline	Open – Verification Monitoring
10	Pacifica School District	375 Reina Del Mar Ave.	LUST Cleanup Site	Benzene, Diesel, Fuel oxygenates, Gasoline, Toluene, Xylene	Open – Verification Monitoring
11	Unocal #5529 (Former)	4460 Cabrillo Hwy.	LUST Cleanup Site	Gasoline	Open – Verification Monitoring
12	Valleamar Beacon	2095 Cabrillo Hwy.	LUST Cleanup Site	Gasoline	Open – Verification Monitoring

Sources: California Department of Toxic Substances Control; California Environmental Protection Agency; State Water Resources Control Board, 2012.

Cleanups at the Sharp Park Wastewater Plant and Golf Course were recently completed and are considered closed by the Water Resources Board.

Regulation and Enforcement

Various State and federal agencies govern the proper storage, handling, and transport of hazardous materials. San Mateo County handles hazardous waste, organizing both curbside pickup of certain household wastes and appointments at hazardous waste collection events for other items. The County is also responsible for issuing permits for the storage of hazardous waste. The County's Health System also has a Hazardous Waste Generator Program, authorized by the Department of Toxic Substances Control (DTSC) to inspect and regulate non-permitted hazardous waste generators.

San Mateo County's Hazardous Materials Emergency Response Program provides a team of trained Hazardous Materials specialists who respond to and manage Hazardous Materials emergencies and potential bio-terrorism threats throughout San Mateo County on a seven-day, 24-hour basis.

POLICIES

Guiding Policies

SA-G-4 Contaminated Sites. Facilitate clean-up programs at contaminated sites, particularly on properties with the potential to develop or be reused for public purposes.

SA-G-5 Safe Disposal. Continue to promote the reduction, recycling, and safe disposal of household and business hazardous wastes through public education and awareness.

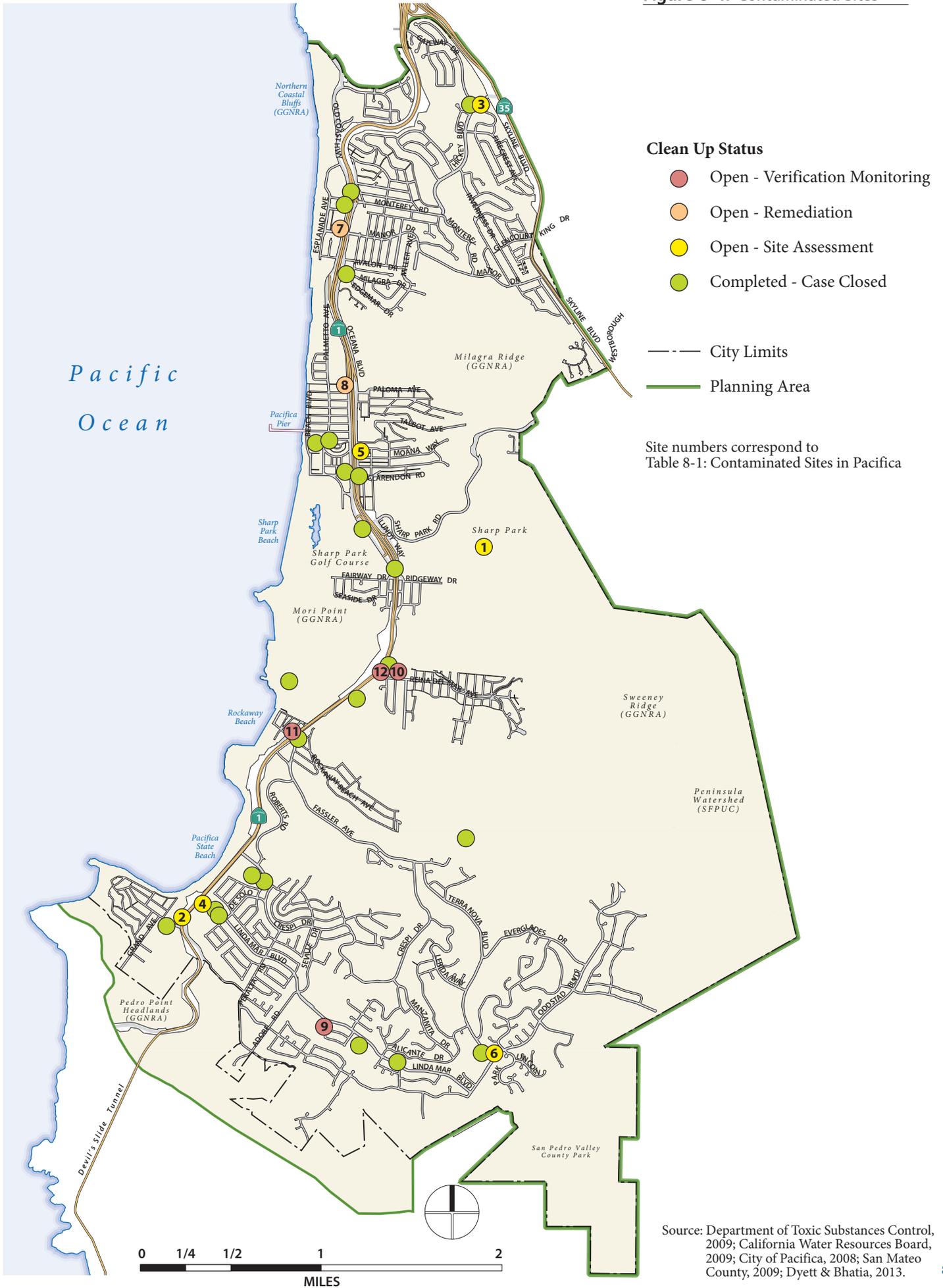
Implementing Policies

SA-I-37 Cleanup of Contamination. Require applicants for development in a potentially contaminated location to perform inspection and cleanup if the site is found to be contaminated with hazardous substances.

The City will require the project applicant to have the site inspected by a registered Environmental Assessor. Reports detailing the results must be submitted for City review, and level of remediation and cleanup must be in compliance with federal and State standards.

SA-I-38 Regional Support. Continue to support the hazardous waste collection, management, and inspection efforts of San Mateo County, the State, and the Water Resources Control Board.

Figure 8-4: Contaminated Sites



8.4 FIRE HAZARDS

Fire hazards in Pacifica include both urban and wildland fires. Urban fires involve the uncontrolled burning of built structures due to human-made causes; wildland fires affect grassland, forest, and brush (and the structures on them), and can result from either human or natural causes. Pacifica has a substantial risk of wildland fires, with many areas of high and very high threat within the Planning Area. The City's main challenges regarding these hazards are:

- **Actively Managing the Urban-Wildland Interface.** Pacifica's residents enjoy close contact with open ridges and woodlands. This brings with it the risk of proximity to wildland fires. Preparedness is essential, and the North County Fire Authority's fire prevention activities, especially its Vegetation Management Program, are important.
- **Maintaining and Enhancing Evacuation Routes.** It is critical that road capacity exists for local residents, workers, and visitors to evacuate in case of an environmental disaster, including fire.

Urban Fires

Urban fires are fires that begin in a building in urban centers. They are typically localized but have the potential to spread to an adjoining building. The risk of urban fires is highest where single-family homes, multifamily residences and business facilities are clustered close together, increasing the possibility of rapid spread to an adjoining building. The risk to life and property can be reduced by adopting and funding adequate levels of fire protection and ensuring new buildings are built to include fire resistive features which conform to modern fire and building codes.

Wildland Fires

Wildland fires are fires that start in a wooded or undeveloped area. Their potential for damage is dependent on the extent and type of vegetation, known as surface fuels, as well as weather and wind

conditions. Wildland fires occur infrequently but typically cause more damage than urban fires.

About two thirds of Pacifica is undeveloped, and nearly half is protected open space. This undeveloped land is mainly on the rugged ridges that form the City's western edge and descend down to the ocean between Pacifica's valley communities. Coastal scrub is the predominant vegetation type, interspersed with annual grassland. Significant areas of eucalyptus forest and mixed woodland are present in eastern Sharp Park and on Cattle Hill and San Pedro Mountain.

The California Department of Forestry and Fire Protection (CDF) maps areas of significant fire hazards in the state. These areas are identified based on weather, terrain, fuels (e.g., type of ground vegetation), and other factors. According to the CDF:

- A Very High Fire Hazard Severity Zone is designated for much of Sweeney Ridge, Cattle Hill, Montara Mountain, and Pedro Point Headlands, directly adjacent to the Pedro Point, Linda Mar, Park Pacifica, Vallemar, Rockaway, and East Fairway Park neighborhoods.
- Milagra Ridge, Mori Ridge, Sweeney Ridge, Montara Mountain and Pedro Point Headlands all have large areas considered to have "high" or "very high" threat of fire.
- Mori Ridge and Mori Point are classified by a mix of "high" and "moderate" risk areas.
- Nearly all of the urbanized parts of the Planning Area are classified as having a "moderate threat" level for fire.

The CDF also designates land as either a State or Local Responsibility Area (SRA and LRA), based on population density, land use, and land ownership. The City of Pacifica is an LRA while the small areas of the Planning Area outside City limits are in an SRA. Lands in Pacifica owned by the federal government and the County—GGNRA lands and San Pedro Valley County Park—are designated as a Federal Responsibility Area (FRA) within the Pacifica LRA.

Fire and Emergency Services

The cities of Brisbane, Daly City, and Pacifica are contributing members of the North County Fire Authority (NCFA), a Joint Powers Authority established in 2003. The Fire Authority provides both emergency response and non-emergency public safety services to the three cities and their 185,000 people in its service area. Two of the Authority's 10 stations are in Pacifica. Fire Station 71, at 616 Edgemar Avenue, serves the north end of Pacifica, while Fire Station 72, at 1100 Linda Mar Boulevard, serves the south end. These locations are shown on Figure 8-5.

Fire and Emergency Response

NCFA has established the following service ratio and response time standards:

- Service ratio standard: one responder per 1,500 population
- Response time standards for fire service: Four-minute travel time to 90 percent of calls for fire service, and eight-minute travel time for all apparatus on-scene for fire calls for service.
- Response time standard for Emergency Medical Services (EMS): Under seven-minute travel time (6:59) for first response to 90 percent of calls.

Pacifica's long and narrow geography and its reliance on Highway 1 as the single north-south access route makes the City a challenge for fire response. A 2008 study determined that the Vallemar, West and East Fairway Park, Rockaway Beach, and Rockaway neighborhoods in central Pacifica are beyond four-minute travel distance from northern San Mateo County fire stations, corresponding with the standard response time for first-due fire apparatus. The full assignment response time standard cannot be met in Pacifica from Vallemar south.⁷

NCFA's EMS standard is for 90 percent of calls to be reached in less than seven minutes. This standard is met for 97 percent of calls in the zone, including approximately 93 percent of calls in Pacifica.

⁷ Emergency Services Consulting, 2008.

The Fire Authority needs additional facilities to meet its fire response standards for Vallemar and areas to the south. A third, mid-point station in Pacifica with a truck and engine company has been discussed for some time. The area that currently does not meet first-response time standards has a low density of development, and so it has fewer persons and structures threatened by fire. A new station would be needed if the central part of Pacifica were to experience significant new development, for example at the Quarry site.

Pacifica has an ISO⁸ rating of 4. The City's rating is unlikely to be affected by population growth, but population will increase existing deficiencies in service delivery.

Fire Prevention

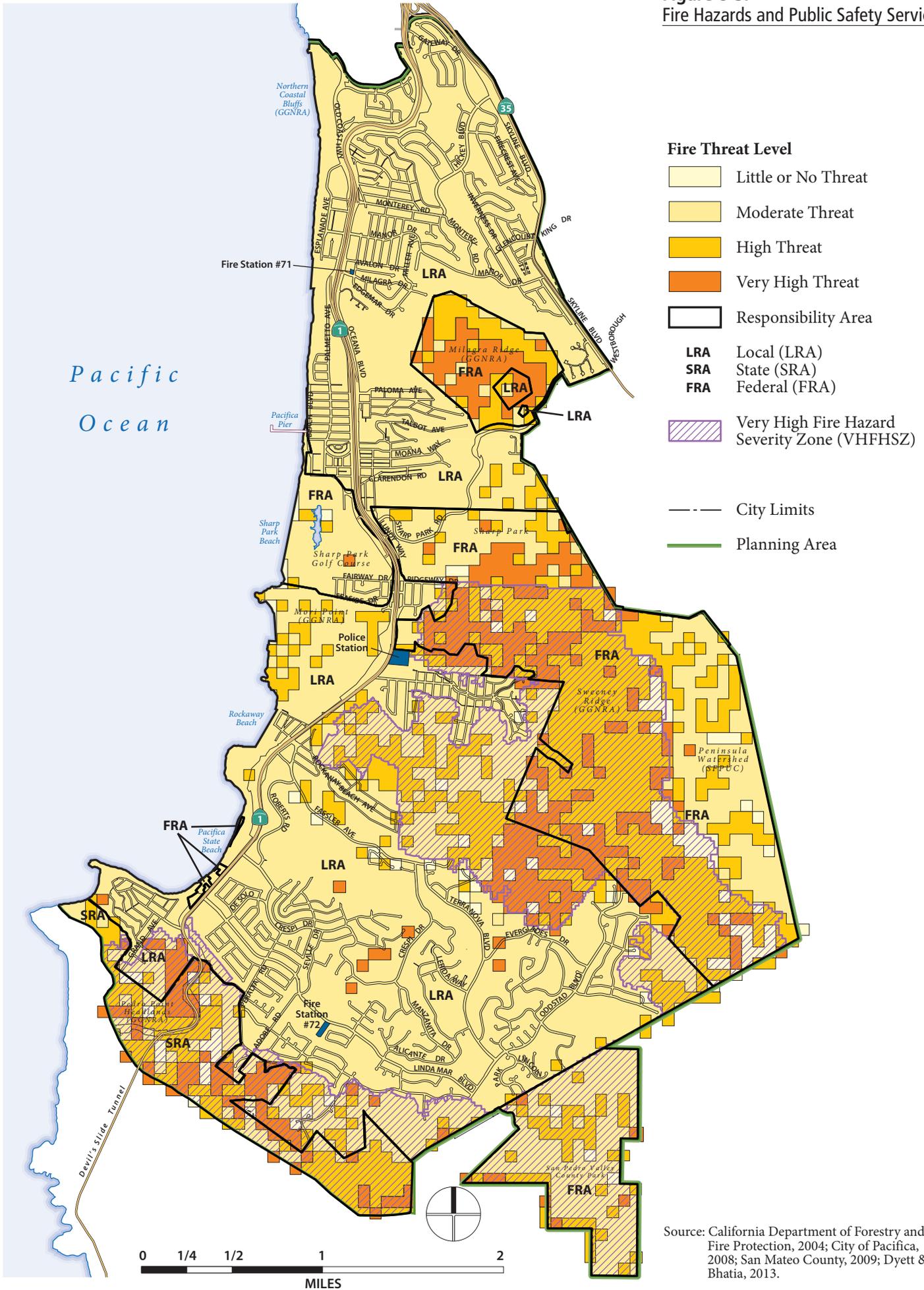
The NCFA's Fire Services Prevention Bureau manages code enforcement, plan review and construction inspection, fire investigations, and public education. A key part of the Bureau's code enforcement activities is the annual safety inspection of every commercial business and multi-family residential property in its service area. The Fire Authority also conducts a Vegetation Management Program, promoting compliance with vegetation standards to reduce the threat of fire in the urban/wildland interface.



The interface between wild and urban land in Pacifica presents a potential fire threat. A Very High Fire Hazard Severity Zone has been designated on parts of Sweeney Ridge, Cattle Hill, and Montara Mountain.

⁸ Insurance Service Office (ISO), a private company, has a system for determining the price of fire insurance in a community through a 1-to-10 classification system, with 1 being the highest level of service.

Figure 8-5:
Fire Hazards and Public Safety Services



Source: California Department of Forestry and Fire Protection, 2004; City of Pacifica, 2008; San Mateo County, 2009; Dyett & Bhatia, 2013.

Local Hazard Mitigation Plan

The regional Local Hazard Mitigation identifies two mitigation strategies for wildland fires: review development proposals to ensure that they incorporate appropriate fire-mitigation measures, including adequate provisions for evacuation and access by emergency responders, and develop a clear legislative and regulatory framework to manage the wildland-urban interface consistent with best practices.

State Requirements

In 2005, the California Building Code was amended to require that all new buildings located in any Fire Hazard Severity Zone in SRAs, or any Very High Fire Hazard Severity Zone in LRAs, must use building materials approved for use in wildland/urban interface areas. The code now specifies certain roof coverings, fire resistive wall and ceiling-floor assemblies, wall finish materials, hardware, insulation, and other building materials for use in high fire hazard areas. Also in 2005, Public Resources Code was amended to expand the defensible space clearance requirement around buildings from 30 feet to 100 feet in any SRA. Building owners must minimize potential fuel around structures, to minimize the risk of loss, and to improve firefighter safety.



The City will work with the North County Fire Authority toward development of a third fire station in the central part of Pacifica.

POLICIES

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

Guiding Policy

- SA-G-6**  **Fire Prevention.** Protect Pacifica residents and businesses from potential wildland fire hazards.

Implementing Policies

- SA-I-39**  **Response Time.** Support efforts by North County Fire Authority to meet its response time standards throughout the City.

This effort may include construction of a third fire station in the central part of Pacifica, near the police station or the Quarry site. The City could provide land or shared facilities.

- SA-I-40**  **Adequate Peakload Water Supply.** Work with the Water District to maintain adequate water supply for firefighting, including capacity for peakload under a reasonable worst case wildland fire scenario, to be determined by the North County Fire Authority.

- SA-I-41**  **Water Storage Locations.** In evaluating sites for new water storage facilities, place a priority on locations least subject to impacts from seismic activity and landsliding.

- SA-I-42**  **Development Review.** Continue to review development proposals to ensure that they incorporate appropriate fire-mitigation measures, including adequate provisions for evacuation and access by emergency responders.

- SA-I-43**  **Plan Review in Fire-Prone Areas.** Continue to request the North County Fire Authority participation in plan review of new buildings in potentially fire-prone areas.

- SA-I-44**  **Fire Prevention Inspections.** Continue to require a fire prevention inspection of every permitted business and multi-family development covered by the North County Fire Authority.

- SA-I-45**  **Fire Prevention Education.** Continue educating the public about local fire hazard prevention programs. Work cooperatively with the North County Fire Authority to promote public awareness of fire safety and emergency life support.

- SA-I-46**  **Vegetation Management.** Promote and support the North County Fire Authority's Vegetation Management Program to reduce urban/wildland interface fire hazards.

- SA-I-47**  **Multi-jurisdictional approach.** Participate in State or regional efforts to develop a clear legislative and regulatory framework to manage the wildland-urban interface.

- SA-I-48**  **Rockaway Quarry service.** Ensure that any new development at the Rockaway Quarry site is adequately served by public infrastructure, including fire and police services.

8.5 PUBLIC SAFETY AND EMERGENCY MANAGEMENT

The City's public safety and emergency management functions cover several roles that address the time before and during a hazardous event: emergency planning including evacuation routes and emergency response.

Emergency Planning

The California Emergency Services Act requires cities to prepare and maintain an Emergency Plan for natural, manmade, or war-caused emergencies that result in conditions of disaster or in extreme peril to life. The City's Emergency Preparedness and Safety Commission is responsible for disaster preparedness training in Pacifica, and the NCFCA offers Community Emergency Response Team training. San Mateo County's Area Office of Emergency Services provides planning, preparedness, public information, training, and Federal/State intergovernmental emergency services coordination for the cities and unincorporated areas within the county. Pacifica has a member on the Emergency Services Council.

Local Hazard Mitigation Planning

The purpose of an LHMP is to reduce or eliminate long term risk to human life and property resulting from hazards, by identifying risks before they occur and putting together resources, information, and strategies for emergency response. An LHMP is required of all cities by federal law. Pacifica's LHMP is an annex to a regional plan led by ABAG, known as the Multi-Jurisdictional Local Hazard Mitigation Plan (MJ-LHMP) for the San Francisco Bay Area. The LHMP, originally adopted in 2005 and updated in 2010, identifies specific actions the City is taking to mitigate impacts from flooding, earthquakes, wildfires, and other emergency events.

The LHMP identifies several issues related to evacuation in case of emergency:

- Minimum road widths for emergency response should be 20 feet with an additional 10 feet of

clearance on each shoulder. Older roads in the city do not always follow this standard.

- A lack of roadways leading to the Shelter Cove neighborhood, with no emergency vehicles able to enter the area currently.
- A shortage of educational facilities that can function as temporary medical centers or shelters for people affected by a disaster.

Emergency Response

Fire protection and emergency response in Pacifica are handled by the NCFCA, cities. The City's Police Department handles police services. In the event of a major emergency, the Police Station will serve as the command center for the City.

Service standards for fire, police, and emergency response times are generally met or exceeded. However, the city's geography and circulation system, combined with the current locations of fire stations, mean that neighborhoods in central Pacifica are beyond the NCFCA's standard for response time. This can be resolved, as noted previously with a third, mid-point station with a truck and engine company.

Police Services

The Pacifica Police Department responds to public safety calls, provides traffic safety and security for public events, and handles calls for assistance. The Department handles dispatch services on evenings and weekends for the Department of Public Works and the NCCWD, and participates when needed in the Northern San Mateo County Gang Task Force and the San Mateo County Narcotics Task Force. It has assigned officers to schools to help strengthen the relationship between schools, students, and the police. The Police Department serves the City from its station at 2075 Coast Highway. The station is deemed adequate to support a sufficient level of service for future population growth in Pacifica.

The Police Department staffing it, approximately one officer per 1,000 residents, and response times and levels of service are generally considered good to excellent by residents.

POLICIES

Guiding Policies

SA-G-7 Emergency Response. Foster an efficient and coordinated response to emergencies and natural disasters.

SA-G-8 Public Awareness. Support continuing public awareness of hazards, including avoidance, disaster preparedness, and emergency response procedures.

SA-G-9 Disaster Preparation. Make infrastructure investments, enforce regulations, and disseminate information that will improve disaster response and recovery, with the goal of minimizing damage to people and property.

Implementing Policies

SA-I-49 Emergency Plan. Update and maintain the City's Emergency Plan, which provides adequate response to disasters, including emergency ingress and egress, and defines the expected roles of City, County, and regional agencies.

SA-I-50 Emergency Response Coordination.

Develop effective mechanisms for a coordinated response to natural and man-made emergencies by:

- Conducting regular emergency planning meetings and disaster preparedness exercises with City departments, the Fire District, the County, medical centers, and other emergency service providers and relevant public agencies;
- Holding emergency drills that require all City staff to be adequately trained to handle different kinds of emergency scenarios; and
- Coordinating with the County on regional emergency communications.

SA-I-51 Emergency Access on New Roadways.

Ensure that new roadways are developed in accordance with standards the Municipal Code. In all new development, require adequate access to be provided for emergency vehicles, including adequate widths, turning radii, hard standing areas, and vertical clearance.



The Police Department serves the City from its station at 2075 Coast Highway, opened in 2004.

SA-I-52 Areas that Lack Emergency Access. Develop a plan to widen critical rights-of-way that do not provide adequate clearance for emergency vehicles. For areas that are not feasibly accessible to emergency vehicles, develop a contingency plan for reaching and evacuating people in need of treatment.

This initiative should include a plan to open access to or otherwise serve the Shelter Cove neighborhood.

SA-I-53 Regulatory Monitoring. Continue to monitor changes in the Federal Disaster Act and applicable State laws, keep City officials and residents aware of the impacts of these changes, and update the City's Emergency Plan as necessary.

SA-I-54 Public Preparedness. Initiate periodic public information programs that explain the City's emergency preparedness programs, including the emergency communications system, evacuation routes, and shelter locations.

Each household should be self-sufficient for 72 hours after a disaster. The City will post information on the City's website and in other visible public locations, such as City Hall about emergency preparedness.

SA-I-55 Local Hazard Mitigation Plan. Continue to maintain and update a Local Hazard Mitigation Plan as an implementation action for the Safety Element.

SA-I-56 Emergency Water Capacity. Work with the Water District to ensure that it has a plan and infrastructure for providing adequate water service and storage during and immediately after an emergency, including a major seismic event.

SA-I-57 Utilities. Require companies providing public utilities in Pacifica to have plans for re-establishing service in the event of a major seismic event or other natural disaster.

SA-I-58 Police Response. Continue to respond without delay to all calls for police assistance as soon as possible consistent with normal safety precautions and vehicle laws. Periodically review procedures and response times to ensure equitable service across the community.

SA-I-59 School Outreach. Continue to partner with schools and youth organizations to conduct outreach and develop conflict resolution, and form pro-active and creative community partnerships to enhance public safety.

SA-I-60 Periodic Evaluation. Periodically, evaluate police and fire services to ensure that the City is providing adequate protection in an efficient, cost-effective manner.

SA-I-61 Critical Facilities Location. Do not locate structures necessary for protection of the public's health and safety, public assembly, or emergency services in hazardous areas unless no reasonable alternative exists.

SA-I-62 Critical Facilities Operability. Take steps to ensure critical use facilities that are important to protecting health and safety in the community remain operational during an emergency.

SA-I-63 Code Updates. Update City codes and ordinances dealing with public safety to comply with State law and reflect the latest information on hazards and mitigation strategies.

This page intentionally left blank.