City of Rancho Palos Verdes

DRAFT GENERAL PLAN

April 2018

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I INTRODUCTION

Source: InSapphoWeTrust. 2013. "Pelican Cove, Palos Verdes Peninsula." Flickr. Accessed at https://flic.kr/p/dYoTik. February 23, 2013.

I Introduction

1 Palos Verdes Peninsula

The residents of the Palos Verdes Peninsula are the beneficiaries of a unique geography, formed from millions of years of volcanic activity, plate tectonics, and terracing from changing sea levels. The 9-mile-wide Peninsula, once an island, now rises above the Los Angeles Basin to a maximum elevation of 1,480 feet, with uniquely terraced configurations and steep, rocky cliffs jutting upward 50 to 300 feet from the ocean. Erosion has contributed to the creation of numerous steep-walled canyons. These physical characteristics give the Peninsula magnificent views of the Los Angeles Basin; the mountain ranges of Santa Monica, San Gabriel, and Santa Ana; the Pacific Ocean; Catalina Island; and the Los Angeles/Long Beach Harbor.

The Peninsula's history is equally interesting, from the Native American Tongva people who migrated to the area, the Spanish explorers and missionaries, cattle ranchers of the Rancho de los Palos Verdes land grant, and the whalers of the late 19th century. The early 20th century brought interest in developing the land for the formation of its present-day cities.

With its magnificent views, beautiful rolling terrain, mild climate, and clean air, the Peninsula is a most desirable place to live. Home construction began in the 1920s and has continued to the present. The rate of construction increased dramatically in the 1960s, substantially increasing the area's density, primarily in the unincorporated areas of the Peninsula now known as the City of Rancho Palos Verdes.

2 History of the City

At the close of the 19th century, the Palos Verdes Peninsula was inhabited solely by a few cattle ranchers and sheepherders. The land was mostly covered with nothing more than native vegetation. Then, for a brief period in the early 1900s, the Peninsula enjoyed prosperity as a rich farming area in addition to the historic cattle-ranching activities. Japanese families farmed the most southern slopes, growing fields of beans, peas, and tomatoes, while grew barley, hay, and grain were grown on the dryer northern slopes. In 1913, Frank A. Vanderlip, president of the National Bank of New York, purchased the 16,000-acre Palos Verdes Peninsula with a vision to develop the most fashionable and exclusive residential colony in the nation. Unfortunately, his dream was put on hold after the Stock Market Crash, the Great Depression, and the onset of World War II. None of these setbacks, however, reduced the beauty of the Palos Verdes Peninsula or its desirability as a residential area.

In July 1953, the Great Lakes Carbon Corporation, which was leasing land on the Peninsula for mining, purchased 7,000 acres of prime undeveloped land from the Vanderlip family. After several unsuccessful mining attempts, the Great Lakes Corporation abandoned its mining operations and hired a group of skilled architects and engineers to create a master plan for development of its vast property. Palos Verdes Estates incorporated in 1939, and just prior to the great building boom in the late 1950s and early 1960s, the cities of Rolling Hills and Rolling Hills Estates incorporated in 1957.

Fueled by the master plan and the post-World War II economic growth in the South Bay area, the remaining unincorporated part of the Peninsula (now the City of Rancho Palos Verdes), which remained under the control of the County of Los Angeles (County), began to develop rapidly as the County granted more zone changes for

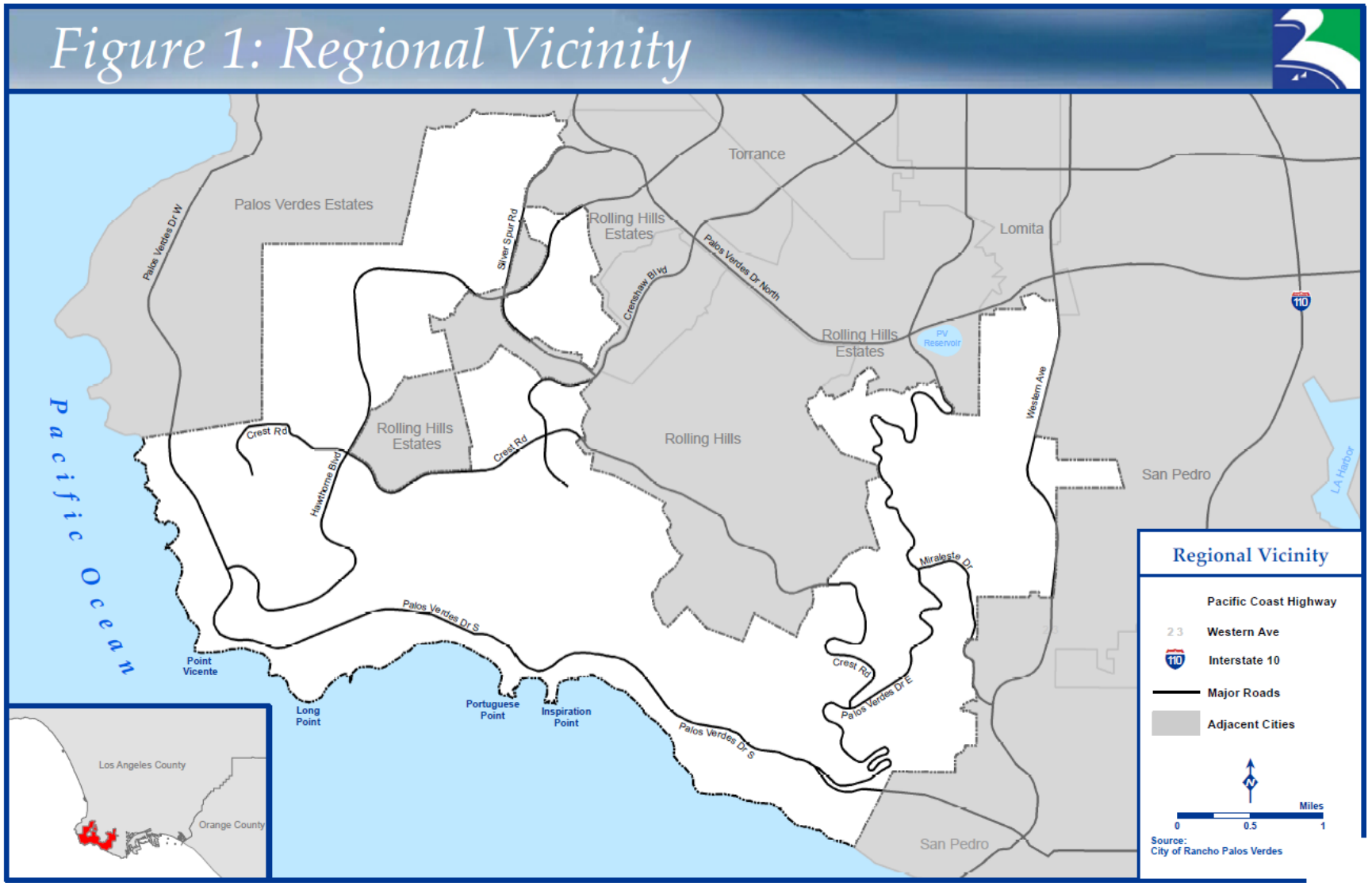
higher-density construction with little regard for the Peninsula's beauty, openness, or sensitive environment. During the 1960s, the citizens of the unincorporated area repeatedly attempted to convince the County to restrain from this kind of uncontrolled development and to institute planning and zoning regulations more consistent with the area's unique qualities. Homeowners' associations bonded into the Peninsula Advisory Council, and the citizens' group Save Our Coastline was created to consolidate efforts to promote proper limitations on the development of the Peninsula's coastal areas. The majority of such attempts failed, however, as the County repeatedly authorized higher-density uses of many pristine areas of the community.

Efforts to incorporate the Peninsula's fourth city (Rancho Palos Verdes) began in 1962 and intensified in 1969 when the County's new Master Plan for the Peninsula authorized population density far greater than that desired by the local residents. After many legal battles and several disappointing setbacks, the California Supreme Court ruled unanimously in September 1972, in *Curtis v. Board of Supervisors,* that landowners could not prevent voters from determining their municipal government. After this court decision, the Local Area Formation Commission (LAFCO) permitted a citywide election to take place, and on August 28, 1973, an overwhelming majority of 5 to 1 of the residents of the unincorporated portion of the Peninsula voted in favor of incorporation and elected five City Council members. With its incorporation, the City of Rancho Palos Verdes became the youngest of the four cities on the Palos Verdes Peninsula, each of which had incorporated for the same basic reason – to take control of planning and policy implementation over the area in order to preserve its natural beauty, openness, and small community atmosphere.

The City of Rancho Palos Verdes is located at the southwest tip of Los Angeles County (Figure 1, Regional Vicinity). It covers 13.5 square miles of land and 7.5 miles of coastline and has a population of 42,448. Using a council-manager form of government, the City's governing body, the City Council, is responsible for establishing policy, passing local ordinances, voting appropriations, and developing an overall vision for the City. The City Council appoints a city manager to oversee the daily operations of the government and implement policies it establishes. The City was also formed as a contract city, contracting for public services such as police and fire protection.

Today, as a result of the foresight of its founders and residents, the City continues to offer magnificent views, open spaces, clean air, and remains an extremely desirable place to live.

Figure 1: Regional Vicinity



3 What is a general plan and what are its regulatory requirements?

Like many other parts of the country, major milestones in California's planning law date to the early 1900s, when California's cities began to experience significant development and increases in population. Subsequently, in 1937, California directed all of its cities and counties to adopt a general plan "for the physical development of the county or city" (Gov't Code §65300).

What is a General Plan?

The California Supreme Court has defined the general plan as the "charter to which [zoning] ordinance[s] must conform" (OPR 2017 General Plan Guidelines, page 10). Perhaps a better description comes from California's Governor's Office of Planning and Research 2017 General Plan Guidelines (Guidelines), which state that "the General Plan is a vision about how a community will grow, reflecting community priorities and values while shaping the future." The general plan underlies all land use decisions in a city, and, pursuant to state law, all of the City's subdivisions, capital improvements, development agreements, and other land use actions must be consistent with the city's adopted general plan and the general plan land use map. Further, according to the Guidelines, the general plan serves to:

- Provide a basis for local government decision – making, including decisions on development approvals and exactions.
- Provide residents with opportunities to participate in the planning and decision-making processes of their communities.
- Inform residents, developers, decisions makers, and other cities and counties of the ground rules that guide development within a particular community.

The city's general plan must meet the following criteria:

- **Comprehensiveness -** A general plan must cover a local jurisdiction's entire planning area and address the broad range of issues associated with a city's development.
- **Geographic Comprehensiveness -** A general plan must cover all territory within the city limits, both public and private.
- **Regional Context** - Cities should coordinate plans regionally when possible and appropriate, in alignment with their sustainable community strategies, to work towards regional goals.
- **Issue Comprehensiveness -** A general plan should focus on those issues that are relevant to the planning area. The plan must address the jurisdiction's physical development, such as general locations, appropriate mix, timing, and extent of land uses and supporting infrastructure.
- **Internal Consistency** - Internal consistency requires that no policy conflicts, either textual or diagrammatic, can exist between the components of an otherwise complete and adequate general plan such as internally referenced external documents like a climate action plan or a local energy assurance plan..
- **Equal Status Among Elements -** All elements of the general plan have equal legal status. The general plan must resolve potential conflicts among its elements through clear language and policy consistency.

- **Consistency Between Elements -** All elements of a general plan, whether mandatory or optional must be consistent with one another.
- **Consistency within Elements -** Each element's data, analyses, goals, policies, and implementation programs must be consistent with and complement one another.
- **Area Plan Consistency** - All principles, goals, objectives, policies, and plan proposals set forth in an area or community plan must be consistent with the overall general plan.
- **Text and Diagram Consistency -** The general plan's text and accompanying diagrams and maps are integral parts of the plan and must be in agreement.
- **Long-Term Perspective -** Since the general plan affects the welfare of current and future generations, state law requires that the plan take a long-term perspective. Most jurisdictions select 20 years as the horizon for the general plan. The horizon does not mark an end point but rather provides a general context in which to make shorter-term decisions. Planning is a continuous process; as such, the general plan should be reviewed regularly, regardless of its horizon, and revised as new information becomes available and as community needs and values change.

While the general plan will contain the community's vision for future growth, California law also requires each plan to address the following 7 mandatory elements:

- **Land Use Element** designates the type, intensity, and general distribution of uses of land.
- **Circulation Element** identifies the general location and extent of existing and proposed major thoroughfares, transportation routes, and other local public utilities and facilities.
- **Housing Element** assesses current and projected housing needs for all economic segments of the community.
- **Conservation Element** addresses the conservation, development, and use of natural resources.
- **Open Space Element** details plans and measures for the long-range preservation and conservation of open space lands.
- **Noise Element** identifies and addresses issues related to noise.
- **Safety Element** establishes policies and programs to protect the community from risks associated with seismic or geologic hazards, floods, and wildfires.

In addition to these mandatory elements, a city may also include optional elements in its general plan. The City's original General Plan, adopted in 1975, included the following three additional optional components/elements—Fiscal, Environmental Justice, and Sensory Environment—and these have been included in this General Plan (note the Sensory Environment element was been incorporated into the new Visual Resources Element).

4 Adoption of the General Plan

The City's first General Plan was adopted on June 26, 1975, less than 2 years after incorporation. Since its adoption, the General Plan has received only minor amendments. Apart from state-mandated Housing Element updates, the last significant update occurred in 1984 to address the Eastview Annexation.

At its January 12, 2002, meeting, the City Council discussed master plan issues and specifically focused on updating the City's General Plan. The City Council acknowledged that portions of the General Plan needed updating and directed staff to take the initial steps to assist the City Council in determining the direction and extent of the needed update. The City Council expressed that a thorough review of the goals and policies was a necessary first step and that this would help to define the direction and extent of future updating work to be conducted by the Council, staff, and the community. Further, as in the effort to adopt the 1975 General Plan, the City Council expressed the importance of including public input, encouraging the use of local talent within the community, and specifically forming a General Plan Update Steering Committee to assist in the update process. The City Council then determined that one person from each of the following commissions, committees, and organizations within the community (but two persons from the Planning Commission) should be represented on the General Plan Update Steering Committee:

- City's Planning Commission
- City's (former) Recreation and Parks Committee
- City's Finance Advisory Committee
- City's Traffic Committee
- City's (former) Equestrian Committee
- City's Disaster Preparedness Committee
- Council of Homeowners' Association
- Council of Homeowners' Association – Eastview Representative
- Peninsula Seniors
- Peninsula Youth Recreation League Council
- Docents – Los Serenos de Point Vicente
- School District
- Chamber of Commerce
- Palos Verdes Peninsula Land Conservancy

The purpose of the Steering Committee was to review all of the goals and policies of the 1975 General Plan and to make recommendations as to the extent to which such goals and policies needed to be maintained, amended, or eliminated, and whether new goals and policies needed to be added.

Beginning on October 30, 2002, the Steering Committee held a total of 22 public meetings, on an average of once a month. Through the Committee's work, the Council learned that, apart from the need for some textual changes

to the goals and policies, as well as changes to the factual information within the Plan, for the most part the goals and policies that were created in 1975 still apply today.

Additionally, in order to assist the City's undertaking of its general plan update, a non-City-sponsored "grass-roots" committee of more than 210 residents formed for the purpose of preparing a "Goals Report" that identified various goals for the City. This Goals Report was provided to each member of the Steering Committee, which also considered it in making the Steering Committee's own review and findings in its report to the City Council.

During the preparation of the updated General Plan, the Planning Commission held 70 public meetings and the City Council held 13 prior to the Council's adoption of the General Plan. Additionally, the Finance Advisory Committee, Traffic Safety Commission, and the Emergency Preparedness Committee all provided input on the Fiscal, Circulation, and Safety Elements, respectively, during public meetings. Prior to each meeting on the General Plan, a public notice was published in the *Peninsula News* and delivered through the City's list-serve email subscribers list.

This update to the General Plan represents the contributions and input made by those volunteer members of the community, as well as Staff.

II ACRONYMS AND ABBREVIATIONS

Source: Cabrera, Richard. 2012. “Snowy Egret Looking into the Tidepool.” Flickr. Accessed at https://flic.kr/p/by2U8z. February 24, 2012.

II Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
ARB	California Air Resources Board
AQMD	Air Quality Management District
CAFR	Comprehensive Annual Financial Report
CAL FIRE	California Department of Forestry and Fire Protection
Cal Water	California Water Service Company
CEQA	California Environmental Quality Act
CERT	Community Emergency Response Team
CIP	Capital Improvement Project
City	City of Rancho Palos Verdes
County	County of Los Angeles
CMP	Congestion Management Plan
CNEL	Community Noise Equivalent Level
CO_2	Carbon Dioxide
dB	decibel
dBA	A-weighted decibel
DCS	Disaster Communications Service
d.u.	Dwelling Unit
ECC	Emergency Communications Center
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
GAAP	generally accepted accounting principles
GASB	Governmental Accounting Standards Board
General Plan	City of Rancho Palos Verdes General Plan
GHG	Greenhouse Gas
gpm	gallon(s) per minute
HCP	Habitat Conservation Plan
Hz	hertz
ICS	Incident Command System
IIC	Impact Insulation Class
JOS	Joint Outfall System
LAC DHS	Los Angeles County Department of Health Services
LADOT	Los Angeles Department of Transportation
LAFCO	Local Area Formation Commission
LAUSD	Los Angeles Unified School District

LCP	Local Coastal Program
LGB	Long Beach Daugherty Field
LMA	Landslide Moratorium Area
LME	Landslide Moratorium Exception
LOS	level of service
LWCF	Land and Water Conservation Fund
ME	Moratorium Exclusion Permit
Metro (or MTA)	Los Angeles Metropolitan Transit Authority
mgd	million gallons per day
mpg	mile(s) per gallon
MTA (or Metro)	Los Angeles Metropolitan Transit Authority
NCCP	Natural Community Conservation Plan
NIMS	National Incident Management System
NPDES	National Pollutant Discharge Elimination System
Peninsula	Palos Verdes Peninsula
PVPLC	Palos Verdes Peninsula Land Conservancy
Preserve	Palos Verdes Nature Preserve
PTA	Parent-Teacher Association
PUMP	Public Use Master Plan
PVAN	Peninsula Volunteer Alert Network
PVLD	Palos Verdes Library District
PVPUSD	Palos Verdes Peninsula Unified School District
PVPTA	Palos Verdes Peninsula Transit Authority
RACES	Radio Amateur Civil Emergency Service
RDA	Rancho Palos Verdes Redevelopment Agency
RTP	Regional Transportation Plan
SB	Senate Bill
SBCCOG	South Bay Cities Council of Governments
SCE	Southern California Edison
SEMS	Standardized Emergency Management System
SoCalGas	Southern California Gas Company
SCS	Sustainable Communities Strategy
STC	sound transmission class
TOA	Torrance Zamperini Field
TOT	Transient Occupancy Tax
VCP	Vitrified Clay Pipe
VDT	Veterinary Disaster Team
VHFHSZ	Very High Fire Hazard Severity Zone

III DEFINITIONS

III Definitions

Active Landslide: An area presently undergoing downslope movement.

Active Recreation: Active recreational facilities are highly structured and designed with specific activity areas, such as recreational buildings, tennis courts, baseball fields, children's play apparatus, etc.

Activity Area: A given area within the City for which a particular land use is suited and is so designated.

Ambient Noise: The all-encompassing noise associated with a given environment, usually being a composite of sounds from many sources, near and far.

Amenities: An attractive or desirable feature of a place; anything that adds to ones comfort or convenience; pleasant qualities.

Arterial Street: Main channel for the movement of vehicles and is not intended to be a residential street.

Biotic Resources: All plant and animal organisms, both marine and terrestrial.

Buffer Zone: A zone or area which exhibits a dampening effect between two unlike areas; e.g., open space between commercial areas and residential areas.

Buildout: An area which has achieved its maximum development potential has achieved its buildout.

Coastal Setback Line/Bluff Setback: A boundary established in the discussion starting on Page CO-8. Due to possible risks to human life or property, no development will be allowed to proceed without a detailed engineering and geology study which demonstrates site stability and suitability for development.

Collector Street: Conducts traffic between arterials and sometimes links with other collectors.

Cluster Development: A technique of grouping structures in a given area for the purpose of conserving and creating open space, lowering construction and materials costs, conserving energy, and creating a more secure environment.

Community Noise: Combination of steady state noise (distant traffic flow, neighbor's air conditioner) and the intermittent noises (planes flying overhead, local traffic flow, children yelling, etc.).

Decibel: A unit for measuring the relative loudness of sounds detectable by the human ear.

Density: A term used to represent the measurement of how intensely the land is developed (residential) and refers to the number of dwelling units (d.u.) which occupy a given area of land – generally per acre – and may be expressed as d.u./acre.

Dormant Landslide: An area that have experienced downslope movement in the past, but are not currently active.

Dwelling Unit: A place of residence which contains bathing and cooking facilities for a single family.

Ecosystem: An environmental system in which the existence of that system is dependent on the interrelationship of the plant, animal, and bacterial communities within the system.

Environmental Impact Report (EIR): A detailed statement prepared under CEQA describing and analyzing the significant environmental effects of a project and discussing ways to mitigate or avoid the effects.

Extreme Slopes: Slopes of 35% or greater.

Fault: A plane or surface in earth materials along which failure has occurred and materials on opposite sides have moved relative to one another in response to the accumulation of stress in the rocks.

Gross Acreage: The total amount of land devoted to a development inclusive of public rights-of-way (streets, sidewalks, etc.), schools, and parks.

High Slope: Slopes between 25% and 35%.

Housing Mix: The relationship of the various types of dwelling units (single family to multi-family) within a given area.

Hydrology: The science that deals with water movements, surface and subsurface distribution, and the cycle involving evaporation, precipitation, and flow to the sea.

Infrastructure: The man-made support systems on which a community depends (e.g., water, sewerage, energy, communication, and transportation systems).

Kelp Bed: Forests that serve as sanctuaries, nurseries, habitats, and food sources for many specifies of marine organisms.

Load Induced: The associated effects on uses and support systems which would be generated through the development of a proposed activity (e.g., population, commercial activity, etc.).

Local Street: Minor networks that have principal function to provide access to adjoining property.

Mitigation: Includes avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the impacted environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or, compensating for the impact by replacing or providing substitute resources or environments.

Multi-family Residence: Two or more dwelling units located in single structure.

National Historic Preservation Act of 1966: Calls for the preservation of sites, places and structures of national historic significance and sets criteria for entries into the National Register of Historic Places.

Natural Environment/Hazard Areas: Areas of extreme and hazardous physical characteristics (active landslide, sea cliff erosion, and/or slopes of 35% or greater) which are to be maintained as open space for the protection of public health, safety, and welfare. The undeveloped portions of these areas are to remain in their natural state, with only very low intensity uses permitted.

Net Acreage: The total amount of land devoted to a development exclusive of public rights-of-way (streets, sidewalks, etc.), schools and parkland.

Noise: Any loud sound.

Noise Contour: A line on passing through points where the same sound intensity level prevails. Contours form bands of varying width emanating from a noise source.

Non-Landslide: An area where no natural landslides have been identified.

Old Landslide: An area determined to have had past movement and/or identified in the California Department of Conservation's landslide-inventory maps that portray the location of prior failure.

Open Space Land: Any parcel or area of land or water that is essentially unimproved and devoted to an open-space use for the purposes of (1) the preservation of natural resources, (2) outdoor recreation, or (3) public health and safety.

Overlay Control District: Areas within the City which possess special natural, social, cultural, or urban features which warrant control of development.

Passive Recreation: Passive recreational areas remain unstructured in order to allow natural ecosystems to function with the least amount of human disturbance. Passive sites are usually used for nature studies, hiking trails, limited picnicking areas, etc.

Planned Unit Development (PUD): PUD refers to a development which has been completely planned by an architect, land planner, or developer which affords him arrangement flexibility not previously available. It implements planning for a diversification of dwelling types and aesthetic variety, while assuring that overall density standards will not be violated. Through various options or combinations of options (grid, cluster, etc.) open to the planner, more efficient use of the land can be made. Large common open areas, integrated land use designed to serve the needs of the residents, lower development costs per unit, and housing for a wider range of income levels are some of the amenities associated with Planned Unit Developments. These can all be achieved through a well designed PUD at a lower cost of construction per unit. Many PUD's are able to offer an amenity such as a lake or golf course as a focal point for the development.

Possible Landslide: An area suspected to be a landslide on the basis of topographic evidence.

Quimby Act: This act (also known as the Park and Land Dedication Act of 1965) allows the local government to impose a fee or require dedication of land or both, to be used for park or recreation purposes only, by an applicant requesting approval of a final subdivision map.

Seismic Safety: Safety measures taken to prevent loss of life and/or property due to natural or man made earthquakes and tremors.

Seismic Zone: Areas which have been divided and categorized according to the impacts which would occur as a result of an earthquake or earth tremor.

Sensitive Habitat: Vegetation communities that are considered rare in the region, support sensitive species of plants and animals, and/or are subject to regulatory protection through various federal, state, r local policies or regulations.

Single-family Residence: One dwelling unit which is located in a single structure.

Sound Attenuation: To lessen the negative impacts of sound by inhibiting the transmission of sound and/or absorbing the sound.

Sub-community Areas: Smaller divisions within the City based on common geographical features, location, or access by road system. Also referred to as neighborhood areas.

Subdivision Map Act: Gives local governments authority to regulate and control the design and improvement of subdivisions within their jurisdiction.

Topographic Conditions: Existing conditions on the land surface or a given region, including, but not limited to relief, water features (streams, rivers, lakes) and man made features (grading, etc.).

Transfer of Development Rights (Development Transfer): This process can be used when a municipality designates an area for open space and prohibits development therein. The residential development potential is then transferred to another area or areas where development is feasible.

Landowners in the preserved areas will continue to own their land and many sell their rights to further development to other landowners or builders who wish to develop those areas in which development is feasible.

Under the system, a zoning district is established for preservation of open space in which all development is essentially prohibited. The residential development potential of the zoning district before its open space designation is calculated as follows: For each residential dwelling eliminated in a preservation district, a substituted dwelling is added to a developable district of the community. A development right is created for each dwelling eliminated in the preserved district and is distributed to the landowners. To construct dwellings in developable areas, a development right is necessary along with appropriate zoning.

A builder who proposes to construct at a higher density, based on the new capacity or density resulting from the establishment of the preserved area, must also purchase development rights to equal the increased density and at a price arrived at through the bargaining process of the market place. The continued value or marketability of development rights are insured by adequate incentive zoning in the developable areas.

Urban Activity Area: Areas with Residential, Commercial, Institutional, Recreational, Agricultural, and Infrastructure Facility land use designations.

View: Scene or panorama observed from a given vantage point.

Viewing Corridors: Major circulation roads, and trail networks within the City that afford views of the visual resources.

Viewing Points: Locations at private residences and roadway turnouts along vehicular corridors that afford viewing of visual resources.

Viewing Sites: Larger areas which, due to their physical locations on the Peninsula, provide a significant viewing vantage.

Viewing Stations: Places where people can enjoy the visual resources of Rancho Palos Verdes.

Vistas: Confined view, usually directed toward a dominant element or landmark.

Watersheds: Geographical boundaries of an area that are drained by a common river, stream or network of rivers and streams.

Wildland Fire: Uncontrolled, non-structure fire other than prescribed fires that occur in the wildland area.

IV CIRCULATION ELEMENT

Adopted April 2018

Source: Collectmoments. 2013. “Wayfarers Chapel 8.” Flickr. Accessed at https://flic.kr/p/fNUgLW. May 4, 2013.

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IV Circulation Element

The primary role of the Circulation Element is to plan the transportation system needed to serve proposed development as defined in the Land Use Element of the City of Rancho Palos Verdes (City) General Plan (General Plan). The Circulation Element also has a role in planning for the future with regard to the provision of infrastructure that services the City. The circulation system affects growth patterns, the environment, and the quality of life of the City's residents and workers. The system ranges from sidewalks to roadways to trails, all providing for the safe, efficient, and sometimes recreational movement of people through the City. The location and nature of circulation system components derives from—and in turn, affects—physical settlement patterns, air quality, plant and animal habitats, noise, energy use, safety, visual appearance, social interaction, and economic activity within the community.

The Circulation Element shows the "general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the Land Use Element" (California Government Code Section 65302(b).) While not all-inclusive, the City Circulation Maps illustrate arterials, collectors, and local streets; bus routes; other public transit routes and bikeways; and trails.

The purpose of this Circulation Element is to present a plan to ensure that utilities and transportation, including public transportation services, are constantly available to permit orderly growth and to promote the public health, safety, and welfare. This Element provides a framework within which individual property owners can plan the development of their property and be assured that basic infrastructure and services are available and adequate. This Element provides an area-wide assessment of the different public transit, services, and utilities for a broader understanding of service provision. Further, it is envisioned that transportation improvements (new or retrofitted) will provide opportunities to improve safety, access, and mobility for all travelers and recognize bicycle, pedestrian, and transit modes as integral elements of the transportation system, thereby using complete street concepts to integrate the needs of all users of the roadway system consistent with the California Complete Streets Act of 2008.

1 Goals

1. Ensure adequate public utilities and communication services to all residents, while considering environmental, aesthetic, and view impacts.
2. Provide and maintain a safe, efficient, and comprehensive system of roads and trails, and coordinate them with other jurisdictions and agencies.
3. Facilitate mobility of residents through an adequate public transportation system with consideration of the City's demographics.
4. Work with other jurisdictions and agencies to ensure that there are adequate storm drains, water systems, and sewer systems to serve the residents.
5. Where appropriate, use complete street concepts to integrate the needs of all users of the roadway system consistent with the California Complete Streets Act of 2008.

2 Policies

2.1 Transportation Systems

1. Design public access into residential areas to control non-local traffic.
2. Require any new developments or redevelopment to provide streets wide enough to support the City's future traffic needs and to address potential impacts to nearby intersections resulting from such developments.
3. Encourage synchronization and coordination of traffic signals along arterials.
4. Ensure that future residential developments provide direct access to roadways other than arterials.
5. Work with other Peninsula cities and/or regional agencies to improve public transportation on the Peninsula and to provide access to other destinations in the region.
6. Implement the Trails Network Plan to meet the recreational needs of the community while maintaining the unique character of the Peninsula.
7. Coordinate and cooperate with neighboring jurisdictions to develop trail networks.
8. Prohibit motorized vehicles from using paths and trails, except for disabled access and emergency or maintenance vehicles.
9. Require that all new developments, where appropriate, establish paths and trails.
10. Seek funding for acquisition, development, and maintenance of trails.
11. Implement trails on existing rights-of-way and easements in accordance with the Trails Network Plan. Where applicable, consideration should be given to adding crosswalk pushbuttons at proper equestrian height levels where equestrian trails traverse signalized intersections.
12. Include safety measures, such as the separation of uses, fences, and signage, in the design and construction of paths and trails.
13. Encourage the safe and courteous use of trails by educating users as appropriate.
14. Ensure public access to the Rancho Palos Verdes shoreline.
15. Explore options to develop a City equestrian park.

16. Require adequate off-street parking for all existing and future development.
17. Develop appropriate ordinances to regulate street parking, parking on narrow residential streets, and parking of recreational, commercial, and/or oversized vehicles.
18. Coordinate and cooperate with school districts, and parent and community groups to provide safe and proximate access to schools.
19. Require detailed analysis for all proposals to convert local public roads into private streets or retain new local roads as private property. Conditions for establishing private streets should include:
    a. The road is a truly local road and is not needed as a collector or arterial road.
    b. Provisions are made to guarantee the future upkeep of the streets.
    c. Dedication of non-vehicular easements may be required.
20. Reflect the elements of the City's Trails Network Plan in appropriate City processes and procedures. For each trail category, the City's action should include the following:
    a. Category I (Definition: These trails are defined as existing, dedicated trails that meet the City's trail standards. Inspect and maintain all existing trails on a regular basis.
    b. Category II (Definition: These trails are defined as proposed trails and trail segments that cross undeveloped, privately owned land that is zoned as being developable). These trails and trail segments should be implemented when the respective parcels of land are developed. Consider these trails, or alternate approaches to provide equivalent access, in all new developments.
    c. Category III (Definition: These trails are defined as proposed trails and trail segments that are located on existing trail easements, City property, or street rights-of-way, and that require implementation or improvements). Require consideration by the City Department of Public Works or the Department of Recreation and Parks of these trails or alternate approaches to provide access prior to bid solicitation for projects.
    d. Category IV (Definition: These trails are defined as proposed trails and trail segments that cross privately owned land designated as Open Space or Open Space Hazard, or on land owned by a public utility or public agency). These trails and trail segments involve the acquisition of easements and may require implementation or improvements. Implement these trails by soliciting voluntary offers to dedicate easements. Where appropriate, the City should seek the dedication of an easement as a mitigation measure for significant property improvements.
    e. Category V (Definition: These trails are defined as proposed trails that would primarily benefit neighborhood residents and that cross privately owned land). Implement these trails only upon initiation by affected property owners or community groups. The City shall provide appropriate support to the property owners offering easements.
21. If City land is sold, record any appropriate public access easement, restriction, reservation, and/or right-of-way.
22. Provide descriptions of relevant trails in the Trails Network Plan to potential applicants when inquiries for development are first made.
23. Design and construct new trails in accordance with the Trails Network Plan and other national, state, and local standards, where appropriate.
24. When constructing paths and trails, require the use of construction techniques that minimize the impact on the environment.
25. Align trails to maximize access to scenic resources, where appropriate.

26. Include the bikeways in the Conceptual Bikeways Plan or alternate approaches to provide access, prior to approval of proposals for land development through a subdivision of land application and/or conditional use permit application.
27. Require consideration of the inclusion of bikeways in the Conceptual Bikeways Plan or alternate approaches to provide access during project design for all City Department of Public Works or Department of Recreation and Parks projects.

2.2 Infrastructure Systems

28. Discourage the installation or extension of any infrastructure component into any area known to be hazardous unless appropriate liability safeguards (such as geological hazard abatement districts) are in place and adequate mitigation measures are incorporated into the design.
29. Allow new development only where adequate infrastructure systems can reasonably be provided.
30. Require adequate landscaping or buffering techniques for all new and existing facilities and networks, to reduce the visual impact of infrastructure facilities and networks.

2.3 Resource System Policies

31. Ensure that the resource companies provide all areas of the City with adequate service, including adequate backup and growth capabilities.
32. Encourage the use of alternative water and energy generation sources.
33. Promote, practice, and encourage workable energy and water conservation techniques.
34. Review any proposed development, major new resource uses, or significant changes to resource systems for impacts to the surrounding neighborhood and community.
35. Encourage the use of recycled/reclaimed water in the irrigation of large open space areas, including golf courses, open space areas owned by homeowners' associations, and City parks and ballfields.
36. Encourage the California Water Company to complete a conservation plan that provides for the availability of a recycled water system in the City.
37. Underground all new power lines and communications cables and implement programs to place existing lines and cables underground, where feasible.
38. Encourage the establishment of undergrounding assessment districts by homeowners in areas of existing overhead lines.
39. Investigate funding sources to be used in local undergrounding programs for areas of existing overhead lines.

2.4 Disposal/Recovery System

40. Encourage waste reduction and recycling programs.
41. Require all new developments to provide sanitary sewers connected to the County Sanitation Districts' system.
42. Require the connection to the County Sanitation Districts' sewers in existing development if alternative sewage systems endanger public health, safety, and welfare.

2.5 Flood Control/Storm Drain System

43. Encourage the retention of all remaining natural watercourses in their natural state.
44. Require developers to install and develop a mechanism for ongoing maintenance of necessary flood control devices in order to mitigate downstream flood hazards induced by proposed upstream developments.
45. Require that all flood control/natural water source interfaces and systems minimize erosion.
46. Promote compliance with regulations controlling pollution impacts generated by development runoff.
47. Promote compliance with regulations controlling discharge of wastewater into the ocean.

2.6 Communication Systems

48. Investigate alternative cable communications systems that take advantage of new technology, which could disseminate information and issues to communities and/or the City as a whole.
49. Require the underground installation of cable communications.
50. Balance the need to accommodate wireless communications coverage in the community with the need to protect and maintain the quality of the environment for residents. All new proposals to construct wireless communication facilities shall be reviewed using guidelines adopted and kept current by the Planning Commission and, where applicable, considering covenants, conditions, and restrictions (CC&Rs). These guidelines shall balance public and private costs and benefits to the greatest reasonable extent, and encourage colocation of facilities and the use of evolving wireless communication technologies to minimize impacts.

3 Transportation Systems

The transportation component of the City's infrastructure consists of integrated networks and modes that provide for access and the conveyance of people and goods to, from, and within a given area. The varied functions, widespread usage, and conspicuous visibility of these transportation systems make this the most dominant and complex component of the entire infrastructure. Because of its functional complexity and the diversity of potential impacts, the transportation component must be approached differently from the other infrastructure components. For example, other components are discussed primarily from the standpoint of the network, with little mention of distribution media, whereas the character of the transportation component requires that equal consideration be given to both networks and their associated modes. Furthermore, some of the transportation networks and modes, unlike other infrastructure components, overlap physically as well as functionally.

For the purposes of this General Plan, the transportation infrastructure has been divided into three major components. Each component is discussed in terms of the individual networks it comprises and the modes that use these networks. The three components include:

- Vehicular networks
- Public transportation
- Pedestrian and Bicycle path and trail networks.

It should be noted that, due to the nature of transportation systems, much of the subsequent discussion deals with the Palos Verdes Peninsula as a whole, rather than the City alone.

3.1 Vehicular Networks

City residents, like most Southern Californians, rely on the automobile as their principal mode of transportation. The vehicular network is divided into four basic classifications: freeways, arterials, collectors, and locals. Although terminology may vary for each of the four Peninsula cities, analysis shows that the functional differences rarely vary.

The development of this General Plan have potential effects in the City and on adjacent and outlying communities. It was recognized at the outset of the planning process that the cumulative effect of City traffic on roads outside this jurisdiction is of mutual interest with respect to congestion and pollution. Therefore, the proposals and recommendations made herein reflect this concern.

Freeways

There are no freeways on the Peninsula now and it is not likely there ever will be in the future. Peninsula residents, however, have access to and use the extensive freeway network that is such an important part of travel in Southern California. The Harbor Freeway (I-110) and San Diego Freeway (I-405) act as principal links for commuters as well as to distant points.

Although no attempt is made here to provide a detailed assessment of the impact of City residents on the freeway network, the circulation element will describe how the City transportation network connects to the freeway system.

Arterial, Collector, and Local Streets

Of all the infrastructure components, the network of streets and associated components (parking) are the most dominant and complex of all service-oriented systems. The City, like all of Southern California, is almost totally dependent upon the system of roads on which our private and service vehicles function.

The most efficient street system is one that offers a variety of streets, each having its own functional characteristics. The classifications of such a street system are based on a functional hierarchy, often defined by little more than width, type of pavement, and traffic volume. Developing a street system purely based on standardized design criteria would have a severe impact on the unique and sensitive environments of the Peninsula and would limit the flexibility of design, which can reflect the varied character of the cities and neighborhoods. The following paragraphs describe the functional characteristics assigned to the three street classifications.

Arterial. The arterial street is the major street within the Peninsula hierarchy. It is the main channel for the movement of vehicles and is not intended to be a residential street; however, some older arterials do provide direct access to residential units (e.g., Palos Verdes Drive East and West). Arterials are typically characterized by both two-lane and four-lane roadways, typically with a raised or painted median. An arterial carries traffic through the community and collects traffic from collector roads, provides connections with other arterials, and may eventually link up with major highways.

Within the City limits, the following streets function as arterials:

- Palos Verdes Drive South;
- Palos Verdes Drive East;
- Palos Verdes Drive West;
- Hawthorne Boulevard
- Miraleste Drive;
- Crest Road;
- Silver Spur Road;
- Western Avenue; and
- Crenshaw Boulevard.

Collector. The collector street functions to conduct traffic between arterials and sometimes links with other collectors. It is a primary network within residential areas and can function well in a commercial area.

Within the City limits, the following streets function as collectors:

- Indian Peak Road;
- Ridgegate Drive;
- Granvia Altamira;
- Crest Road;
- Crestridge Road; and
- Montemalaga Drive.

Local. Local streets are minor networks that have the principal function of providing access to adjoining property. Local streets can be designed so as to discourage through traffic. They are intended to be low-volume and low-speed facilities, characterized by two-lane undivided roadways with frequent driveway access. All streets in the City not designated as arterial or collectors are defined as local streets.

Existing Conditions

The character of the existing street system (Figure 1, Street System) on the Peninsula is a result of several factors. The first, and perhaps the most important, is geographical location. The fact that the City is located on a peninsula has resulted in a situation that discourages most through traffic, thereby reducing the need for a major highway or freeway. Second, the early road system was designed to fulfill the needs of an area of semi-rural character. Evidence of this design is still found on the Palos Verdes Drive loop. Third, pre-incorporation development trends encouraged the development of new roads to maximum potential. In addition, the demand for the new roads, which supported new developments, was often satisfied with little regard to the City's existing character, community desires, or impact on neighboring cities.

Traffic impacts are determined by assessing traffic volumes at intersections and roadway segments and assigning a level of service (LOS). Level of service is a method of describing the operating efficiency of a roadway or intersection. Typically, it is described on a scale from A to F, with F being the most congested and A representing free-flow conditions. Currently in the City, intersections and roadways are considered impacted if they exceed LOS D; thus, LOS E and F are unacceptable levels during the morning peak hours and/or the afternoon peak hours. A detailed analysis of the existing street system in the City was performed on May 31, 2017, and is summarized in this document (Translutions, Inc. 2017). Congestion was measured at 30 of the highest-traffic-level intersections, and the results show that 25 of 30 are operating at acceptable levels. The results indicate that, for the most part, the City is adequately served. There are problem areas where certain intersections and roadway segments are currently operating at LOS E and unacceptable LOS F.

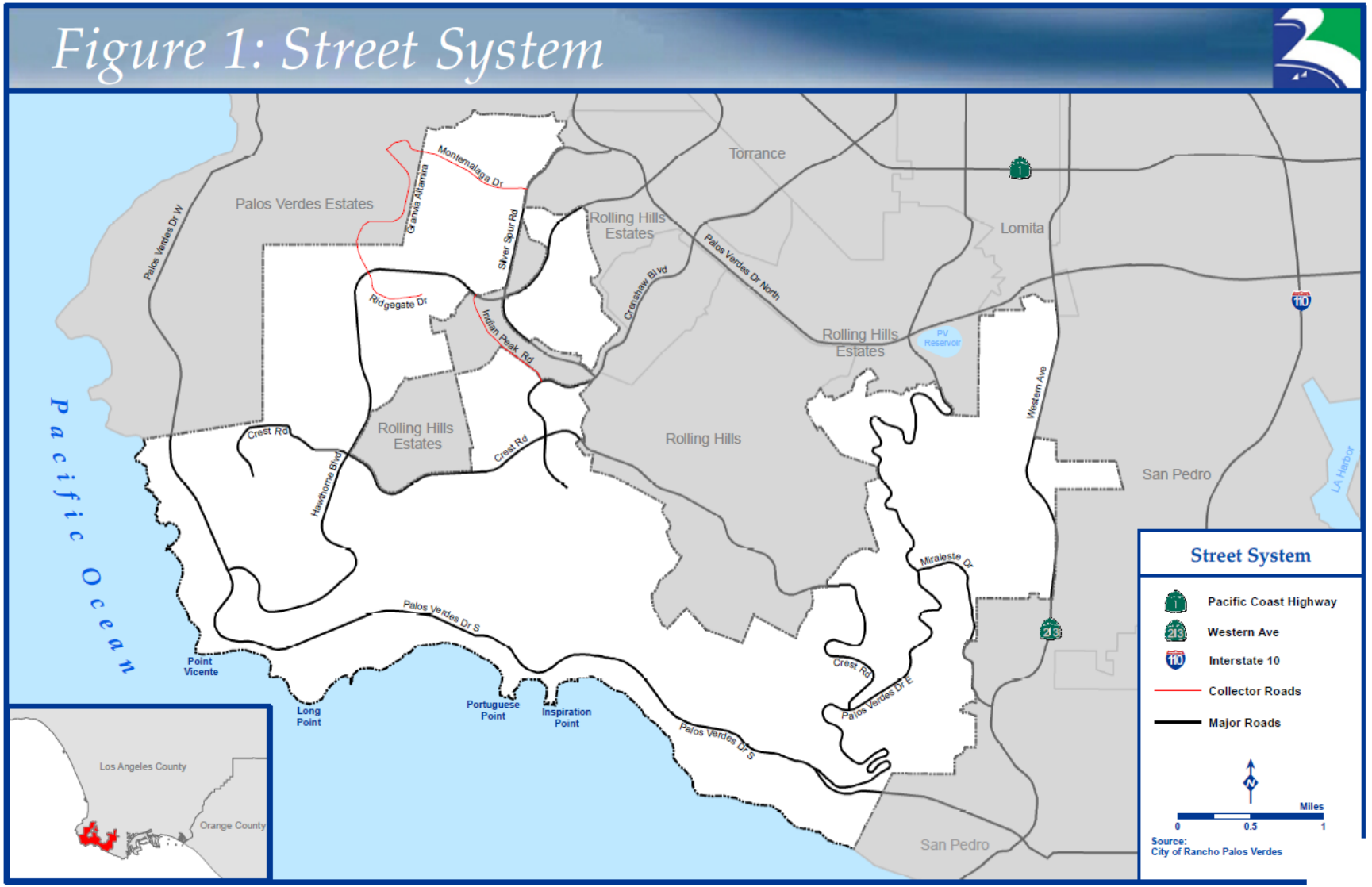
The following four intersections are currently operating at unacceptable levels of service:

- Via Rivera at Hawthorne Boulevard;
- Forrestal Drive - Trump National Drive at Palos Verdes Drive South;
- Palos Verdes Drive East at Palos Verdes Drive South;
- Palos Verdes Drive East at Via Canada; and
- Palos Verdes Drive East at Miraleste Drive.

A total of 36 roadway segments were studied in the traffic supporting the General Plan. Of the 36 roadway segments assessed, 24 were found to be operating at LOS A, one is operating at LOS B, 3 are operating at LOS C, 3 are operating at LOS D. The following 5 roadway segments are currently operating at an unacceptable level of service (LOS E & F):

- Crenshaw Boulevard from the northern City limit to Indian Peak Road;
- Western Avenue from the northern City limit to Delasonde Drive;
- Western Avenue from Delasonde Drive and Trudie Drive; and
- Western Avenue from Trudie Drive to the southern City limits.

Figure 1: Street System



Future Conditions

The future conditions of the intersection and roadway segments are estimated by taking the existing conditions information described above and adding the traffic projected from future developments. The future traffic growth is anticipated to cause negative impacts. However, planned roadway and intersection improvements can mitigate the impacts on the roadway system to maintain an adequate level of service.

Traffic growth will come from expansion of existing houses and businesses, buildout of the remaining 439 vacant developable parcels (436 of which are zoned single-family residential) in the City, as well as visitors from outside the City. The 439 vacant parcels include many vacant parcels in the Portuguese Bend area. Although the Portuguese Bend area is currently under a building moratorium resulting from the landslide situation, this area contains over half of the City's identified vacant lots. As such, only for purposes of conservatively estimating the maximum potential traffic growth at full buildout of the City, the traffic growth analysis assumes that the Portuguese Bend area may be developed at some time in the future. Additionally, a list was compiled of all pending projects in the City of Rancho Palos Verdes, as well as in the City of Rolling Hills Estates and the City of Los Angeles. These pending projects were included in the traffic growth analysis in order to maximize the potential future conditions resulting from buildout.

The future growth analysis also included planned roadway and intersection improvements. These improvements could include new traffic signals at certain intersections, driveway realignments, new right- and/or left-turn pockets or modifications to existing turn pockets, new medians or modifications to existing medians, etc. Other improvements would come from mitigation measures required by future development projects. In keeping with the goals of the community as expressed in the original General Plan, no new arterials or collectors have been constructed and none have been planned.

There are 50 private streets in the City of Rancho Palos Verdes. The design and maintenance of private streets is not the responsibility of the City; therefore, these streets may or may not meet accepted design standards, and in some cases are not in keeping with customary maintenance standards. The private streets have not been included in the growth analysis, but the traffic resulting from those streets has been included.

The overall conclusion of the future growth analysis is that the impacts of traffic growth due to ultimate buildout can be mitigated with planned improvements to maintain adequate functioning of the street system. Other improvements would come from mitigation measures required by future development projects. Incorporating improvements by buildout year 2035 will help mitigate the increase traffic volumes resulting from ultimate buildout.

Effects of Landslides

The Portuguese Bend Landslide impacts the City's circulation system along a 1-mile segment of Palos Verdes Drive South. Constant earth movement has resulted in this segment of Palos Verdes Drive South becoming distorted, warped, and broken, which impacts the smooth flow of traffic through this area of the City. However, the City continuously repairs and maintains this segment to ensure a safe flow of traffic.

The South Shores Landslide, which is in the City of Los Angeles, impacts Palos Verdes Drive South at the City's border. During rainstorms, debris from this landslide washes down the canyon and causes an overflow at the inlet structure adjacent to the street near the City's border, resulting in flooding and subsequent temporary road closures. The City of Rancho Palos Verdes continuously works with the City of Los Angeles to respond quickly to these flood situations so that the flow of traffic is restored in a timely manner.

Farther north of the inlet structure within the South Shores Landslide area is San Ramon Canyon. The erosion of the canyon has accelerated dramatically since the 2005 storm events, which resulted in a federal disaster declaration. Geologists and engineers have concluded that the instability of the area and the erosion of the canyon's streambed and bank have the probability of causing complete roadway failure for both Palos Verdes Drive East and Palos Verdes Drive South. To address the possible roadway failure resulting from the instability in San Ramon Canyon, the City completed its largest and most expensive ($15.5 million) public works project in 2014: a tunneled drainage system that diverts water from San Ramon Canyon to the Ocean.

3.2 Public Transportation

The Los Angeles metropolitan area has one of the most extensive and complex automobile-oriented networks in any highly urbanized area in the world. The City lies at the periphery of the regional transportation system. Regional public bus transit service is provided to the City by the Los Angeles County Metropolitan Transportation Authority and the Los Angeles Department of Transportation. Both providers provide fixed-route transit service lines with numerous bus stops in the City (Figure 2, Public Transit).

Palos Verdes Peninsula Transit Authority provides fixed-route and dial-a-ride services on the Peninsula. The fixed-route service includes nine routes that service the City and the greater Peninsula, offering riders a stable, reliable, and continuous mode of transportation. These routes offer frequent drop-off/pick-up stops at a variety of locations along major arterials, as well as all schools, libraries, and shopping centers. Specific bus lines also offer transportation to bus and train stations located outside of the City. This provides a well-connected and multi-modal transportation system for improved connectivity. The dial-a-ride service goes off the Peninsula for medical purposes. The service goes to all hospitals, medical buildings, and doctors' offices in Torrance, Harbor City, San Pedro, and Redondo Beach.

Airports and Seaports

The City does not contain any airports or seaports. With the lack of industrial and minimal commercial zones within the City, as such there is no need for these types of transportation uses. These types of transportation uses are commonly seen in larger cities (i.e. Los Angeles and Long Beach) where industrial and manufacturing zones are found.

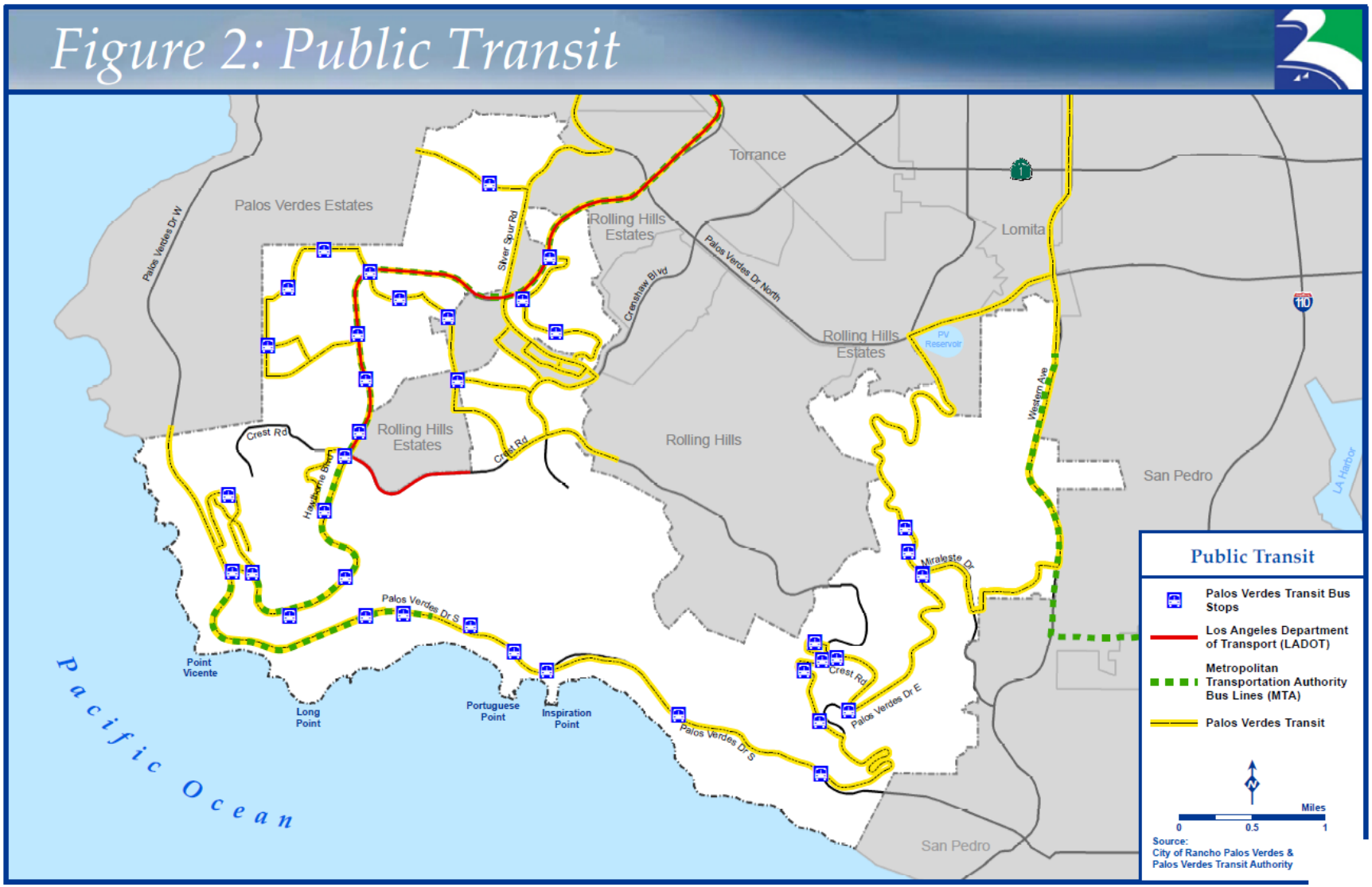
3.3 Path and Trail Networks

Path and trail networks are an integral part of the circulation component of infrastructure supporting non-motorized forms of travel. These include pedestrian, bicycle, and equestrian trails; bikeways; and sidewalks. Path and trail networks and their associated modes are important in the development of a balanced circulation system. Bikeways and walkways satisfy recreational demands, as well as function as an integral part of the transportation network. The recreational and environmental amenities found on the Peninsula and in the City are also of regional significance; therefore, the various path and trail networks should be designed to reflect both local and regional demands, while maintaining the unique character of the Peninsula.

On a localized level, the network of paths and trails is important in terms of recreation and transportation. Thus, where feasible and necessary, through improvements in the public rights-of-way, complete street concepts should be used to integrate the needs of all users of the roadway system consistent with the California Complete Streets Act of 2008.

Below is a discussion of the types of path and trail networks available in the City, followed by a discussion of past and future planning efforts to improve the City's path and trails network.

Figure 2: Public Transit



Sidewalks

While the roadway system focuses on the opportunity for vehicular travel, the walkway (i.e., sidewalk) system enhances and increases opportunities for pedestrian foot travel, such as walking, jogging, and hiking. Unlike trails, which are typically natural paths providing recreational opportunities that meander with the topography through open space areas and provide access to and through natural environments, sidewalks are characterized by their hard concrete or asphalt surfaces and continuous configuration adjacent to roadways.

The City's Public Works Department has an annual sidewalk repair program to ensure ongoing maintenance of the existing sidewalk system. The intent of this program is to correct potentially hazardous portions of existing sidewalks, driveway approaches, and parkways that could pose a problem to pedestrians. The City has established a program to help ensure that the damaged sidewalks are repaired in a timely manner with a minimum burden to the property owner. Further, as problems are identified, modifications will include measures to ensure Americans with Disabilities Act compliance and consistency with applicable laws and design standards.

The Rancho Palos Verdes Coast Vision Plan (Vision Plan; City of Rancho Palos Verdes 2009) also identified the enhancement of pedestrian pathways along roadways within the City's coastal zone either through the development of City standard sidewalks or permeable paving such as decomposed granite, where appropriate (i.e., trails, as discussed previously). In addition, the Vision Plan identified the need to separate pedestrians from the roadway where the right-of-way is most constrained by using attractive barriers or edge/parkway planting. The Vision Plan has been folded into other City documents such as the Parks Master Plan.

The City annually adopts a Capital Improvement Plan, which is a guide for the efficient and effective provision of resources for improving and maintaining public infrastructure and facilities. The Capital Improvement Plan provides for the creation and maintenance of sidewalks along Palos Verdes Drive South and Palos Verdes Drive West, adjacent to the City's coastal zone, encouraging the use of surface material that aligns with the natural setting of the coast.

Pedestrian Trails

While sidewalks typically have impervious surfaces and parallel streets and roadways, pedestrian trails are typically identified by their pervious surfaces and typically do not parallel a street or roadway; rather, they typically traverse open space areas to offer a more natural experience and opportunity for recreation. These pedestrian trails also connect their users to natural and scenic points on the Peninsula that can only be reached on foot due to topographic and/or environmental sensitivities that make them inaccessible by motorized vehicles or other means.

Pedestrian trails are an important part of a balanced transportation network; however, the primary function of pedestrian trails is to fulfill a recreational need.

Equestrian Trails

Since the time of the earliest settlers, the horse has been a part of life on the Peninsula. First used primarily for utilitarian purposes, such as basic transportation and aiding in farm activities, the function of the horse is now primarily recreational. With the change of functions have come changes in development pressures and public attitudes toward horses. Development pressures have taken significant amounts of land from the rural and semi-rural categories, which can best support equestrian activities, and attitudes now demand that equestrian activities take place only in certain locations.

Within the City, two general locations now support major concentrations of horses and limited equestrian trails: the eastern side of the City and the Portuguese Bend area. The equestrian trails in the Conceptual Trails Plan (City of Rancho Palos Verdes 1993) were identified to provide a designated linkage between these two areas, as well as to establish linkages to the extensive trail systems found in adjacent cities.

Trails Network Plan

The City's first General Plan identified broad deficiencies in the City's path and trail networks. A Bikeways Plan was adopted on March 4, 1974, that identified major transportation and recreation linkages. The City developed a comprehensive Trails Network Plan in 1984 to address pedestrian, bicycle, and equestrian trails. The Trails Network Plan uses policies established in the City's General Plan and Local Coastal Plan, with a major theme of a network that functions as a transportation system, linear recreation facility, and linkage between recreational, commercial, and educational activity areas. It is important to note that the purpose of the document was to serve as an advisory tool and guide for implementing and funding City and regional trails. Subsequently, the City adopted the Conceptual Bikeways Plan in 1990 (last revised on October 15, 1996) and adopted the Conceptual Trails Plan in 1990 (last revised on September 7, 1993). The Conceptual Trails Plan and the information contained in it, combined with the Conceptual Bikeways Plan, became known as the first section of the Trails Network Plan. Although the Conceptual Trails Plan was last updated in 1993, it has been augmented by additional documents. Thus, the current Trails Network Plan consists of the following documents:

- Conceptual Trails Plan (City of Rancho Palos Verdes 1993);
- Conceptual Bikeways Plan (City of Rancho Palos Verdes 1996);
- Preserve Trails Plan (City of Rancho Palos Verdes 2008); and
- Coast Vision Plan (City of Rancho Palos Verdes 2009).

An update to the Trails Network Plan is underway and will combine these documents into one comprehensive plan.

Conceptual Trails Plan

The purpose of the Conceptual Trails Plan was to identify trail opportunities within the community so that new trails could be integrated into the City's existing public trails network. The acquisition and development of new public trails would be achieved through new development proposals, public works projects, and voluntary efforts. However, it is important to note that the plan is conceptual, and that inclusion of any segment in the Conceptual Trails Plan does not legally grant the use of the trail by the public or in any way guarantee the segment's eventual implementation.

In August 2004, the City Council approved the Draft Natural Community Conservation Plan (NCCP)/Habitat Conservation Plan (HCP) subarea plan for final review and approval by the Wildlife Agencies. The City Council-approved NCCP/HCP subarea plan requires the City and the Palos Verdes Peninsula Land Conservancy develop a Public Use Master Plan (PUMP) document that identifies how public use of the Palos Verdes Nature Preserve (Preserve) should be managed. Specifically, the PUMP addresses issues such as public access, trailhead locations, parking, trail uses, fencing, signs, and other recreational related topics that may arise. As part of the PUMP preparation process, a Preserve Trails Plan (PTP) was adopted by the City Council in April 2008 that identifies the permitted trail routes and the permitted trail uses (pedestrian, equestrian, and bicycle) in the Preserve. The adoption of the Preserve Trails Plan augments the Conceptual Trails Plan, and future Trails Network Plan.

The Conceptual Trails Plan was further augmented with the 2009 adoption of the Coast Vision Plan. The Vision Plan includes components to establish a continuous coastal access trail linkage through the City's coastal zone, implementing the Conceptual Trails Plan, and layering amenities for trail users along the way in order to provide

access and connectivity for uses of the coastline by people on foot and on bicycles. The Vision Plan has been or will be incorporated into other City documents, such as the Parks Master Plan and future update to the Trails Network Plan.

In summary, the former-Vision Plan, the PUMP's Preserve Trails Plan, and the NCCP/HCP subarea plan establish a continuous coastal access trail linkage through the City's coastal zone and through the City's preserve properties. As such, the remaining portions not covered by these documents continue to be addressed through the Conceptual Trails Plan, and will continue to be used as a guide to identify and provide additional trail linkages throughout the City when the Trails Network Plan is updated.

Conceptual Bikeways Plan

The Conceptual Bikeways Plan identifies bikeway opportunities in the community to facilitate the acquisition and development of new bikeways through development proposals, public works projects, and voluntary efforts. This plan was developed for the purpose of furthering the goals and policies of the Circulation Element.

The bicycle is increasing in popularity as a mode of transportation for commuter travel as well as for recreation. For many years, roadways have been built exclusively to meet the needs of the motorized vehicle, resulting in street geometrics, lane widths, and intersections that have not been designed for bicyclists' concerns. Bicycle safety is jeopardized due to bicycle/automobile and bicycle/pedestrian confrontations on the street, and the lack of space given over to bicycle movement. Conflicts between bicycles, cars and trucks, and pedestrians at intersections and on sidewalks result in the need to separate these three modes wherever possible to provide a safer and more efficient operational environment for each.

For many years, bicycling has provided a popular form of recreation and transportation for limited segments of the population. Significant growth of the bicycling population has occurred over the past 10 years. Bikeways within the City are generally used for recreational purposes. A limited number of bicycle commuter trips occur in the City due to the ratio of jobs to population. As is the case for many cities throughout the nation, the number of bicycle commuter trips is expected to grow with the growth in population. However, the number of bicycle commuter trips will likely remain insignificant in the City, except for the commercial corridor on Western Avenue. The land use, topography, and demographic makeup of the Peninsula are not conducive to extensive bicycle commuting activities.

Usage of the bikeways in the City increases significantly during early evening hours, during the summer months, and on weekends and holidays due to the picturesque nature of the Peninsula and the views to be enjoyed while using the various bikeways. Several of the bikeways can be categorized as semi-regional in nature because riders from beyond the Peninsula either ride or drive here expressly to ride along the bikeways and streets.

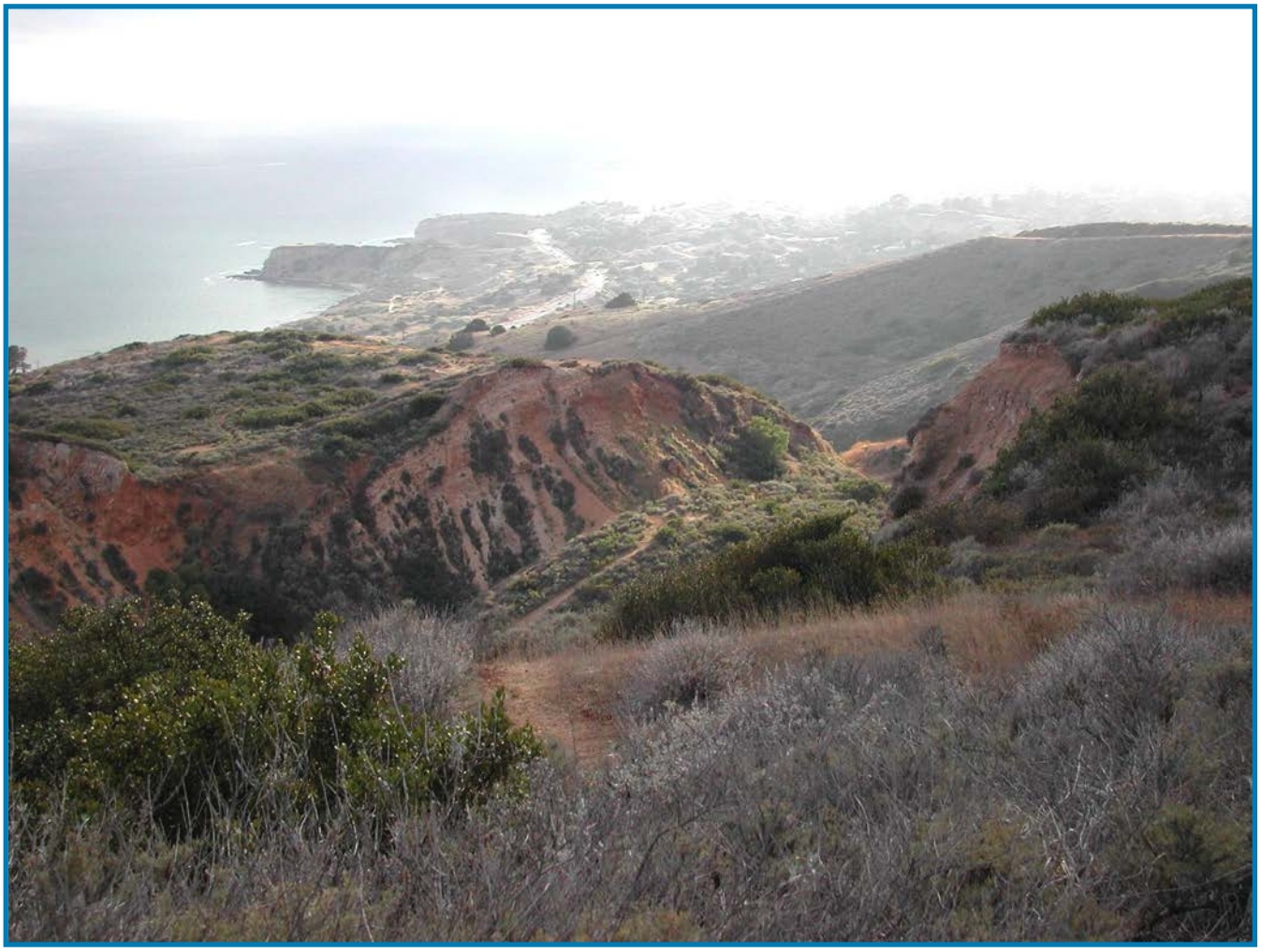
The Conceptual Bikeways Plan calls for considering the implementation or improvement of all non-existing and existing but substandard bikeways contained in the plan in the course of scheduled street improvements, consistent with the goals and policies of the Circulation Element.

With the adoption and implementation of the Vision Plan, the PUMP and its Preserve Trails Plan, and the Conceptual Trails Plan, there is a need to update the Conceptual Bikeways Plan as part of the Trails Network Plan update. The update must analyze and identify opportunities to provide connections and linkages from the bikeway network to the multi-use trails identified in the former-Vision Plan and the PUMP.

Future Planning Efforts

As mentioned above, the Trails Network Plan consists of a combination of a variety of individual documents. However, the Conceptual Trails Plan and the Conceptual Bikeways Plan portions of the City's current Trails Network Plan have not been updated since the early- to mid- 1990s. In recent years, the City Council has reviewed and

approved trails plans for subareas of the City, which have included the Palos Verdes Nature Preserve, the coastal zone, and adjoining areas, but there has been no comprehensive, City-wide update to the Trails Network Plan. As such, a comprehensive update and consolidation of the City's Conceptual Trails Plan, 1996 Conceptual Bikeways Plan, Vision Plan, and Preserve Trails Plan into a single comprehensive Trails Network Plan document launched in 2014 and is anticipated to be developed in 2018.



4 Infrastructure Systems

The existing infrastructure meet the current needs of the City. Various infrastructure functions, however, are not without problems and deficiencies. The deficiencies currently found in infrastructure functions are rarely of a common nature; therefore, they are discussed on an individual basis throughout this Infrastructure Systems section.

The Portuguese Bend slide area was found to be the major problem area regarding infrastructure function. All infrastructure networks, to some degree, use the slide area for right-of-way. Because the earth is constantly moving in that area, all networks are aboveground and most have had to incorporate special devices to allow for movement—for example, "slip span" in cables and "swing joints" in water lines. Additionally, in early 2000, a new combination above/belowground sewer system was completed for the Portuguese Bend area in order to minimize water percolation resulting from the septic systems that were common in the area.

The demands on the infrastructure system continue to grow and change over time. Communications infrastructure did not include mobile phone networks 20 years ago or broadband Internet services 5 years ago. The City is just now building a fiber-optic communications infrastructure to increase the available bandwidth by several orders of magnitude. The infrastructure system capacity will need to accommodate both increased resource usage due to technological advancements, as well as increased usage associated with buildout and population growth. The infrastructure system is constantly being maintained, modified, repaired, upgraded, and/or extended by the appropriate provider to meet demand. The ultimate buildout and population increase will not create a significant adverse impact on the infrastructure system because the population increase resulting from buildout will not be substantial. Further, requirements for new development to include best management practices and water- and energy-efficient components work to maintain and enhance the infrastructure system.

Notwithstanding, the following sections discuss in greater depth each of the infrastructure systems and the agencies and companies responsible for them. In addition, more specific information as to impacts, problems, and deficiencies is provided in these sections.

4.1 Resource Systems

Water

One of the most vital components in the infrastructure is the water distribution system. Water is used for varied purposes, which can be grouped into four basic categories:

- Safety requirements (firefighting)
- Human consumption (drinking, food preparation)
- Ground maintenance (landscaping)
- Urban activities (sewage)

The water needs of the City and the remainder of the Palos Verdes Peninsula are currently served by the California Water Service Company (Cal Water). Operating within the regulations and standards of the California Public Utilities Commission, the sole function of Cal Water is to provide and operate a range of regulated and non-regulated water and wastewater utility services to residents of the City, other companies, municipalities, and agencies. Cal Water purchases surface water imported by the Metropolitan Water District of Southern California from the Colorado River and the State Water Project in Northern California, which is then used to serve the entire Peninsula, including the City, through the Palos Verdes water system.

The Palos Verdes water system includes 350 miles of pipeline, 18 storage tanks, and 31 booster pumps spanning an area of approximately 26 square miles and ranging in elevation from sea level to 1,465 feet above average sea level. Due to the range of elevation, the water system is also composed of 109 pressure zones and hundreds of pressure-reducing valves, which carry water from tanks in the upper elevations of the system to lower zones. Cal Water proactively maintains and upgrades its facilities to ensure a reliable, high-quality supply of water.

The Palos Verdes water system distributes water through two distinct water distribution systems. These systems are commonly referred to as the "D-500 System" and the "Ridge System." The D-500 System serves the lower-elevation areas of the Peninsula, about 13% of the total demand, and the Ridge System serves the upper-elevation areas, comprising the remaining 87% of demand. The average daily demand and maximum daily demand of the Ridge and D-500 Systems combined is 12,500 gallons per minute (gpm) and 20,600 gpm, respectively. All of the supply to the Palos Verdes system is delivered through four connections located at the northeastern edge of the Peninsula.

Cal Water is planning the construction of additional transmission pipelines, storage, and boosting facilities in its Palos Verdes District under two proposed projects, collectively known as the Palos Verdes Peninsula Water Reliability Project. This effort will increase storage capacity, enhance reliability, improve fire protection, increase operational flexibility and efficiency, improve access to facilities, and reduce the risk of loss and damage in the event of an emergency. The pipelines associated with the Palos Verdes Peninsula Water Reliability Project have already been realigned to address public concerns associated with traffic impacts. This project is pending the support of the public and approval of the Peninsula cities and California Public Utilities Commission, with construction anticipated in 2018.

Additionally, Cal Water released a draft conservation master plan to expand existing conservation programs and develop new programs in the Palos Verdes District to comply with the recently adopted state policy (Senate Bill No. 7) that requires a statewide 20% reduction in per capita urban water use by 2020. Conservation will not only aid in meeting increased demand, but will also help the Palos Verdes District reduce its purchases of imported water, resulting in decreased costs. Cal Water is planning to regularly review the new conservation master plan; make adjustments as appropriate; and implement, monitor, and update activities to ensure goal achievement.

Further, in an effort to continue conserving water, in 2010 the City adopted an ordinance in accordance with the Water Conservation in Landscaping Act. The purpose of the ordinance is to achieve the following:

- Promote the values and benefits of landscaping while recognizing the need to invest water and other resources as efficiently as possible.
- Establish a structure for planning, designing, installing, maintaining, and managing water-efficient landscapes in new residential or commercial development projects and when landscape areas are altered by more than 50% in total area.
- Promote water management practices and water waste prevention for existing landscapes.
- Use water efficiently by setting a maximum applied water allowance as an upper limit for water use and reducing water use to the lowest practical amount.

Energy

Energy systems provide the power necessary to operate and maintain our way of life. The City of Rancho Palos Verdes, like most of Southern California, relies on a dual energy system. Electricity and natural gas are the two primary sources of energy for the average City customer. Many of the functions of natural gas and electricity are interchangeable. That is, natural gas and electricity can both be used for cooking appliances, house heating, and other energy needs. Natural gas and electricity systems are individually summarized in the paragraphs that follow.

Natural Gas. Southern California Gas Company (SoCalGas) is a regulated subsidiary of Sempra Energy that furnishes natural gas to the Peninsula. Although part of the larger SoCalGas system, the City is also included in two SoCalGas distribution sections, which function principally as sub-administrative districts and are responsible for all lines and service systems that feed from transmission lines to the point of delivery.

The natural gas distribution system consists of resource facilities and networks. Resource facilities include natural gas processing and transmission facilities that are located outside the Peninsula area. Natural gas networks, on the other hand, consist of the physical infrastructure in place in the City that is used to deliver natural gas to the residents of the City; in many cases, the natural gas network parallels water and electric networks. The gas network is composed of distribution lines (supply lines, headers, and mains) and regulating stations.

Discussions with representatives of SoCalGas indicate that all gas lines are potentially dangerous if broken or severely damaged. Thus, the distribution network in the Portuguese Bend slide area is of critical concern. However, most lines are aboveground to facilitate constant inspection and periodic maintenance. Otherwise, no areas of significant deficiencies were found within the City.

SoCalGas uses an integrated grid system for much the same reason that the Cal Water area does—to preserve uniform flow and efficient service capabilities during maintenance or emergency. Natural gas is pumped, under high pressure, from the resource facility through transmission lines (none of which are in the City) to the distribution network that supplies City customers.

The facilities that supply and distribute natural gas to City customers meet the current demand. Further expansion of the natural gas infrastructure will be wholly determined by future growth patterns; however, future growth would come from buildout of the remaining vacant developable parcels in the City. Because the infrastructure is already in place, buildout would not present a significant impact to the natural gas network. The impact from growth is further reduced by rebates, incentives, and training programs offered by SoCalGas to help residents save energy and money in existing homes and in new construction. Rebates are offered for energy-efficient appliances or upgrades, such as Energy Star-rated natural gas storage water heaters and tankless water heaters; low-flow showerheads; and installation of attic and wall insulation. There are also low-cost/no-cost methods to lower gas bills and conserve energy by cleaning and adjusting equipment, performing routine maintenance, repairing leaky or disconnected ducts, caulking cracks, proper setting of thermostats, closing curtains during colder times to retain heat, and turning off unnecessary lights. Solar hot water heating decreases or eliminates the use of natural gas, which can be one of the largest residential uses of natural gas. Electrical heat pumps, when installed as part of a new HVAC system, may further replace natural gas.

Although these methods help conserve energy and costs, further research is needed to prevent the ultimate depletion of natural gas. As such, SoCalGas invests over $7 million each year on research, development, and demonstration of new and emerging clean, energy-efficient technologies.

Electricity. Electric power is the other half of the dual energy system currently used in this general area. Southern California Edison (SCE) supplies all electrical power to the City and the remainder of the Peninsula. As with other resource infrastructure agencies, SCE is required to operate within the regulations and standards of the California Public Utilities Commission.

The electrical infrastructure is composed of resource facilities and a distribution network. The City is currently served by three resource facilities, two of which are located in the City. The power distribution network consists of major source lines that run from power-generating resource facilities to local substations and the lesser transmission lines, which in turn deliver power to customers in a usable state. The electrical power distribution infrastructure in the City is designed as an integrated grid system, principally for ease of maintenance and uniform current flow.

At the present time, the City's electrical power needs are being adequately met by SCE. The only problem area associated with the electrical component of the City's infrastructure exists in the Portuguese Bend slide area, because facilities in this area may be susceptible to damage from earth movements. Otherwise, no significant electrical deficiencies exist in the City.

Although the impact of the electrical infrastructure on the City environment is considered to be small, overhead transmission lines, transformers, and associated poles do pose significant adverse visual impacts and potential safety hazards. Overhead wires and associated hardware have caused brush fires and are vulnerable to damage caused by natural conditions (such as high winds, lightning, and tree growth) and human-caused conditions (such as automobile accidents), creating power outages and, in some cases, safety hazards if severed or broken. In addition, overhead wires are an unsightly appendage of a necessary infrastructure component, and cause considerable disturbance to views. SCE is making efforts to minimize these impacts by undergrounding most new distribution networks, when economically and physically feasible. Additionally, the City's Development Code requires that all utility lines installed to serve new construction and significant remodels be placed underground from an existing power pole or other point of connection. Limitations do exist in respect to undergrounding utility lines; however, the distribution lines can be and are being undergrounded.

SCE is the nation's largest purchaser of renewable energy from wind, solar, biomass, geothermal, and small hydrogen suppliers. Renewable energy from these sources makes up approximately 17% of the power delivered to SCE's customers. SCE has begun construction of the nation's largest wind transmission project, and when completed, this project will be capable of delivering additional electricity from wind energy facilities and other renewable energy companies. SCE has sufficient contracts in place to meet 20% or more of its customers' energy need with renewable energy, when delivered. In addition, SCE is investing in grid technologies to enable the delivery of more renewable energy into the electricity supply, to provide customers more power to control their energy use and costs, and to help prevent large-scale power outages. The process of developing the smart grid will likely take more than 20 years, with key milestones along the way. Continuous research and resulting advances in technology will help conserve more energy and prevent depletion of a valuable resource. If the annual growth rate remains similar to the previous years, SCE will be able to meet this projected demand because it is continuously upgrading and researching methods to preserve and provide more energy to meet the future needs of the City.

The City also provides expedited ministerial approval for solar panels, which is a growing part of the electrical infrastructure. Increased use of solar panels decreases the dependence on SCE, especially during the summer.

4.2 Disposal and Recovery Systems

Sanitation

The sanitation component of the infrastructure is divided into two basic groups: sewer systems and solid waste systems. Each sanitation component is composed of a system of networks that function as collecting agents and recovery facilities, which store, treat, and dispose of waste.

Sewer Systems: The City owns the sewage collection system; however, maintenance of the system is a joint effort between the City and the County of Los Angeles (County). The Abalone Cove sewer system is the only system that is currently owned, operated, and maintained by the City.

The County Sanitation Districts (Districts) operate 10 water reclamation plants and one ocean discharge facility (Joint Water Pollution Control Plant), which treat approximately 510 million gallons per day (mgd), 200 mgd of which are available for reuse. The Joint Water Pollution Control Plant is located in Carson, California. The Joint Water Pollution Control Plant is one of the largest wastewater treatment plants in the world and is the largest of the Districts' wastewater treatment plans. This facility provides both primary and secondary treatment for

approximately 300 mgd of wastewater. This plant serves a population of approximately 3.5 million people throughout the County, including the City of Rancho Palos Verdes. Prior to discharge, the treated wastewater is disinfected with hypochlorite and sent to the Pacific Ocean through a network of outfalls. These outfalls extend 2 miles off the Peninsula to a depth of 200 feet.

The Districts have prepared a facilities plan to meet the wastewater management needs of the Districts' Joint Outfall System (JOS). The plan, known as the JOS 2010 Master Facilities Plan (2010 Plan), addresses the need to upgrade the level of treatment of all JOS flows to full secondary treatment pursuant to a Consent Decree negotiated between the Districts, the United States, the State of California, and other parties. The 2010 Plan also addresses the need to expand wastewater treatment plants to accommodate projected growth in the JOS service area through 2010 and to provide for bio-solids management and water reuse opportunities.

Citywide Sewer System: The County collects a fee from property owners in the City for the maintenance and repair of the sewer system. With the exception of Abalone Cove, since incorporation, the County has maintained the sewer system in the City. The maintenance and repair responsibilities for the Abalone Cove area are borne by the City. Maintenance and repair activities that the County Department of Public Works, Consolidated Sewer Maintenance District, performs include video inspections, line cleaning, repairing structurally deficient segments of pipe, unplugging blockages, and cleaning up after overflows. The County also performs visual inspections on each manhole in the City at least once per year. This work is funded with an annual contribution from each parcel connected to the City's sewer system. Although the City owns the sewer collection system, the County Department of Public Works is responsible for the continuing operations of sewer collection system and for identifying and correcting pipeline capacity-related problems found in the system.

There are approximately 790,000 linear feet of wastewater conveyance pipelines, 17 primary lift stations, 44 grinder pumps (all part of the Abalone Cove sewer system), and approximately 3,707 manholes in the City. The gravity pipe ranges in size from 8 inches to 15 inches in diameter.

The collection system also consists of privately owned laterals that extend from individual private properties to the City-owned collection system located in the street, right-of-way, or easements. Private property owners, with the exception of the Abalone Cove landslide area, are responsible for the operations and maintenance of their individual service laterals.

Abalone Cove Sewer System: The Abalone Cove Sewer System is currently owned, operated, and maintained by the City. Because the City is responsible for all aspects of operating and maintaining this system, the County collects a fee from property owners, then reimburses a part of the fee to the City.

The Abalone Cove Sewer System consists of 44 grinder pumps, with 14 of them each serving one parcel, and three duplex grinder pumps serving two or more residences. The three duplex grinder pumps are located on Abalone Cove Shoreline Park, off West Pomegranate Drive, and off Vanderlip Road. The system was installed in 2001 to replace septic systems in the landslide area. There are 130 manholes, one diversion structure, approximately 19,000 linear feet of gravity pipeline, 19,615 linear feet of low-pressure pipe, and 2,505 linear feet of force main. The low-pressure sewer pipelines in the Abalone Cove area range from 1.25 inches to 4 inches in diameter.

Existing Conditions: The majority of the system (over 73%) is now more than 40 years old and made of vitrified clay pipe (VCP). The average design life for VCP is generally accepted as 50 years. This leaves the remaining design service life for most of the system at less than 10 years. The lateral pipes are made of metal and are almost at capacity. As a result, there will most likely be an increasing trend in pipe structural failures with time.

Sewer System Master Plan: The City prepared a Sewer System Master Plan in 2003 that includes capacity analysis, maintenance schedules, and capital improvement plans. The Sewer System Master Plan was updated in

2004 (City of Rancho Palos Verdes 2004) to comply with Los Angeles Regional Water Quality Control Board requirements. The information contained in that update was used to develop the City's Sewer System Management Plan, which was adopted by City Council action on July 21, 2009 (City of Rancho Palos Verdes 2009b). The capacity analysis that was performed on the system revealed eight pipe segments throughout the City that require additional capacity to minimize the likelihood of sanitary sewer overflows.

The Abalone Cove system is relatively new, but as the system continues to age, additional maintenance work will be needed. Funding for maintenance of the Abalone Cove Sewer System is currently from a user fee in addition to a City subsidy. The full operational costs associated with the system will be further evaluated.

The collection system has been thoroughly reevaluated through a combination of physical inspection, data analysis, and computer modeling. Three primary needs have been identified, which are related to (1) the physical condition of the system, (2) special considerations for the Abalone Cove Sewer System, and (3) hydraulic capacity projects.

The physical inspections revealed continued problems with the old, cracked pipes and root intrusion. These problems are currently being addressed through systematic rehabilitation by the County; however, it was recommended that the City encourage the County to expedite their activities, considering the physical condition of the entire system. This project anticipates the City performing half of the remaining inspection and cleaning of the system through specialty contractors.

The Abalone Cove area is in need of special attention to assure its improved funding and operations. As currently operated, there is uncertainty regarding the funding, planning, operations, and maintenance of the system. A special study was performed by Harris and Associates to identify the primary concerns and to address these issues by updating the separate Abalone Cove Sewer System element of the City's Sewer System Management Plan (Harris and Associates n.d.). The update will include the funding levels necessary for sustainability and the assignment of operational responsibility to the most equitable party.

The hydraulic capacity analysis, as performed through hydraulic modeling, revealed few areas in need of immediate attention. The areas flagged should be carefully watched and any improvements coordinated with other public works activities.

Ultimately, since the City has little developable land left, the future flow predictions will not increase significantly compared to the current flow. According to U.S. Census data, the City's population increased by approximately 1.9% between 2000 (41,643) and 2013 (42,448), resulting in a population figure that is similar to the City's population in 1990 (41,659). According to the U.S. Department of Finance, the City's population is predicted to increase to 44,893 in 2030, representing an increase of approximately 5.5% over the next 20 years. The population increase of 5.5% is considered minimal, that will result in a negligible increase in demand for such service.

Solid Waste

The collection of refuse in the City is a service that is carried out by two private companies. The City is divided into two service areas, where one company services the Portuguese Bend and the coastal zone areas, and another company services the remainder of the City. This component of the infrastructure is unlike others in that the companies charged with the collection of solid wastes act only as the medium, while the actual refuse collection network is the system of streets and highways, and the County landfill acts as the disposal facility. Simply stated, the refuse collection system involves the collection of solid waste from customers and the delivery of waste to the landfill, where it is disposed of.

Disposal of solid waste occurred at the Palos Verdes Landfill, which operated under permit by the Districts as a sanitary landfill from May 1957 through December 1980. Disposal to this site has since ceased, and solid waste

disposal now occurs at various landfills throughout Southern California that meet the needs of the City. Since the City's incorporation, due to increased environmental awareness and state laws that have mandated reductions in the amount of solid waste being diverted to landfills, recycling programs have been implemented. To facilitate recycling, residents are provided with containers for recyclable items (glass, aluminum, paper, etc.), for green/yard waste, and for all other refuse material. The City also helps to promote and encourage recycling by its residents with a monetary award through the Recyclers of the Month program.

With an environmental consciousness among its residents coupled with state mandates requiring reductions in the amount of refuse that is diverted to landfills, the limited potential future population increase in the City should pose no problems in relation to collection of refuse.

4.3 Flood Control and Storm Drain Systems

The flood control infrastructure is a system of channels and drains in selected locations that guide and control the flow of surface water that results from natural or man-caused factors.

The City is in the Los Angeles Flood Control District. The Flood Control District was established to provide flood protection, water conservation, recreation, and aesthetic enhancement within its boundaries and is the responsibility of the County Department of Public Works. The Watershed Management Division is the planning and policy arm of the Flood Control District. The County Department of Public Works Flood Maintenance and Water Resources Divisions, respectively, oversee its maintenance and operational efforts.

In 1998, a Master Plan of Drainage was developed and subsequently updated in 2004 (2004 Master Plan; County of Los Angeles 2004). In 2015, the City updated the Master Plan of Drainage acknowledging and taking into account the modifications and/or additions to the storm drain system that have occurred since publication of the 2004 Master Plan.. The updated Master Plan covers estimates to correct the deficiencies found in a citywide study of various pipes that make up the system. A 10-year spending program has been developed in order to address deficiencies in the storm drain system.

The impacts of existing and future flood control networks are mainly related to pollution and erosion at flood control/natural system interfaces and to visual quality. Pollutants that can enter the natural environment include petroleum products, fertilizers, pesticides, and other chemicals. These pollutants are generally washed from impervious surfaces, such as streets and driveways, through gutters, drains, and flood control channels into natural systems and eventually into the ocean, thereby causing damage to the ecosystem. Unfortunately, little can be done to alleviate this problem. Strict enforcement of litter and pollution regulations is the best control method at this time. Excessive erosion at the interface, on the other hand, can and should be controlled. This condition is caused when water that is being carried in a concrete channel is allowed to gain an unnatural velocity and then meets the comparatively soft and irregular conditions of the natural system, thereby creating excessive erosion. The techniques used to slow the water are relatively inexpensive and easily installed. Some of the most fundamental methods include digging a small horizontal ditch fairly close to the upper edge of the property to drain into a natural watercourse, onto street pavement, or to a well-vegetated area, or creating a water resistance system such as protruding rocks or buffers located immediately before the interface areas. Distributing straw or wood chips onto soil helps increase the organic content and is effective in holding the soil in place. Additional temporary flood protection on hillsides or slopes can be achieved by using inexpensive plastic sheeting, which should be overlapped like shingles and securely tied or weighted down so that the majority of the water does not reach the soil. Shrubs may be planted through the plastic sheeting and perennial grasses can be used for unstable soil areas.

The flood control/storm drain system is not a continuous system of networks that have a common origin; rather, it is a system composed of a discontinuous series of individual networks. Most of the City drainage facilities were constructed by the County Department of Public Works prior to incorporation of the City. There are a number of

facilities still owned and maintained by the County Department of Public Works. In 1998, the City completed a comprehensive Master Plan of Drainage, which was later updated in 2015.

Additionally, the City's largest project to date—the San Ramon Canyon Storm Drain Project, which involves the construction of significant drainage restoration work to stabilize Palos Verdes Drive East and Palos Verdes Drive South—was completed in 2014.

The fiscal impact of future flood control networks will be borne by the City. Methods that could be used to minimize cost include:

- Retention of natural watercourses, where practical;
- Planning for low densities in floodwater-generating areas and floodwater-impacted areas; and
- Coordination between communities and agencies that impact each other.

4.4 Communication Systems

The communication component of the City infrastructure system is a multifaceted and highly complex system of resource facilities and networks that aid in the support of our economy and lifestyle. Once considered no more than luxuries or convenience items, communication systems have developed into a very necessary function of our society. Communication systems disseminate news and information, relay personal and business messages, provide audio and visual entertainment, and are a crucial tool for transmitting and receiving emergency messages.

The communication systems were divided into two basic categories. The first category is cable transmission systems, in which the transmission network is an element of the physical infrastructure, for example, telephone and cable television systems. The second category is broadcast communications, which consists of those systems that primarily use the airwaves to transmit signals. This category includes radio, broadcast television, and microwave systems.

Cable Transmission Systems

Telephone/Wireless Telecommunication. The telephone is the most accessible and widely used communication system available to the public. The City is served by Verizon and AT&T for their landlines. However, individuals can contract their cell phones and laptops with any company of their choice and are not limited to Verizon and AT&T. Wireless companies are always improving the wireless communication in the City through the construction of cell towers. Both Verizon and AT&T are private utilities, and as such, must operate and set rates in accordance with the standards and regulations of the California Public Utilities Commission. Verizon services most areas of the City, while AT&T services the eastern portion of the City that was annexed in 1983. With the advancement of wireless telecommunication technology, carriers continue to update existing facilities and telecommunication antennas are installed primarily in the public right-of-way, and in some cases on private property.

The telephone system in the City consists of a network of transceivers (telephones), transmission lines, and switching centers. The configuration of the telephone communications network is defined as a modified linear system; that is, a major line to which all branches are directly attached. Verizon has one switching center in the City (5841 Crest Road), which allows connections to and from other telephone companies. Both Verizon and AT&T currently have the standard copper lines and the newer fiber-optic lines (FIOS (Verizon) or U-Verse (AT&T)) available to customers. Unlike the classic copper lines that only service landline telephones, FIOS/U-Verse allow a single strand of fiber to support high-speed Internet, video, and telephone.

The environmental impacts that result from the telephone networks are analogous to those experienced with the electrical power infrastructure. Because the systems most often use corresponding spaces, the impacts are the

same. As discussed previously, the key impacts are related to the use of overhead wires, which are visually unattractive and can be a safety hazard. Both Verizon and AT&T indicated that due to high costs, there are no plans to underground the existing utility lines. The fiscal impact of conventional telephone communication (maintenance, installation, and service costs) is absorbed by the customer, and rate increases will be subject to regulation by the California Public Utilities Commission.

Cable Television. Cable television is a system by which television is provided to consumers via radio frequency signals transmitted through fixed optical fibers or coaxial cables located on the subscriber's property. A majority of the cable television companies are also offering high-speed Internet, digital telephone, and similar non-television services. In the City, cable television is supplied by Verizon, AT&T, and Cox Communications. All three companies use fiber-optic lines to provide instant access to numerous television channels, high-speed Internet, and digital telephone for their customers. There is also satellite TV provided by companies such as DirectTV and DishNetwork, who can provide similar access to television channels. The difference is that with satellite TV, a satellite dish will need to be installed. The City cannot restrict the installation, maintenance, or use of antennas used to receive video programming per the Federal Communications Commission's Over-the-Air Reception Devices rule. The rule applies to video antennas, including direct-to-home satellite dishes that are less than 1 meter in diameter, TV antennas, and wireless cable antennas.

Broadcast Communications

Broadcast communications are those systems that have no wires or transmission lines, but rather transmit signals through the airwaves. Of the three primary broadcast systems, radio and television are by far the most popular, while microwave remains a more specialized communications medium.

Radio and television communication systems are operated by privately owned companies that supply free audio and audio/visual communication to people with appropriate receivers. These broadcast systems are used primarily for the dissemination of news, information, and entertainment. No transmission facilities exist in the City.

The County currently owns and operates a microwave station near the intersection of Highridge Road and Crestridge Road. The facility is a broadcast communication system designed to relay signals to and from the Rancho Palos Verdes area. The prime users of the facility are the County Fire and Sheriff Departments and other County agencies. The impact of broadcast systems in the City is considered to be relatively small and is related primarily to the adverse visual qualities of the microwave antennas, which can be mitigated through the use of landscaping techniques.

5 Military Airports and Ports

There are currently no airports or ports in the City designated for military purposes. However, the United States Coast Guard is located next to the Point Vicente Interpretive Center. The U.S. Coast Guard often utilize the coastal cliffs, Point Vicente Interpretative Center, and City Hall to conduct training exercises.

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V CONSERVATION AND OPEN SPACE ELEMENT

Adopted April 2018

Source: L., Ruth. 2008. “View from the trails above Rancho Palos Verdes.” Flickr. Accessed at https://flic.kr/p/4JeuBB.April 26, 2008.

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V Conservation and Open Space Element

The State of California requires both a Conservation Element and an Open Space Element to be included in every local government general plan. As many of the goals and policies of the City of Rancho Palos Verdes and the requirements of the State are related, these two elements have been joined into one element for this General Plan.

Open space is one of the prominent features that defines the character of Rancho Palos Verdes, and plays a large role in the City's residents' quality of life, and non-residents seek to visit. Conserving open space provides opportunities for public outdoor recreation, viewshed protection, and conservation of natural and biological resources, which provide a healthy ecosystem for vegetation and wildlife, flood and erosion control, protection of the public health and safety, buffering between incompatible land uses, and the enhancement of roads and public spaces.

The majority of Rancho Palos Verdes is developed with residential land uses; however, a significant amount of land is dedicated to open space uses, including parks, golf courses, trails, and a dedicated nature preserve. The City seeks to create a system that integrates parks, trails, natural habitats, and cultural resources into a series of networks for residents and visitors.

1 Goals

The goals of the Conservation and Open Space Element are as follows:

1. To conserve, protect, and enhance the City's natural resources; beauty; and open space for the benefit and enjoyment of its residents and the residents of the entire region. Future development shall recognize the sensitivity of the natural environment and be accomplished in such a manner as to maximize the protection of it.
2. To protect and preserve all significant archaeological, paleontological, and historical resources within the City.

The basis for this Element is the environmental capabilities inherent in the land of Rancho Palos Verdes. Land "capability" is an evaluation of the basic ecological and environmental units dealing with the natural factors of land, climate, hydrology, biotic resources, geotechnical factors, and the systematic relationships that must exist among them. This Element provides a discussion of each of these ecological and environmental units as it applies individually to Rancho Palos Verdes, then in appropriate classification combinations. Each of these combinations is classified into two categories: (1) preservation of natural resources and open space, and (2) public health and safety. These two categories are combined to develop the Conservation and Open Space Element, which becomes a guide for the City's natural environmental resource management policies.

This Element also focuses on cultural resources (paleontological, historical, and archeological resources) and their conservation. Finally, this Element includes an inventory of existing open spaces within the City that are beneficial to the City's residents and the residents of the entire region.

2 Policies

This section includes those policies that result from the analysis of data, goals, and recommended relationships between people and their use of the land resource, which have been the subject of this element of the General Plan.

2.1 Conservation

Public Health/Safety and Preservation of Natural Resources

1. Permit development within the Sea Cliff Erosion Area (Resource Management, RM 1) only if demonstrated, through detailed geologic analysis, that the design and setbacks are adequate to ensure public safety and to maintain physical, biologic, and scenic resources. Due to the sensitive nature of RM 1, this area is included as an integral part of the Coastal Specific Plan.
2. Allow only low-intensity activities within Resource Management Districts with extreme slopes (RM 2).
3. Require any development within the Resource Management Districts of high slopes (RM 3) and dormant landslide area (RM 5) to perform at least one, and preferably two, independent engineering studies concerning the geotechnical, soils, and other stability factors (including seismic considerations) affecting this site following established geological industry standards.
4. Require a more detailed definition of the limits and composition of any Resource Management District when reviewing any development proposal that contains one or more Resource Management District.
5. Develop and enforce a grading ordinance with detailed controls and performance standards to ensure both engineering standards and the appropriate topographic treatment of slopes based on recognized site planning and landscape architecture standards.
6. Prohibit activities that create excessive silt, pollutant runoff, increase canyon-wall erosion, or potential for landslide within Resource Management Districts containing hydrologic factors (RM 6).
7. In addition to the State-designated Abalone Cove Ecological Reserve, establish the rocky intertidal areas throughout the remainder of the City's coastline as marine reserves and enforce all regulations concerning marine resources (Resource Management District RM 7).
8. Require developments within or adjacent to wildlife habitats (RM 8) to describe the nature of the impact on the wildlife habitat and provide mitigation measures to fully offset the impact.
9. Require developments within Resource Management Districts containing natural vegetation (RM 9) to revegetate with appropriate native plants wherever possible when clearing of vegetation is required.
10. Stringently regulate irrigation, natural drainage, and other water-related considerations in new developments and existing uses affecting existing or potential slide areas.
11. Consider development exceptions in areas otherwise precluding development for health and safety reasons, only if the development can establish that it can overcome the conditions otherwise precluding development, and is otherwise compatible with the intent of the General Plan and the Specific Plan for the area.
12. Based on current information from state and federal agencies, the City should periodically publish a list of toxic chemicals such as fertilizers, insecticides, and herbicides that are determined to be damaging to the environment, with particular concern for the marine environment. This list should be distributed to all

applicants for business licenses in the City. Additionally, the City should make efforts (including brochures, pamphlets, website, and local community television) to continually inform and educate all residents and business operators about the impact of chemicals such as fertilizers, insecticides, and herbicides on the environment, and to encourage responsible use and disposal of such materials.

13. A Pest Management Plan should be encouraged to be included in Landscape Plans to avoid usage of toxic chemicals by proper plant selection, irrigation methods, establishing intervention thresholds, identifying and monitoring pests, and using prevention measures before resorting to control by using chemicals.
14. Maintain the existing natural vegetation of the City in its natural state in all existing and proposed developments, to the extent commensurate with good fire protection policies, and encourage the re-establishment of appropriate native plants, especially fire retardant natives such as saltbrush, near fuel modification setback areas.
15. Require a master landscape plan, with an Integrated Pest Management Plan, for any proposed development, demonstrating enhancement and protection of natural vegetation, selection of new complementing vegetation, and enhancement of environmental factors.

Natural Communities Conservation Plan/Habitat Conservation Plan

16. Implement the Rancho Palos Verdes NCCP/HCP.

General

17. Continue to implement the City's Natural Overlay Control District and its performance criteria.
18. Continue to implement the natural environment policies of the Coastal Specific Plan.
19. Collect baseline data for air and water quality to develop standards for evaluation of the impacts of current or proposed development in and adjacent to Rancho Palos Verdes.
20. Pursue the acquisition of rights over the offshore tidelands area related to the City's coastline. Develop proposals for grants and recognition as protected areas.
21. Encourage study of and funding to preserve native flora and fauna.

Habitat Protection

22. Work with neighboring jurisdictions to manage contiguous wildlife and habitat areas and recreational amenities such as trails.
23. Encourage the restoration of vegetation throughout the City to indigenous native plant species. Encourage use of locally native plant species in City landscaping.

Environmental Protection

24. Develop balanced programs to provide safe public access to the coastline consistent with protecting the environment.
25. Promote programs to encourage volunteer efforts to repair, protect, and improve the environment.
26. Make every effort to preserve or restore natural hydrology when projects impact canyons or other natural drainage areas when such efforts do not conflict with public safety.

27. Ensure the maximum preservation of the natural scenic character and topography of the City consistent with reasonable economic uses.

2.2 Cultural Resources

28. Seek funding for the identification, acquisition, preservation, and/or maintenance of historic places and archaeological, paleontological, and geological sites.
29. Encourage the identification and protection of archaeologically sensitive areas and sites, making such information available only to those individuals qualified under guidelines set forth by the Office of Historic Preservation.
30. Forward environmental impact reports to the California State University, Fullerton, South Central Coastal Information Center.
31. Preserve locations of archeological and paleontological significance on site where possible. Allow salvage excavation of the site where preservation cannot be implemented.
32. Attempt to acquire the Point Vicente Lighthouse property as an extension of Point Vicente Park.
33. Consider supporting the addition of appropriate historic sites in the City to the California Register of Historical Resources and National Register of Historic Places.
34. Require that any artifacts or material of interest that are uncovered as a result of a project requiring City permits be offered to the Point Vicente Interpretive Center for inclusion in its collection, as permitted by law. The Interpretive Center should work with regional entities to share items of particular significance.

2.3 Open Space and Recreational Resources

35. Provide access to all public recreational land.
36. Promote and/or sponsor recreation programs within the City.
37. Encourage local, public, non-profit recreational and cultural activities.
38. Seek Los Angeles County, state, federal, and private funds to acquire, improve, and maintain recreational lands.
39. Work through the state and federal government in support of legislation resulting in City acquisition of land.
40. Encourage land holders to contribute lands and/or easements to the City for conservation and/or recreational use, and encourage the City to accept such contributions.
41. Encourage institutions to provide public use of its recreation facilities.
42. Encourage building additional parks and playing fields, where appropriate, for multiple uses by various recreational groups.

3 Basic Ecological and Environmental Units

This section discusses the basic ecological and environmental units that deal with natural factors affecting the City. It is these factors and the relationship between them that serve as the basis within which the environmental resource management policies are developed. The "Biotic Resources" portion describes the significant ecologic habitats associated with the land-based natural vegetation communities and ocean-related resources along the immediate shoreline. The section on geotechnical factors consists of topographic conditions, geologic hazards, and mineral resources. Hydrology covers the natural and built water drainage patterns within the City and the factors affecting them, as well as their influence on other natural environment factors.

3.1 Topography

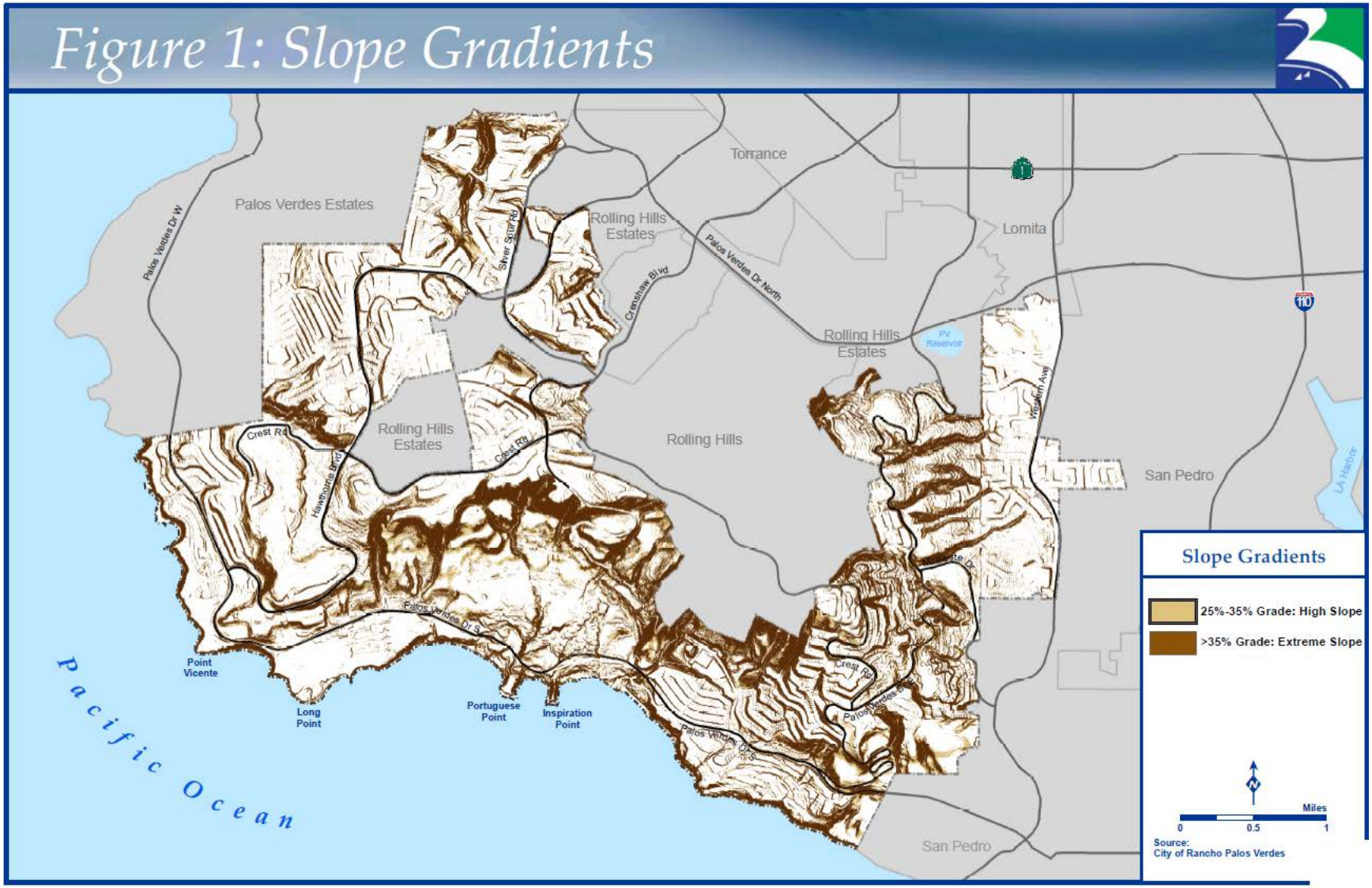
Development on the Palos Verdes Peninsula has taken advantage of natural plateaus, but, in some areas, steep slopes have created difficulties for access, utility service, and site improvements, resulting in constrained urban development. Within the City, 40% to 50% of all land area falls into the category of steep slopes (inclines of approximately 25% and greater), and the remainder is less than 25% in steepness (Figure 1, Slope Gradients). Slope is usually expressed by a percentage equal to the number of feet of rise per 100 feet of horizontal distance. Land with average slopes of 10% or less are considered to be flat to rolling, and are most easily and generally the first lands to be developed. This pattern of development is apparent in most areas of urban development. Lands of 10% to 25% topography are hilly, but construction on this type of terrain is relatively common. Slopes between 25% and 35% become steep, and costs of mass construction begin to increase substantially. Development within these areas is often associated with extensive adverse environmental impacts, and problems of access, maintenance, and appearance. Steeper slopes within this category are generally more suitable for custom house sites and more innovative design solutions. Slopes greater than 35% are considered extreme slopes, and development is not, under all but the most unusual and individual circumstances, economically feasible.

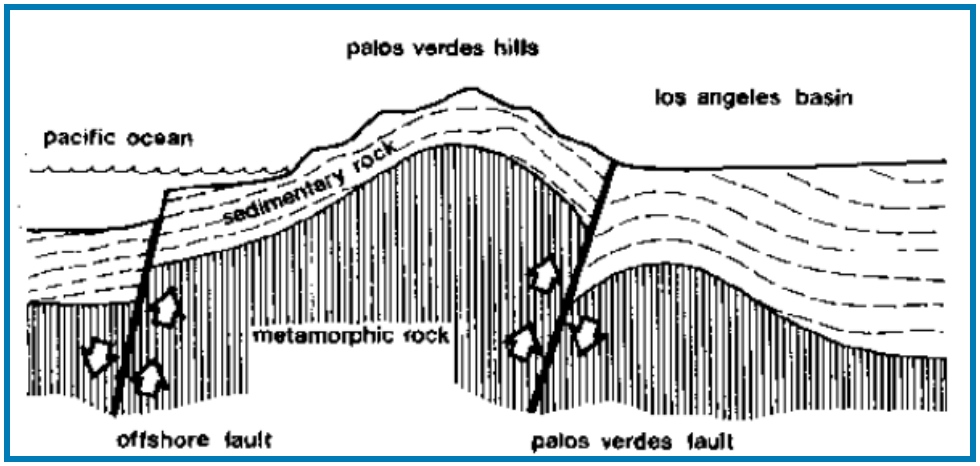
Rancho Palos Verdes is a hillside community with slopes ranging from 5% to more than 35%, and development across the hillsides is limited. As a result, the community is developed with larger properties that offer more open space. In addition, topography and geologic conditions (see below) have created opportunities to preserve open spaces for visual and/or public recreational resources.

3.2 Geologic Conditions & Geotechnical Factors

Geologic Conditions. The Palos Verdes Peninsula bedrock is composed of a metamorphic core blanketed by sequences of younger sedimentary rock. The structure is complicated by smaller-scale folding, and schist (rocks that split into layers) and sedimentary rocks have been intruded by irregular masses of basaltic volcanic rocks. This entire block has been uplifted by movement on two sub-parallel bounding faults, the Palos Verdes Fault on the northeast and the San Pedro Fault offshore on the southwest (see figure below). A series of 13 staircase marine terraces developed surrounding the Palos Verdes Peninsula during the late Pleistocene and Holocene geologic times (the last few hundred thousand years). The sandy marine terrace deposits and overlying deposits of landward origin now occupy some of these benches. The landscape in parts of this area has also been significantly modified by the movement of massive landslides during the time between the formation of the oldest terraces and the present.

Figure 1: Slope Gradients





The schist, known as the Catalina Schist, crops out only in a small area on the north slope of the Peninsula. Basaltic rocks are exposed in several areas, and terrace deposits (although they underlie much greater areas than the two previously mentioned units) are present in only a small fraction of the total area and are relatively thin (a few tens of feet thick). By far the most widely exposed rocks and the most significant in terms of slope stability is the Miocene Monterey Formation.

The Monterey Formation is more than 2,000 feet thick on the Palos Verdes Peninsula. It has been divided into three members on the basis of rock type: the Altamira Shale, the Valmonte Diatomite (fossilized remains of diatoms, a type of hard-shelled algae), and the Malaga Mudstone (from oldest to youngest). Altamira Shale consists largely of thin-bedded sedimentary rocks formed by the deposition of successive layers of clay, along with numerous layers of tuff (volcanic ash) that have been largely altered to weak clays. Thick layers of volcanic ash deposited millions of years ago were compressed over time into bentonite. In the presence of water, bentonite becomes very slippery and has been a major contributing factor for landslides in Rancho Palos Verdes.

Rancho Palos Verdes is located in a seismically active area and is near several of the active and potentially active faults in Southern California. Active and potentially active faults within Southern California are those capable of producing seismic shaking that may cause damage to structures. There are two faults present on the Peninsula: the Palos Verdes and Cabrillo Faults. The Palos Verdes Fault is considered a source of significant earthquake hazard, and the Cabrillo Fault is a potentially moderate earthquake hazard. The hard rock substrata of the Peninsula Hills helps this area to be seismically safer than surrounding areas that have more soft sandy soils, subjecting them to ground acceleration due to liquefaction. Therefore, seismic influences are not a major factor in determining land use overall in Rancho Palos Verdes. However, it is still possible that renewed movement on some existing landslide areas could be triggered by strong seismic shaking; this would only occur if these areas are in a meta-stable condition before the earthquake.

Geotechnical Factors/Landslides. Landslides are influenced by rock type, the structure of the rock, the quantity of available water, and topographical conditions. Landslides occurred on the Peninsula during the Holocene Epoch and the Pleistocene Epoch, approximately 11,000 and up to 1.6 million years ago, respectively, along a fault that had a history of movement. The locations of these existing slides, some of which have horizontal dimensions of thousands of feet, are known from previous mapping (Vonder Linden and Jahns 1973).

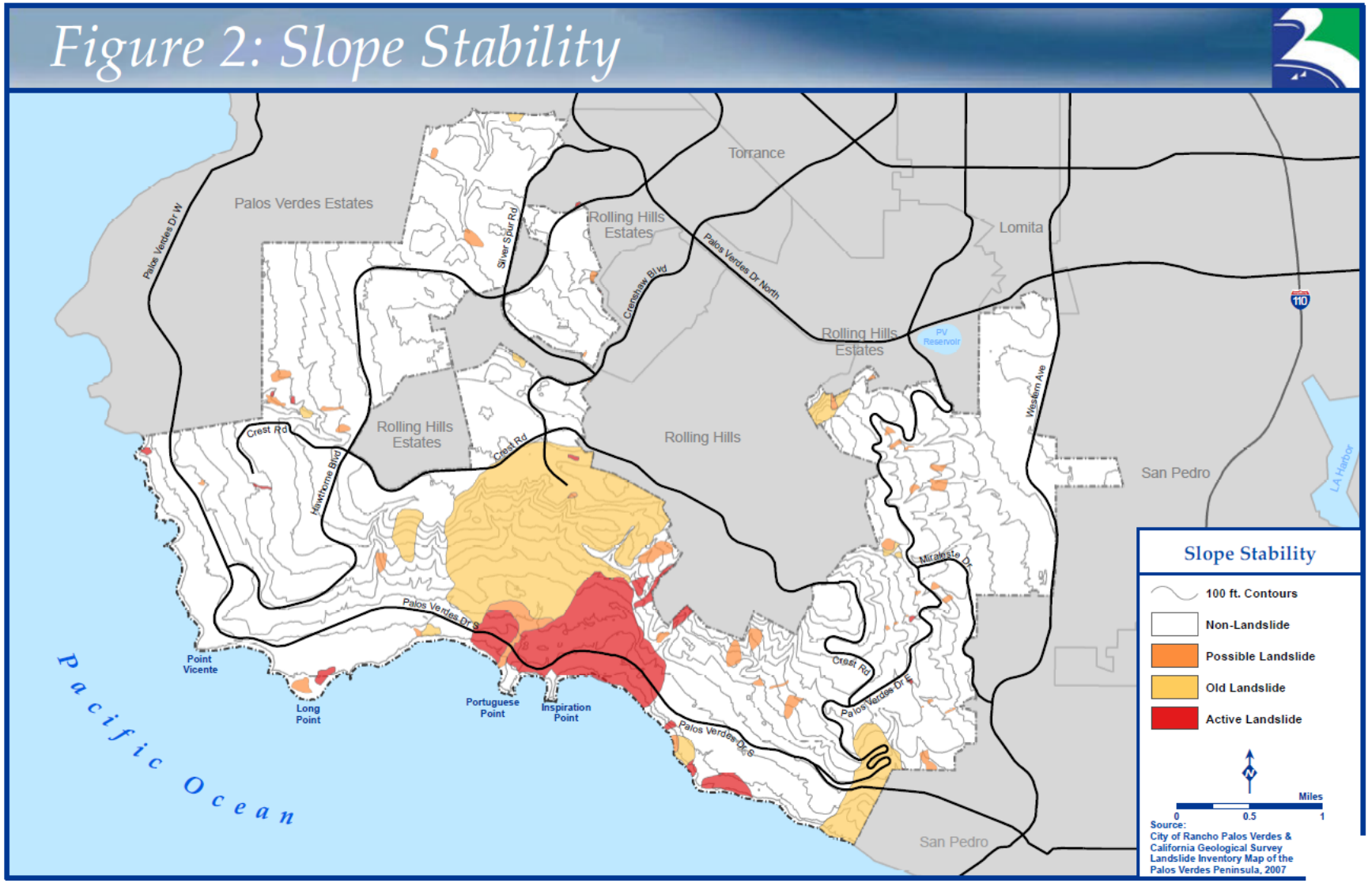
The Portuguese Bend landslide complex is the most studied and publicized landslide in the area, identified as a large complex that extends from the top of the ridge of the City to the ocean. The recently active portion of the Portuguese Bend landslide began in 1956 as a result of grading operations. Stability of portions of the landslide area has been in debate for many years, and other landslides, such as the South Shores landslide system, have been at equilibrium for some time. However, development activities, heavy rain, and erosion may change the existing conditions and lead to renewed failure of certain landslides that appear stable.

The following four categories of slope stability have been mapped, shown in Figure 2, Slope Stability: Active Landslide, Old Landslide, Possible Landslide, and Non-Landslide Areas. The four categories of slope stability were developed from the landslide mapping developed as a portion of the Geotechnical and Public Safety Report for Cities of Rancho Palos Verdes, Rolling Hills Estates, and Rolling Hills (Envicom Corporation 1975). Old Landslide Areas are presently in a metastable condition and could change to Active Landslide Areas with minor changes in the natural or human-caused environment, although some Older Landslide Areas are in a stable condition and could be suitable for residential development (subject to detailed geologic investigations) and human habitation. The significance of the slope stability categories in terms of land use planning are described below (interpretations by Kling Consulting Group 2015).

- **Active Landslide Areas.** Areas now undergoing downslope movement; extremely unstable ground not suitable for residential development. Possible use as passive recreational area, parks, or area of geologic interest, but unsuitable for construction of any new permanent structures, unless the movement is stopped by some natural or human-induced force.
- **Old Landslide Areas.** Areas determined by investigative techniques by a geologist to have had past movement and/or identified in the California Department of Conservation's landslide inventory maps that portray the location of prior failure. Landslide inventory maps show existing landslides and reveal the extent of past movement. These landslides have experienced downslope movement in the past but are no longer moving. Most of these areas would not be suitable for residential development without conclusive demonstration, through detailed geologic studies, that they are stable enough to accommodate both the activities of site preparation and long-term human habitation.
- **Possible Landslide Areas.** Areas suspected to be a landslide area on the basis of topographic evidence, indicating less confidence in the landslide's existence. Some of these areas may prove to be stable areas that have not experienced sliding at all, or are very ancient slide areas that are now fairly stable. Some of these areas may be suitable for residential development, but they would require detailed engineering geologic studies to show that they are stable enough for development and human occupancy.
- **Non-Landslide Areas.** Areas where no natural landslides have been identified. A wide range of existing and potential slope stability exists within this category, and new landslides could be triggered in some areas by human activities, such as excavation. Most of the areas, however, would not be subject to slope failure if development were carried out properly. Although there is less chance of slope instability in this area, geologic and soil engineering investigations will still be required for any proposed development.

As a consequence of these geologic conditions, existing and potential slope stability must be recognized as a prime consideration in determining land use within the City. Although some types of limited development may be possible within certain landslide areas, detailed geologic investigations are necessary to demonstrate the required degree of stability. Appropriate geologic investigations often precede certain developments in Non-Landslide areas of the City, as new ground failure could well be triggered by human activities.

Figure 2: Slope Stability



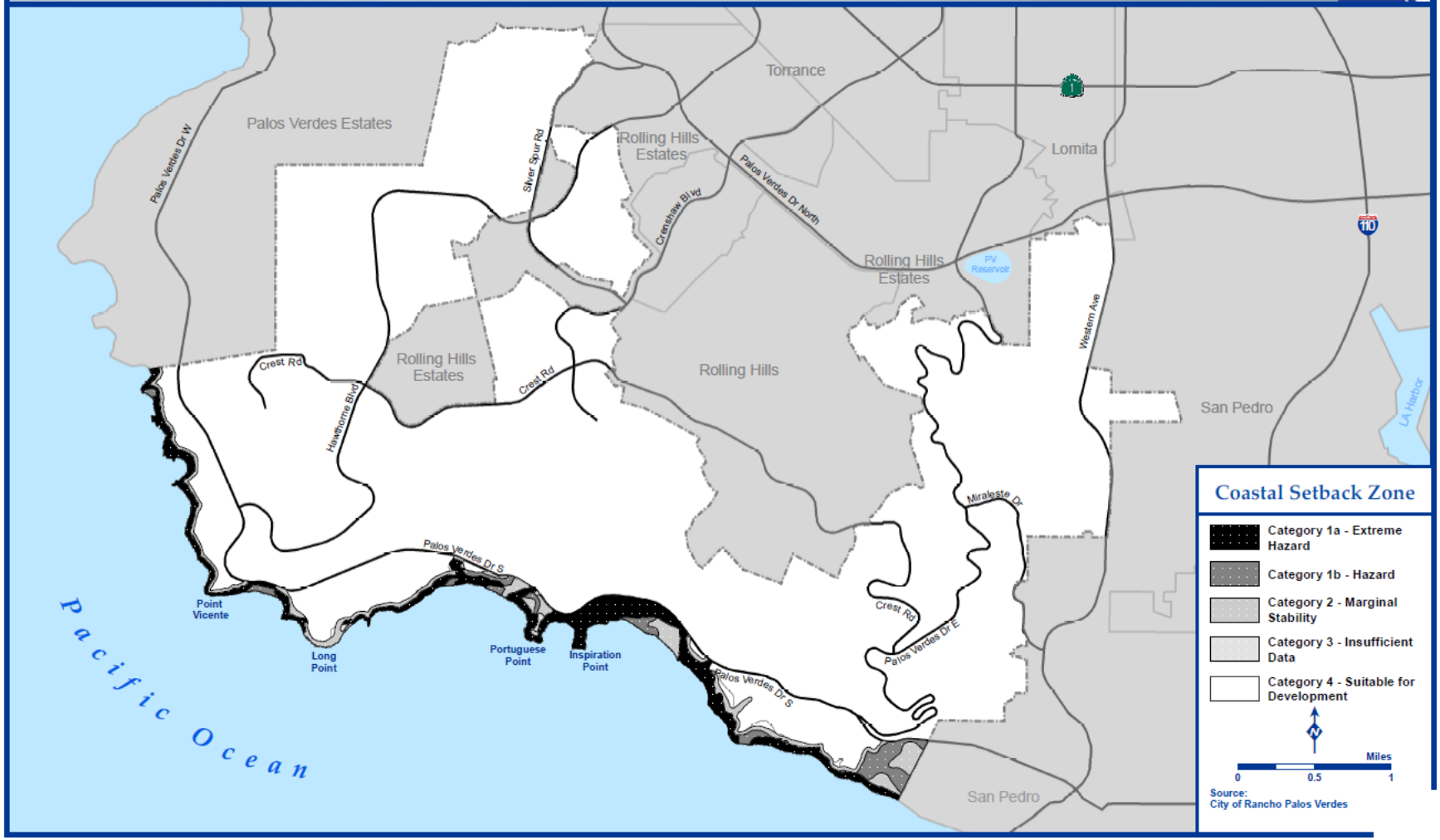
Coastal Setback Zone. The Palos Verdes Peninsula continues to exist as a jagged peninsular formation because the basaltic rocks underlying it are harder than the materials underlying adjacent reaches of coastline, and, hence, are more resistant to erosion by wave action. Sea cliff retreat rates in the City of Rancho Palos Verdes are probably somewhat less than the average rate of the California coastline, which is on the order of magnitude of 6 inches per year. As is the case in most stretches of coastline, a significant increment of the retreat activity takes place during heavy storms when the waves pound at the base of the sea cliff and remove material, which eventually results in a failure of a portion of the cliff. The portion of the cliff that fails may be only a thin sliver a few feet thick or may extend back from the cliff several tens of feet or more. Some of the large Rancho Palos Verdes landslide areas extending back from the cliff formations for thousands of feet may have originally been triggered by erosion at the base of the sea cliff in ancient times.

The City's 1975 General Plan indicated that the California Coastal Zone Conservation Commission (Preliminary Coastal Plan) had proposed a sea cliff hazard zone consisting of the area from the base of the cliff, extending inland to a point where a line formed by a 20-degree angle from the horizontal plane at the base of a cliff or bluff would extend out to the surface. However, subsequent to adoption of the 1975 General Plan, the City embarked on preparation of the City's Coastal Specific Plan, or Local Coastal Program (LCP). The LCP was originally certified by the California Coastal Commission with suggested modifications on January 22, 1980. The California Coastal Commission certified the resubmitted LCP on April 27, 1983, and the City assumed permit-issuing authority on August 1, 1983.

As part of that LCP, a Coastal Setback Line was established by the City in 1978, which is identified in the Coastal Specific Plan Land Use Map. The purpose of the Coastal Setback Line is to identify areas along the bluff top that have geologic concerns and to regulate development within these areas. As development proposals come forth, variances to the Coastal Setback Line have been permitted to allow development within the Coastal Setback Line areas, provided further geological studies warrant such variances. The Coastal Setback Line along the City's entire coastline was determined as a result of a comprehensive geologic study of the City's coastal zone to address possible slope erosion and other geologic concerns (Kling Consulting Group 2015).

The geologic study identified the following three significant geologic hazards within the City's coastal zone: coastal erosion, landslides, and erosion along intermittent stream channels. The combination of these geologic factors can impose significant restrictions on land-use patterns within the City's coastal zone. These geologic constraints are variable; some regions of the coastal zone are virtually free of geologic problems, and other areas are considered unsafe for practically any human activity. As a means of assessing the geologic constraints within the coastal zone for development purposes, the geologic study established a classification system based on the suitability for existing and anticipated land uses (Kling Consulting Group 2015). The category system, which was incorporated into the Coastal Specific Plan, has been historically used to determine land uses based on criteria that define the types of structures compatible with the terrain, limits on excavation and grading, and ease and safety of access.

Figure 3: Coastal Setback Zone



The five categories are briefly described as follows (Figure 3, Coastal Setback Zone):

- **Category 1a:** Areas unsuited for any permanent structures and potentially hazardous for human passage.
- **Category 1b:** Areas unsuited for any permanent structure but generally safe for human passage.
- **Category 2:** Areas suitable for light, non-residential structures not requiring significant excavation or grading.
- **Category 3:** Areas in which geologic information is not sufficiently detailed to establish suitability for construction purposes.
- **Category 4:** Areas that appear to be suitable for permanent tract-type residential structures and supporting facilities in light of existing geologic information.

On the basis of the available geologic information, the Coastal Setback Zone was established and includes all land within Category 1a, Category 1b, Category 2, and Category 3.

Notwithstanding the location of the Coastal Setback Line, development within the City's Coastal Zone requires detailed engineering/geologic studies to demonstrate site stability and suitability of development.

3.3 Mineral Resources

The City no longer has any mineral resources that are economically feasible for extraction.

The Palos Verdes Hills (two-thirds of which are within Rancho Palos Verdes) have three distinguishable subsurface components. These components of geologic time are the upper and lower Miocene, which date back approximately 25 million years, and the Jurassic, which dates back 180 million years. To give some reference to these dates, the Miocene epoch is when mammals such as dogs, cats, and horses began to acquire modern characteristics, and human-like apes appeared. The Jurassic period is that time in geologic history when the Sierra Nevada uplifted, and primitive birds appeared. Stratigraphy, in conjunction with subsurface geology, is significant when exploring for resources such as oil and gas. For instance, the Torrance oil field, in which stratigraphy is also characterized by upper and lower Miocene, has a subsurface geology in the sedimentary rock class. Sedimentary rocks are porous and capable of holding deposits such as oil and/or gas within their structure. For the most part, the subsurface geology of Rancho Palos Verdes consists of metamorphic rock with intruded igneous rock. These rock types are generally not known as sources for oil or gas. However, the area of Westmont Plaza on the east side of the City is underlain by large petroleum deposits that extend to Long Beach, Wilmington, and San Pedro (Woodring et al. 1946).

Resources Extracted Via Drilling. The first oil well was drilled by the Newton Development Company adjacent to what is now the Terranea Resort at Long Point. This well reached a depth of 4,500 feet. The stratigraphy of the well consisted of Miocene to 1,560 feet, turning into volcanic and finally hitting schist at 3,906 feet. Schist is any of a group of metamorphic rocks containing parallel layers of flaky minerals like mica. The significance of hitting schist is that the basement or bottom of the well has been reached. Like igneous rock, metamorphic rock, which is formed by heat and pressure, is a hard rock not known to house oil or gas deposits.

Three exploratory wells were drilled in what is now Rancho Palos Verdes. The Lesco Oil Corporation well was drilled in June 1947 just south of what is now 25th Street, and the McVicar well, in the vicinity of what is now the Trump National Golf Club, was drilled in 1951. All of these wells were drilled along the coast, where the Miocene layer is deepest. According to the logs filed with the State Division of Oil and Gas, nothing was found in these wells (Lande pers. comm. 1975).

Minerals Extracted by Quarrying. From 1948 to 1958, the land in Rancho Palos Verdes was quarried for basalt, diatomaceous earth, and Palos Verdes stone. The only valuable material known to exist in Rancho Palos Verdes that has not at one time or another been commercially extracted is basalt, which reportedly exists at the main branches of Agua Amarga Canyon.

Basalt is a light-weight volcanic rock that is used as a component in concrete and oil well cement, and locally as a dressing for secondary roads. The three recorded basalt quarries were just north of Forrestal Drive within the now Forrestal Reserve, a subarea of the Palos Verdes Nature Preserve, and just south of the Flying Triangle in Rolling Hills. These quarries were operated for nearly 10 years, closing their operation in 1958. The operation was run by Livingston and Graham Inc., and allegedly these quarries produced only basalt and not the decomposed granite, which appears on some early editions of the U.S. Geological Survey maps.

To the south of Westmont Plaza in the Eastview area at 29000 Western Avenue is the site of the old Hilltop Quarry. Calcium carbonate was mined at the quarry in the early 1900s. In 1946, the quarry was filled. Currently, no mineral resources are being extracted from the Eastview area.

There is some evidence that mining operations may have occurred in the Via Colinita area of Rancho Palos Verdes, probably basalt. In the early 1970s, the Los Angeles County Building and Safety Department received reported problems of some settling of homes in the area, which may have resulted from previous mining operations. Unlike oil and gas wells, mining and quarrying operations did not require permits from the State, making confirmation of these mining operations difficult, if not impossible, to substantiate.

Palos Verdes Hills housed the nation's third-largest diatomaceous earth quarry. This quarry was operated by Grefco, a subsidiary of Great Lakes Carbon. This quarry site later became the Palos Verdes Landfill, which was subsequently closed by the 1980s. The ground at the site became unstable in 1953, so the operation was moved to the Crestridge site in 1954, where it operated for almost 1 year. The Palos Verdes Landfill is now the site of the South Coast Botanic Garden in unincorporated Los Angeles County and the Ernie Howlett Park in the City of Rolling Hills Estates.

In 1972, core samples were taken on the Filiorum property just north of Narcissa in upper Portuguese Bend. The core samples, taken for a development project that was being considered at the time, appeared to contain almost pure diatomaceous earth but were not verified. Although this area has never been commercially quarried, the high probability of a diatomaceous earth deposit in this area should be noted as a mineral resource within Rancho Palos Verdes.

Diatomaceous earth is the principal substance in many filtering operations. Primary users of diatomite are the brewing industry, sugar processors, filters such as for swimming pools, and manufacturers of antibiotics. The material is also used as a filler in paper and plastics. Diatomaceous earth has more than 200 uses.

The material that occurs most commonly on the Peninsula and is most generally known is Palos Verdes stone. This is a sedimentary rock that occurs throughout Rancho Palos Verdes and the Peninsula. The stone, which is used in landscape architecture and as a decorative rock in home and office construction, is found close to the surface in sporadic locations throughout the City. Whenever subdivisions were being developed that required grading, Palos Verdes stone was often commercially exported from the construction site. Because of the sporadic nature and the shallow depth at which the stone occurs, it is not thought to be economically feasible to commercially mine Palos Verdes stone.

Considering the rather low market value of the various mineral resources in Rancho Palos Verdes relative to the land's value as residential and commercial real estate, it is highly unlikely that landowners would wish to use the

land for mining or quarrying operations. Given the community's goal of maintaining a rural atmosphere, conflicts that might arise relative to other desired land uses are not likely to occur.

Forestry. The City's predominant land uses are Residential and Open Space. The City maintains over 1,400 acres of open space, known as the Palos Verdes Nature Preserve, that have mature trees and lush vegetation.

3.4 Hydrology

Water systems are integral to all natural processes. Within the City, all surface water originates from precipitation falling directly on the land, and it is rare to find continuing stream systems. This is a result of the Peninsula being a single hill formation creating a drainage pattern that is dispersed via a number of small watershed systems. There are no major watershed systems that are totally confined within the boundaries of the City. All hydrologic systems within the City are affected by runoff from other jurisdictions or affect other downstream jurisdictions; this is an important consideration during the planning process.

The drainage pattern of Rancho Palos Verdes is divided by a central ridge causing runoff to flow in several directions (Figure 4, Hydrology). The majority of the runoff flows directly south into the ocean. This flow is primarily within the jurisdiction of Rancho Palos Verdes, with only a small portion of that flow originating within the City of Rolling Hills. Other runoff flows east through San Pedro, north through Rolling Hills and Rolling Hills Estates, or west through Palos Verdes Estates. All of this runoff eventually flows to the ocean.

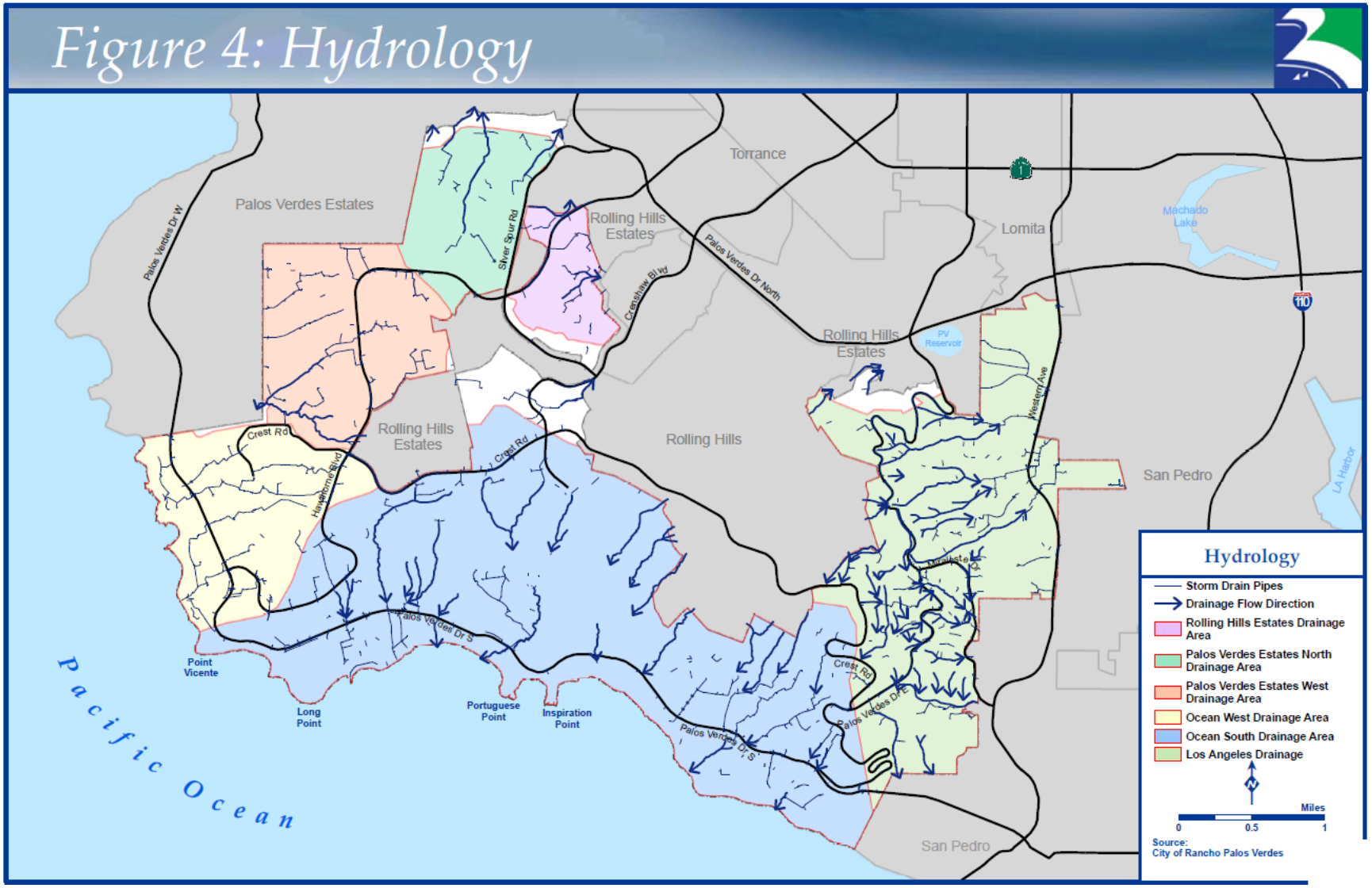
Erosion, sedimentation, and siltation are part of the natural drainage processes, and are necessary for the development and transportation of sediments for beaches and replenishment.

Little downcutting of drainage canyon bottoms around the City is currently taking place due to erosion because they are already essentially in bedrock. However, Lower San Ramon Canyon is experiencing scour, which is the lowering of the canyon bottom due to erosion (Kling Consulting Group 2015). The City continues to make efforts to mitigate this issue. Erosion, however, is taking place on the canyon walls where weak rock is located or slope wash exists; this material falls, slides, or is washed into the canyon bottoms and is transported out onto the beach during periods of heavy precipitation. Far more material is carried to the sea by movement of landslides, such as Portuguese Bend, than by stream erosion. Small amounts of material deposited on the beaches by runoff remain only until the next big storm, when it is then washed away by the larger waves and carried southeast by the longshore current. The coastal shelf around the Peninsula is primarily rocky, as most of the beach sand is transported to other areas along the coast.

Soils within the City tend to be rich in clay and have poor percolation characteristics. This results in high runoff. The amount of additional runoff from increased urbanization of areas adjacent to the canyons would be slight, due to these soil characteristics (Earth Sciences Associates). However, impermeable surfaces such as roads, parking lots, and buildings reduce the amount of land area that naturally absorbs moisture, thereby accelerating runoff and increasing the amount of contaminants flowing into storm drains and subsequently the ocean.

Surface flow runoff accumulates small amounts of petroleum residue, road dust, nutrients, and pesticides associated with urban development as it flows to the ocean, impacting the marine environment. Increased surface drainage also tends to erode canyon walls at higher rates, increasing sedimentation and siltation of tide pools, although a certain amount of erosion is necessary to replenish beach sand. Generally, management at the drainage courses by maintaining natural velocities enables percolation and filtration to occur, thus alleviating some of the pollution before it reaches the ocean. The high clay content of the soils in Rancho Palos Verdes, however, does not

Figure 4: Hydrology



enable high amounts of percolation to occur, but allows runoff to continue preventing the soil from becoming overly saturated and initiating landslides. This balanced system filters pollutants, replenishes beach sand, irrigates natural vegetation, and returns water back to the ocean, but can easily be upset by changes in drainage pattern and flow characteristics.

Excessive silt-ridden erosion and runoff laden with insecticide and fertilizer from agricultural and urban land uses can have detrimental effects on marine organisms. To control erosion, lessen excessive runoff, and allow greater ground absorption, National Pollutant Discharge Elimination System (NPDES) permits are required for specific projects if the project discharges could potentially enter surface waters. The program, created in 1972 under the Clean Water Act, is responsible for controlling and regulating point sources of discharge of pollutants to waters within California to maintain, protect, and restore the water quality of streams and other navigable waterways.

The City of Rancho Palos Verdes currently implements the NPDES program as a requirement for certain development. The NPDES process requires developers to incorporate Low-Impact Development (LID) standards to minimize the amount of runoff and exposure of water to pollutants such as trash, nutrients, oil and grease, copper, zinc, lead, cadmium, and bacteria. Developers must implement best management practices to mitigate potential pollutants. Applicable projects are not issued grading, demolition, or building permits unless approval of a NPDES plan is obtained. The City also has a landscape ordinance intended to save water and reduce the amount of runoff into the ocean. Furthermore, pest management plans integrated into landscape plans minimize harmful chemicals.

A number of existing channels and storm drains have been privately and publicly developed within the City. Most have been designed to the standards of the Los Angeles County Flood Control District and have been deeded to the Flood Control District. In 2005, residents approved a Storm Drain User Fee, which was established to provide funding for the City's Storm Drain Improvement and Maintenance Program to adequately maintain facilities. The Storm Drain User Fee assist in paying for construction projects, storm drain lining, maintenance, staffing, and engineering. In 2009, the City's McCarrell Canyon Storm Drain Project was awarded the 2009 Project of the Year in the "Facilities" category by the Southern California Chapter of the American Public Works Association. This project was one of the highest-priority planning goals for the City Council for the Water Quality and Flood Protection Program. The McCarrell Canyon project was paid for with General Fund reserves and the Storm Drain User Fee. It will likely be necessary to seek and secure other funding sources to continue water quality and storm drain programs because the user fee expired in June 2016. As urban development continues, private developers may be required to construct proper storm drain facilities to accommodate the impacts of their development projects.

3.5 Biotic Resources

The vegetation communities found in Rancho Palos Verdes are coastal sage scrub, southern cactus scrub, coastal bluff scrub, saltbush scrub, and some riparian woodland. Since the Peninsula was once an island, many of the plant types are closer to Catalina Island flora than to the chaparral found in the Santa Monica Mountains.

The urban development, ranching, and farming that has occurred on the Peninsula has degraded and/or eliminated many of the natural areas that are considered significant natural plant and habitat communities and that support wildlife. In addition to on-site clearing, native plant communities can be lost due to the fuel modification setback required by fire officials.

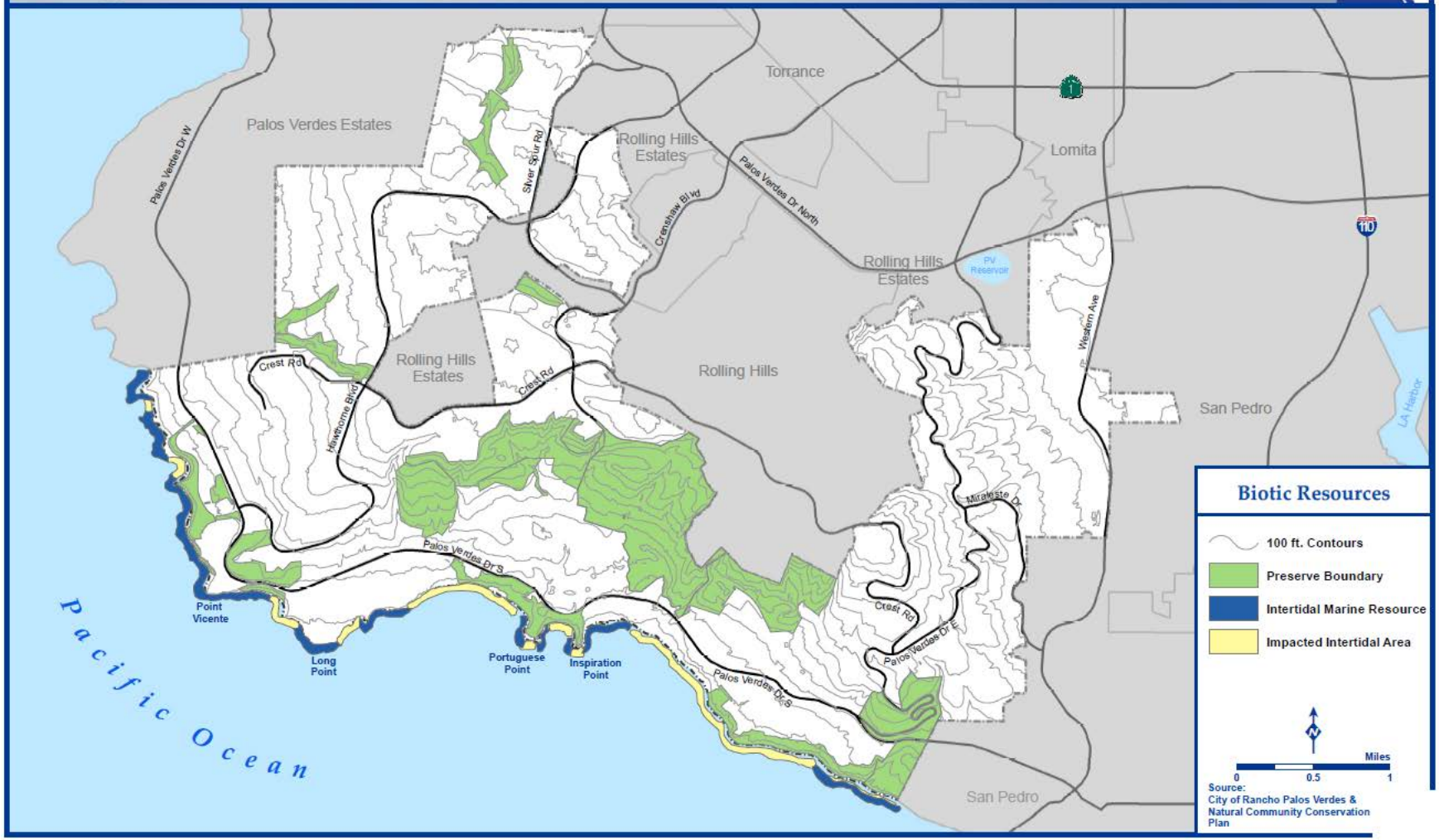
Natural Community Conservation Plan

In 1996, Rancho Palos Verdes entered into an agreement with the California Department of Fish and Game (now the California Department of Fish and Wildlife) and the U.S. Fish and Wildlife Service, collectively referred to as "Wildlife Agencies," to take the lead in the preparation of a Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP). The NCCP/HCP covers vegetation and wildlife species for the entire City, and also created a designated nature preserve, the Palos Verdes Nature Preserve to conserve and re-vegetate sensitive native habitats and provide adequate habitat linkages between patches of conserved lands. Through a partnership with the Palos Verdes Peninsula Land Conservancy (PVPLC), the City was able to acquire upward of 1,400 acres of land through public dedications of City-owned land, private donations of land, and formal land purchases. This partnership led efforts in the various forms of land acquisitions for the designated Preserve areas, and also provided necessary support for the design and implementation of the formal NCCP/HCP. Due to the amount of land acquired by the City and the desire to ensure that sensitive, native habitats are re-vegetated and conserved over time, the City also created a new General Plan land use designation: the Open Space Preserve land use designation. These Preserve areas are shown in Figure 5, Biotic Resources.

The City's NCCP/HCP provides for protection and management of wildlife and biological resources while allowing for compatible public use and appropriate development growth. The NCCP/HCP provides comprehensive management and conservation of multiple species, including species listed under the California Endangered Species Act and the federal Endangered Species Act of 1973. The City developed a landscape-scale database of biological resources and land-use information to allow the City and Wildlife Agencies to make informed land-use and conservation decisions for future projects. This database mapped vegetation community and sensitive species distributions, and potential habitat for sensitive species. The NCCP/HCP also provides measures for habitat restoration of disturbed areas within the Preserve, with a required minimum level of restoration and enhancement to be accomplished each year.

Vegetation Communities. Sensitive habitats within the City's NCCP/HCP area are those that are considered rare in the region; support sensitive species of plants and animals; and/or are subject to regulatory protection through various federal, state, or local policies or regulations. Habitats in the City include wetland habitat types (consisting primarily of riparian scrub) and upland scrub habitats. Grasslands are the first plant community to dominate an area after clearing, either by fire or human intervention. Although some native plants such as needle grass, broadleaf herbs, and wildflowers will fill in these cleared areas, much of the flora is made up of non-native Mediterranean annual grasses, fennel, or mustard. If patches of native grassland are identified, this habitat should be considered sensitive. Habitats dominated by non-native plant species (e.g., non-native grassland, exotic woodland, and disturbed vegetation) are generally not considered sensitive. However, non-native grassland is considered sensitive where it occurs in large, contiguous areas because it may provide vital foraging habitat for

Figure 5: Biotic Resources



raptors and support other sensitive plant and wildlife species. Smaller patches of non-native grassland that are contiguous with larger areas of open space are also important because they contribute to a habitat mosaic that can be used by sensitive species.

Approximately 8,612 acres of vegetation are within the NCCP/HCP area, including native habitats, non-native habitats, agricultural lands, disturbed areas, and developed lands. These communities are listed in Table 1 and further described in the City's NCCP/HCP.

Table 1
Vegetation Communities in the Natural Community Conservation Plan/
Habitat Conservation Plan Area

Vegetation Category	Preserve	Neutral Lands	Lands Outside Preserve/Neutral Lands	Grand Total
Agriculture	2.9	0.2	14.6	17.6
Cliff Face	7.4	1.3	0.0	8.8
Coastal Sage Scrub	582.2	354.6	89.8	1,026.8
Developed	51.8	967.6	4,964.9	5,984.5
Disturbed Vegetation	30.8	14.9	119.2	164.9
Exotic Woodland	37.5	14.5	23.5	75.4
Grassland	470.9	216.5	262.8	950.2
Riparian Scrub	2.3	0.1	0.2	2.5
Rocky Shore/Intertidal	7.3	39.3	12.1	58.8
Ruderal Habitat	54.5	9.8	22.7	86.9
Saltbrush Scrub	6.6	0.6	0.0	7.3
Southern Cactus Scrub	66.6	28.2	4.9	99.7
Southern Coastal Bluff Scrub	81.6	46.7	4.8	133.2
Grand Total	**1,402.4**	**1,694.3**	**5,519.6**	**8,616.6**

*Neutral Lands are not subject to NCCP/HCP management requirements.

Conservation of some non-native grasslands contributes to NCCP/HCP planning goals. Further, mitigation measures for potential impacts to non-native grasslands may be required for development projects.

Reserve Areas within the NCCP/HCP Area

A number of significant wildlife habitats in Rancho Palos Verdes are directly associated with vegetation communities. The City established the NCCP/HCP to preserve biodiversity within the City's boundaries while allowing for continued public use and economic development. The purpose of the Preserve is to identify properties where conservation will best achieve biological goals with the least detrimental effects on other land uses, property rights, economic goals, and public access. This approach involved examining opportunities and constraints, and incorporating biologically valuable lands into the Preserve. Within the NCCP/HCP area is a dedicated Preserve with specified 12 reserve areas. All of the 12 reserve areas are managed for the City by the Palos Verdes Peninsula Land Conservancy. These 12 reserve areas and their corresponding acreages are identified in Table 2.

TABLE 2
RESERVE AREAS* WITHIN THE NCCP/HCP PRESERVE

Reserve Areas	Acres
Abalone Cove Reserve**	65.2
Agua Amarga Reserve	61
Three Sisters Reserve	98.4
Vista Del Norte Reserve	16.8
Portuguese Bend Reserve	427.2
Vicente Bluffs Reserve	62.5
Forrestal Reserve	158
Ocean Trails Reserve	116.6
San Ramon Reserve	94.5
Alta Vicente Reserve	50.9
Filiorum Reserve	189.8
Malaga Canyon Reserve	61.5

Notes:

* Also referred to as Management Units

** The Abalone Cove Reserve is a terrestrial area regulated under NCCP guidelines within the City owned Abalone Cove Shoreline Park and is different from the marine Abalone Cove Ecological Reserve that is under State jurisdiction.

NCCP Sensitive Species. The City's NCCP/HCP is designed to maximize benefits to wildlife and vegetation communities while accommodating appropriate public use and economic development within the City, pursuant to the requirements of the NCCP Act (1991) and Section 10(a) of the Endangered Species Act. The NCCP/HCP is intended to provide for the comprehensive management and conservation of multiple species, including those species listed under the Endangered Species Act and identified in Table 3.

TABLE 3
SENSITIVE SPECIES LIST FOR THE NCCP/HCP

Common Name	Scientific Name	Status
Aphanisma	*Aphanisma blitoides*	CNPS List 1B
South Coast Saltscale	*Atriplex pacifica*	CNPS List 1B
Catalina Crossosoma	*Crossosoma californicum*	CNPS List 1B
Island Green Dudleya	*Dudleya virens* ssp. *insularis*	CNPS List 1B
Santa Catalina Island Desert-Thorn	*Lycium brevipes* var. *hassei*	CNPS List 1B
Woolly Seablite	*Suaeda taxifolia*	CNPS List 4
Palos Verdes Blue Butterfly	*Glaucopsyche lygdamus palosverdesensis*	FE
El Segundo Blue Butterfly	*Euphilotes battoides allyni*	FE
Coastal California Gnatcatcher	*Polioptila californica californica*	FT, NCCP Focal Species, SSC
Cactus Wren	*Campylorhynchus brunneicapillus*	NCCP Focal Species SSC

Notes:
NCCP = Natural Community Conservation Plan; HCP = Habitat Conservation Plan FT = federally threatened FE = federally endangered
SSC = Species of Special Concern CNPS List 1B = Plants, rare, threatened, or endangered in California and elsewhere
CNPS = California Native Plant Society CNPS List 4 = Plants of limited distribution – a watch list

The sensitive species identified in Table 3 can be found in various areas of the City. The first six flora species listed fall under sensitive vegetation found within the City. Aphanisma (*Aphanisma blitoides*) occurs in the City in coastal bluff scrub from Portuguese Point, along the coast to the Rancho Palos Verdes and San Pedro city limit. South coast saltscale (*Atriplex pacifica*) has been detected on Portuguese Point and along the coast between Halfway Point and Shoreline Park. Catalina crossosoma (*Crossosoma californicum*) has been detected on dry, rocky slopes and canyons in coastal sage scrub below 1,640 feet elevation. Island green dudleya (*Dudleya virens* ssp. *insularis*) is found mostly on the Pacific slope on sea bluffs and rocky headlands. Santa Catalina Island desert-thorn (*Lycium brevipes* var. *hassei*) was rediscovered on the Peninsula in 1976 and occurs on Portuguese Point within the City limits. Wooley seablite (*Suaeda taxifolia*) occurs along the Peninsula shoreline.

The last four sensitive fauna species listed in Table 3 are sensitive wildlife that have been found to thrive in the various vegetation communities within or near the City. Two populations of El Segundo blue butterfly (*Euphilotes battoides allyni*) were found during focused biological surveys conducted in 2006. One population was found just north of Point Vicente in a large patch of coast buckwheat (36 observed), and the other population was found southeast of Point Vicente at the Fisherman's access area (13 observed). Historically, Palos Verdes blue butterfly has been observed near the "switchback" area of Palos Verdes Drive East, within the landslide moratorium area, and in Agua Amarga Canyon. Federally designated critical habitat for Palos Verdes blue butterfly includes Fred Hesse Park, Agua Amarga Canyon, and the "switchback" area of Palos Verdes Drive East. Coastal California gnatcatcher habitat is coastal sage scrub vegetation. This habitat is protected and managed throughout the NCCP/HCP area and by the Endangered Species Act. The coastal population of cactus wren (*Campylorhynchus brunneicapillus*)

nests in southern cactus scrub habitat dominated by extensive stands of tall prickly pear or cholla cacti.

All sensitive species listed above are associated closely with scrub habitats on the Peninsula. These sensitive species are described in detail in the City's adopted NCCP/HCP.

3.6 Ocean Resources

The Palos Verdes Peninsula has long been recognized for its beautiful shoreline and rich, abundant marine life. The shoreline is used by sport and commercial fishermen, hikers, divers, beachcombers, and students studying coastal and marine habitats and species. This intense activity, combined with other forces from the heavily developed Los Angeles and Orange Counties, have affected the ocean environment surrounding the Peninsula. The thousands of species of marine organisms that currently inhabit the tide pools were once depleted to dangerously low numbers due to excessive use and under-management of the intertidal shoreline area. Some species were eliminated from the area and others faced the same threat.

The once nearly crystalline water quality has been degraded by a number of water pollution factors and the lack of particle-absorbing organisms in the marine environment. The kelp beds that surround the Peninsula, providing food and shelter for many varieties of sea life, were once reduced to a few patches of seaweed. In addition, recreational fishing has been adversely affected as a result of the contamination of off-shore sediments with deposits of chemical pesticides (e.g., DDT) that occurred in the 1950s through the 1970s.

Kelp Bed. Kelp beds (*Macrocystis pyrifera*) are forests that serve as sanctuaries, nurseries, habitats, and food sources for many species of marine organisms. Kelp is also a renewable natural resource that should be carefully managed and maintained. Kelp fronds have been known to grow as much as 2 feet per day, and eventually form a thick blanket covering the surface of the water. The biomass (i.e., the amount of living matter per unit area) of a kelp forest is greater than that of a temperate land forest (California Coastal Zone Conservation Commission 1974), and in ecological terms, may be 100 times more productive than the adjacent sand bottom (Southern California Association of Governments 1972). Kelp also exerts a flattening effect on wave surges, serving as a stabilizing mechanism against shoreline erosion, which is a significant factor for Rancho Palos Verdes. Although the Rancho Palos Verdes kelp beds are not used for commercial purposes, algin extracted from the kelp plant is used as a thickener and stabilizer in food and cosmetics; additives for medicines; and components in textile products, adhesives, acoustic tiles, ceramic glazes, leather finishes, automobile polish, toothpaste, beer, seasonings, and countless other products.

The shoreline of the Peninsula once flourished with dense kelp beds that disappeared during the 1970s. The ecologic sequence creating the decline of the kelp began with mass harvesting of the brown sea otter in the late 19th century. The sea urchin was the favorite food of the otter, and for many years the population of sea urchins remained in check as a result of the otters. Due to the demand for sea otter pelts, fur traders practically eliminated the population. This action, combined with water pollution from sewage discharge, resulted in an overpopulation of sea urchins.

Sea urchins are sea-bottom dwellers that feed on kelp holdfasts (root-like, anchoring structures that hold the plants in place), causing the entire kelp plant to become uprooted, wash ashore, and die. Prior to the increase in urchin population, the kelp was able to replenish itself as rapidly as it was depleted. As the sea urchin population increased, the replenishment process could not be maintained.

Another principal threat to the kelp beds off the Palos Verdes Peninsula was the discharge of wastewater from the Whites Point outfall on the Palos Verdes Shelf. The high volume of outfall contained a large quantity of suspended solids that most likely buried the hard bottom habitat. Other reasons for the decline may have included increased turbidity and reduced light penetration due to the discharge of total suspended solids, which may have prevented the growth of young kelp plants. Additionally, suspended solids may have also supported abnormally high densities of sea urchins.

From the mid-70s to 1997, improved wastewater treatment processes resulted in a significant reduction in the discharge of total suspended solids from the Whites Point outfall. That, along with kelp replanting efforts in the 1970s, resulted in a remarkable increase in the kelp canopy from a low of 5 acres in 1974 to a peak of more than 1,100 acres in 1989.

More recently, erosion and sedimentation have threatened the kelp beds off the Palos Verdes Peninsula. Since 1980, an active landslide at Portuguese Bend on the Palos Verdes Peninsula has supplied more than seven times the suspended solids as the Whites Point outfall (LACSD 1997). When that sediment is carried into the ocean by storm runoff and excessive erosion from the landslide areas, the potential for kelp bed decline is present.

The earliest efforts to re-establish kelp beds began in 1967 on the Palos Verdes Shelf. Initial efforts were met with little success, but efforts were re-initiated by the California Department of Fish and Wildlife in 1970 and continued through 1977. In 1974, the kelp beds off the Palos Verdes Peninsula began to show signs of recovery. During the 1980s, the kelp canopy dramatically increased. Once the beds were re-established, the California Department of Fish and Wildlife discontinued active restoration efforts.

In 1996, the environmental group Los Angeles Waterkeeper embarked on a kelp restoration project (the Kelp Project), again focused on the Palos Verdes Shelf. Giant kelp was successfully cultivated in a lab and transferred to the ocean. Since then, Los Angeles Waterkeeper has been monitoring and restoring the Palos Verdes area. In 2014, extensive surveys mapped out reef areas completely dominated by urchins. Based on this analysis, efforts have been made to clear urchins to densities found in healthy kelp forests. Once the urchin numbers are reduced, algae begins to grow on reefs, and kelp plants establish themselves. This is an ongoing kelp restoration effort by Los Angeles Waterkeeper.

Marine Life. The Rancho Palos Verdes shoreline has been a major activity area for commercial fishing of lobster, white sea bass, abalone, and crab, as well as various species of rock and kelp fish. All of these species were depleted to the point of endangerment. In addition, certain species of fish (e.g., white croaker) may have been affected by possible DDT contamination.

Recreational fishing further adds to the depletion of marine life. The average recreational fisherman fishes from the shore or, at most, a few miles offshore, and near-shore species such as rockfish, flatfish, kelp and sand bass, perch, and shellfish are the most heavily affected.

According to the South Coast Regional Commission's estimates, there are provisions for docking a very large number of private boats in the South Coast region. Many private boats are docked within 20 miles of Rancho Palos Verdes. The large numbers of fishermen and divers associated with these pleasure craft, in combination with shore fishermen and divers, contribute to the extraction of marine resources. In 1999, California Legislators passed the Marine Life Protection Act, and creation of protected marine areas off the Palos Verdes Peninsula was one of the top priorities to maintain a sustainable level of the rare marine diversity in this area. Unless specifically prohibited,

all non-extractive uses such as swimming, wading, boating, diving, and surfing are allowed in protected marine areas.

Abalone Cove Shoreline Park and Pelican Cove (formally Point Vicente Fishing Access) are two of the more ecologically diverse coastal regions in the Peninsula. The Abalone Cove features two beaches, tide pools, bluff-top viewing area, and trials. This Reserve contains a State Ecological Preserve with important natural marine resources at the bottom of the Portuguese Bend Area. To address human impacts, these two coastal regions were designated as State Marine Protection Area by the California Department of Fish and Wildlife Agency. The Abalone Cove State Marine Protection Area prohibits all "hook and line" fishing at this location, and only allows recreational take of pelagic (fish found in the open ocean) finfish. The Point Vicente State Marine Protection Area prohibits the taking of all living marine resources, including "hook and line" fishing and spear fishing. However, scientific research and habitat restoration efforts continue to be allowed through a special permit issued by Fish and Wildlife Agency.

In addition to the take of marine organisms for commercial and recreational use, many institutions use them in a broad range of applications for biomedical research. Certain species exhibit different life functions that are unobservable in other animals. For example, the brain of the octopus is the best defined brain of any known organism (California Coastal Zone Conservation Commission 1974), and medical research into brain functions has involved study of the octopus brain.

Tide pools and rock intertidal areas are prime areas for extraction of many organisms. Many schools and colleges in the area offer oceanography, marine biology, ecology, and other ocean-related classes that use the shoreline of Rancho Palos Verdes for observation and study. Specimens are collected for study purposes and taken back to school laboratories. This research and study, though further depleting marine life, helps to develop positive attitudes and management policies for proper conservation practices in the future.

Another damaging effect on tide pools and rocky intertidal areas is abuse by unknowledgeable tide pool visitors. Numerous marine organisms attach themselves to the underside of rocks for protection. Many of these rocks are indiscriminately turned over by tide pool visitors. Left in this state, the attached organisms are exposed and soon die. Fishermen also use some of these species for bait. Visitors unwittingly wade through tide pools, crushing shellfish and other plants and animals. They also collect shells, starfish, and anything else they can carry away. Picnickers discard trash and food remnants, leaving an aesthetically displeasing and hazardous environment. Because of the numerous visitors to the shore, the tidal areas of Rancho Palos Verdes have suffered severely.

As a result of the denuded tide pools and general environmental degradation, restrictions have now been placed on unwarranted collection. The California Superintendent of Public Instruction and the California Department of Fish and Wildlife Agency developed guidelines for conserving tide pool resources. State legislation prohibits the taking of any tide pool organisms without a permit from the California Department of Fish and Wildlife Agency. Permits are issued only to Los Angeles County education offices that have approved plans for conservation of tide pool life and that employ a staff biologist to conduct their programs. The main problem is enforcement with those who are unaware of the laws or those who refuse to comply with them. The combination of Los

Angeles County Sheriff personnel, Recreation Open Space Management staff, and Palos Verdes Peninsula Land Conservancy staff and volunteers who patrol, control, and educate people using the City's beaches, parks, and trails to help ensure that sensitive areas are maintained.

The City could elect to gain control over the tidelands (area from the mean high tide line seaward 3 miles) from the State Lands Commission. In this manner, the City could regulate and control uses within this area. To gain control, special enacting legislation would need to be passed and signed by the California Legislature and Governor. The City of Palos Verdes Estates gained control of its tidelands in this manner (Statutes of California 1968, Chapter 316). Palos Verdes Estates has been authorized by legislation to use the tidelands in a variety of optional uses such as construction of wharves, docks, small boat harbors, and/or a marine aquatic playground, but its primary purpose is for the "establishment, preservation, restoration, improvement, or maintenance of intertidal and subtidal marine biological reserves." The City of Rancho Palos Verdes, by creating this type of action, would then be responsible to enact, maintain, and enforce any regulation it would enact.

4 Resource Classification

All factors (ecological and environmental) of the natural environment inherently interact with one another. A change in one factor may have a resulting series of reactions in other factors. An example of this type of interaction is natural topography alteration resulting in a change in hydrologic patterns, which in turn may deprive natural vegetation of adequate irrigation, and thus cause degradation of wildlife habitat. An analysis of ecological units, as described above, allows identification and classification of critical areas for management considerations. The City created the following two classifications:

1. Areas for Consideration of Public Health and Safety
2. Areas for Preservation of Natural Resources

To identify the specific components making up each classification, all components determined to be critical were given a numeric code. Components are referred to as "Resource Management Districts," since they are areas (or districts) that represent specific resources. Resource Management Districts 1 through 5 are those considered in relation to health and safety. Resource Management Districts 6 through 9 are those natural resource elements having unique values meriting consideration for preservation.

A list of the Resource Management Districts is found below in Table 4.

TABLE 4
RESOURCE MANAGEMENT DISTRICT CODE DESIGNATIONS

Resource Management District	Code Designation
Coastal Zone	RM 1
Extreme Slope (greater than 35%)	RM 2
High Slope (between 25% and 35%)	RM 3
Active Landslide	RM 4
Dormant Landslide Area	RM 5
Hydrologic Factors	RM 6

TABLE 4
RESOURCE MANAGEMENT DISTRICT CODE DESIGNATIONS

Resource Management District	Code Designation
Marine Resource	RM 7
Wildlife Habitats	RM 8
Other Natural Vegetation Areas	RM 9

4.1 Areas for the Consideration of Public Health and Safety

Areas for consideration of public health and safety include areas where the physical environment poses a significant hazard to the well-being of the public. These typically include natural hazard zones such as unstable ground conditions or seismic hazards.

The Resource Management Districts related to public health and safety and their numeric codes are found in Table 5.

TABLE 5
CODE DESIGNATIONS RELATED TO PUBLIC HEALTH AND SAFETY

Resource Management District	Code Designation
Coastal Sea Cliff Erosion	RM 1
Extreme Slope (35% and greater)	RM 2
High Slope (between 25% and 35%)	RM 3
Active Landslide	RM 4
Dormant Landslide Area	RM 5
Flood Plains	RM 10
Areas Representing High Fire Risks	RM 11

The location of these Resource Management Districts are shown in Figure 6. A description of each district and the conservation efforts needed to address public health and safety are described below.

RM 1 – Coastal Sea Cliff Erosion. The purpose of managing development within this district is to ensure public safety from sea cliff erosion and landslides, and to maintain the physical, biological, and scenic resource of particular value to the public within the City's Coastal Zone. Any proposed development within this district requires a detailed engineering/geologic study by a registered geologist, soils engineer, and/or a certified engineering geologist. The studies need to consider historic cliff erosion, cliff geometry, geologic conditions, landslides, ground and surface water conditions and variations, and other factors affecting slope stability. The studies need to describe the possible effects of the proposed development, and must prove to the satisfaction of the City Geologist that the proposed development would conform to existing site conditions, present no significant risk to human life, and post no adverse environmental impacts before approval for any development is granted.

RM 2 – Extreme Slope. Extreme slopes are slopes of 35% or greater. The purpose of this district is to regulate use, development, and alteration of land in extreme slope areas so that natural characteristics such as land form,

vegetation and wildlife communities, scenic qualities, and open space can be maintained. This district further considers the risks to public safety from earth slides and slips, erosion, and attendant siltation. Grading requiring cutting into slopes and embankments are potential instigators of landslide, and the probability of these occurrences can be high within this district.

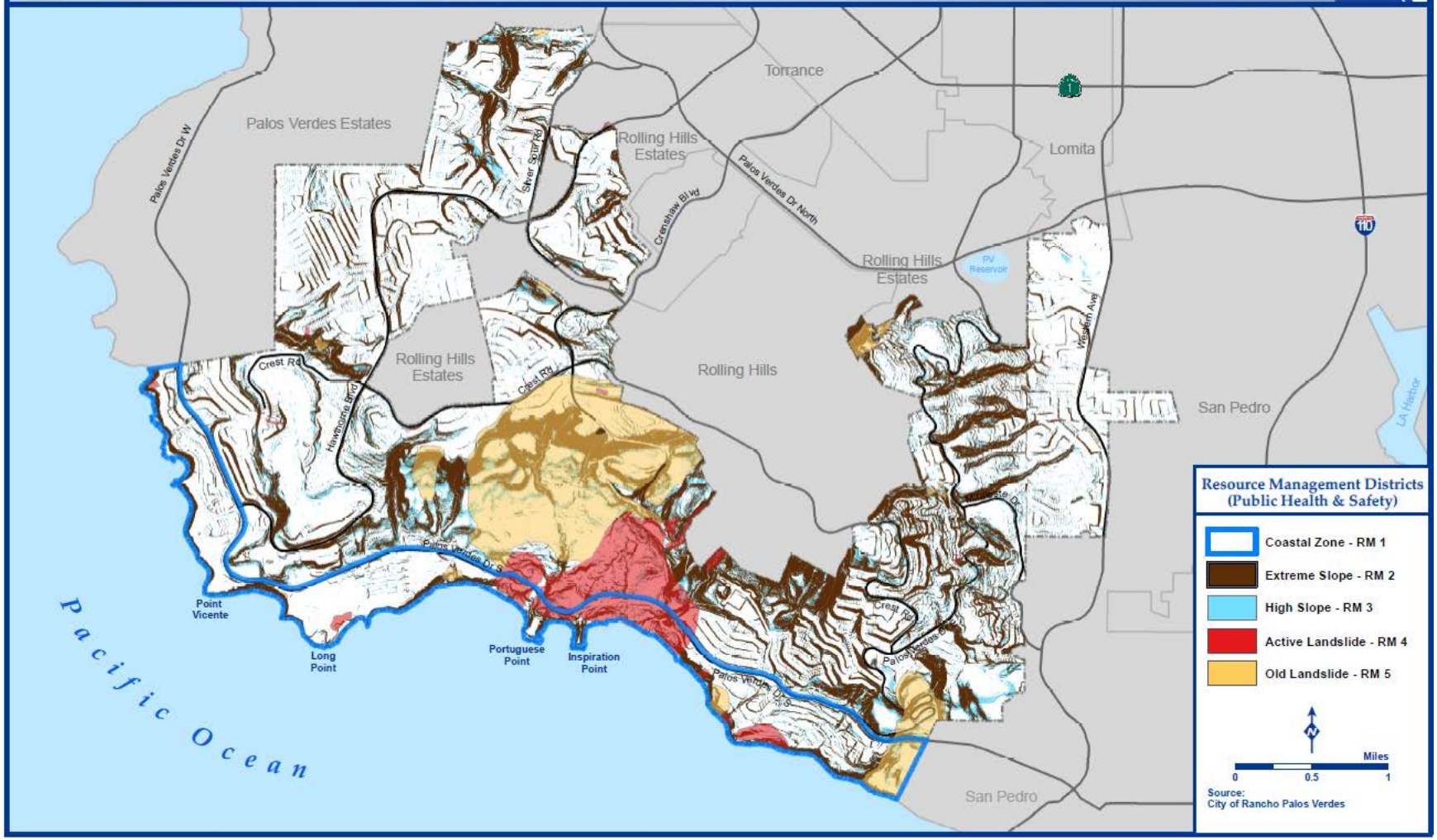
Practices distorting the topography of hillsides are limited pursuant to the City's Development Code. Non-structural uses such as parks, trails, and agriculture are permitted, along with minor alterations for ancillary accessory structures. Detailed engineering/geologic studies may be required for development or use to demonstrate to the satisfaction of the City that the proposed development or use will not significantly alter the existing topography, pose risk to human life, or cause adverse environmental impacts. All slope areas will be subject to the development criteria for the slope category of that particular parcel. (Note: Due to the scale of the accompanying maps depicting this district, some areas of extreme slopes may not have been plotted, just as there may be some isolated areas identified as extreme slope that are not actually 35% or greater.)

RM 3 – High Slope. High slopes are areas between 25% and 35% gradient. Although considered similar to extreme slopes, high slopes contain less degrees of slope that enables a greater degree of development flexibility. Engineering/geologic studies may be required to define existing soil and geologic stability and other pertinent characteristics necessary to certify stability and suitability of the proposed development. The existing character of the hills should be maintained by retaining, to the greatest extent possible, natural skyline at ridges, natural drainage courses, and natural outcrops. Grading should respect natural topography, and sharp geometric planes resulting from terracing or padding are to be avoided. Roads and driveways should follow natural topography to the greatest extent possible, and provision for siltation and erosion control, and re-vegetation of all cleared and/or graded areas may be required. Increase in natural runoff quantities and velocities should not be permitted, and drainage must be accomplished in a manner consistent with natural systems.

RM 4 – Active Landslide. Due to the extremely unstable ground within this district, construction of permanent structures is generally prohibited unless the area is stabilized by some natural or built force. The area may be suitable only for certain open space uses, such as a passive recreational area, agriculture with limited water usage, or an area of geologic interest. These uses must not create a situation that further aggravates the condition. Irrigation or other practices that could trigger further slippage requires regulation. Any proposed use or development requires detailed geologic and soils investigations to determine suitability or feasibility with regard to public health and safety. Existing uses and structures may be continued, transferred, sold, maintained, or restored within certain parameters. (See Chapter 3, Land Use Element, for further discussion about existing residential areas in an active slide area.)

RM 5 – Dormant Landslide Area. These areas have experienced downslope movement in the past, but are not currently active. Movement could include creep, but creep can be related to localized downslope movement due to gravity within slope areas or to expansive soils, and not necessarily due to landslide movement. To confirm that a landslide is creeping, it has to be monitored over a long period (at least 3 to 4 years) at a number of widely spaced monitoring points. In these areas, some portions have stabilized and other portions show signs of movement, which indicates a wide range of stability conditions. It can be assumed, however, that movement in certain areas could be triggered in the future by unusual rainfall, seismic shaking, human activities (development cut slopes, introduction of groundwater), or other causes. Those areas that are stable and potentially developable require detailed engineering/geologic studies for any proposed development to determine stability and development suitability to the satisfaction of the City prior to granting any approvals.

Figure 6: Resource Management Districts



4.2 Areas for Preservation of Natural Resources

These areas are for conservation of plant and animal life, habitats for fish and wildlife species, areas for ecological and other scientific studies, and any other unique natural resource within the City. The Resource Management Districts for the Preservation of Natural Resources identify critical natural resources, as listed in Table 6.

TABLE 6 - CODE DESIGNATIONS FOR NATURAL RESOURCES

Resource Management District	Code Designation
Hydrologic Factors	RM 6
Marine Resources	RM 7
Wildlife Habitats	RM 8
Other Natural Vegetation Areas	RM 9

The location of these Resource Management Districts are shown in Figure 7. Following is a description of the conservation efforts needed to address preservation of natural resources.

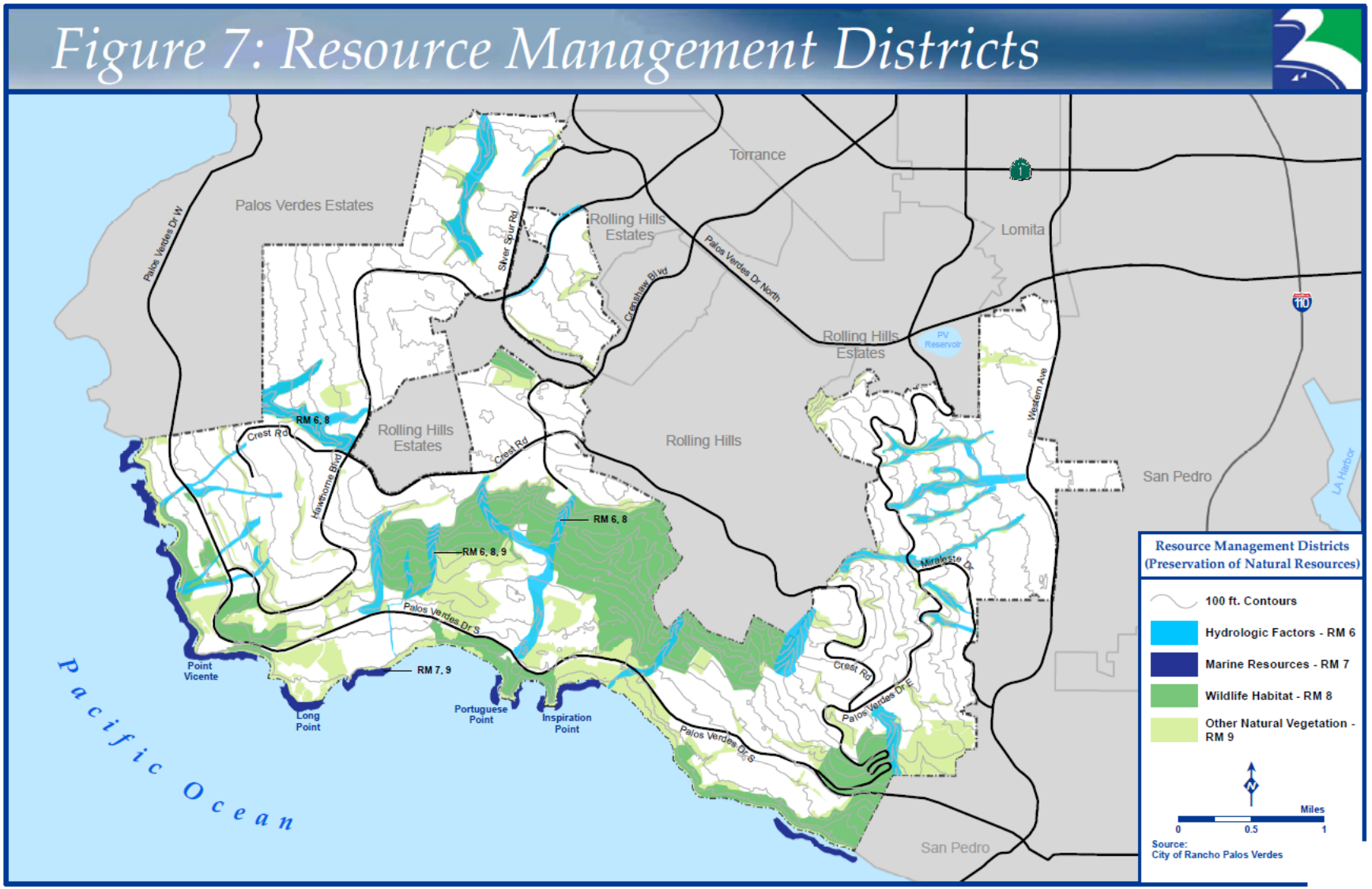
RM 6 – Hydrologic Factors. Maintaining the optimum operation of the hydrologic cycle is in the public interest, since it constitutes an important resource (water) and interacts with other resources (vegetation, ocean resources). Because all watershed systems within Rancho Palos Verdes are either influenced by or influence other jurisdictions, full regional cooperation is required for the management of these resources. Watershed management should prohibit activities that create excessive silt, increase drainage load, cause pollutant runoff, increase canyon wall erosion, or increase potential for landslide. Drainage courses are generally stable, and the characteristics of these courses should remain natural. Any substantial modification to stream flow, channel configuration, or ocean outfalls should be restricted to prevent increased erosion and coastal degradation. Development projects located near environmentally sensitive areas or waterways need to comply with NPDES requirements set forth by the state.

RM 7 – Marine Resource. Marine resources are a significant natural resource for the City, and all necessary efforts should be made for their preservation.. As a general policy, no development within the City should be approved unless adequate measures are provided to meet pollution standards relating to marine resource ecosystems. A monitoring program should further be established to measure the quality of the tide pool ecosystem, record any deterioration, and establish responsibility. Further action may then be required to regulate those developments and sources adversely impacting marine resources, both within and outside the jurisdiction of the City.

RM 8 – Wildlife Habitat. Existing wildlife habitats should remain in natural open space with vegetation and natural drainage patterns maintained to provide water and foraging material. Any proposed development within or adjacent to wildlife habitat districts must describe the nature of the impact upon the wildlife habitat and must provide mitigation measures to fully offset those impacts. Sensitive areas identified in the NCCP/HCP must follow established NCCP/HCP minimization guidelines.

RM 9 – Natural Vegetation. Existing natural vegetation is a major component of the environmental and visual character of the City. As discussed in the Visual Resources Element, open natural hillsides create an atmosphere of a hilly rural community. Wildflowers and the low coastal sage scrub, chaparral, and grassland communities should be preserved wherever possible. Any proposed development within this district should seek to re-vegetate with native material wherever clearing of vegetation is required. All areas identified in the NCCP/HCP must follow established NCCP/HCP minimization guidelines.

Figure 7: Resource Management Districts



5 Conservation

5.1 Conservation of Areas with Multiple Resource Management Districts

The Conservation and Open Space Element is a composite of those Resource Management Districts requiring consideration of public health and safety and those requiring preservation of natural resources. These districts are interrelated. All of the individual conservation efforts and development criteria described for each Resource Management District must be considered together when there are multiple districts in one area. Multiple Resource Management Districts falling in one specific area will have more sensitivity to development compared to only one Resource Management District. For example, RM 1, 2, 4, and 8 refers to a district that must consider (1) bluff setback, (2) extreme slope, (4) active landslide, and (8) wildlife habitat factors.

Consideration of Areas Outside of City. For environmental Resource Management Districts to be truly functional, consideration must be given to the management policies of adjoining resource areas located outside the City that may impact or be impacted by the management policies of the City. If these adjoining resource areas are not properly managed or coordinated with the efforts of Rancho Palos Verdes, the City's efforts to maintain natural environmental features may be negated or severely limited. The City should consider a region-wide management program to ensure the preservation of these features and development of a regional network of open space. These areas include Agua Amarga Canyon, Malaga Canyon, open space linkages at the crest of the Peninsula connecting open space canyons of Rolling Hills to open space canyons of the Portuguese Bend area, and several canyons at the east end of the City leading into Los Angeles and Los Angeles County. Wildlife corridor connections should be encouraged by coordinating private and public lands within and outside of the City limits.

6. Cultural Resources

6.1 Paleontological, Historical, and Archaeological Resources

Background. The history of Rancho Palos Verdes goes back further than the days of El Rancho de los Palos Verdes, but there are no written records of human activities from these earlier times. The only records we have of human and other life forms as they existed during this period is what is uncovered from archaeological and paleontological sites.

Through careful excavation of archaeological middens (campsites of ancient communities), it can be learned how the previous tenants lived. Analysis of archaeological sites yields insight into how people of earlier times related to one another, their god(s), and to nature. Such insight may be a key to understanding contemporary society.

The importance of archaeological sites has slowly received higher esteem and government recognition. The federal government enacted the National Historic Preservation Act of 1966, which called for the protection and preservation of sites, structures, and monuments of historical significance, including archaeological sites. Section 106 of the National Historic Preservation Act granted legal status to historic preservation in federal planning, decision-making, and project execution. Section 106 requires all federal agencies to take into account the effects of their actions on historic properties, and the Advisory Council on Historic Preservation is the federal entity created solely to address historic preservation issues through Section 106. In 1971, Executive Order 11593 was issued, which called for the "Protection and Enhancement of the Cultural Environment." The National Historic Preservation

Amendments of 1992 provided further direction for Section 110, requiring federal agencies to consider historic properties in federal and federally assisted actions.

On the state level under CEQA, archaeological sites are to be considered as resources, and the impacts of a proposed project on that resource must be assessed. If a field investigation reveals a site, building, or structure of significance, it may qualify for inclusion in the National Register of Historic Places. The California Office of Historic Preservation is responsible for administering federally and state mandated historic preservation programs to further the identification, registration, and protection of California's irreplaceable archaeological and historical resources under the direction of the State Historic Preservation Officer and the State Historic Resources Commission.

Paleontological Resources. In addition to archaeological sites, the "prehistory" of the Peninsula is also recorded in the earth in the form of fossils. Paleontology deals, in part, with the life of past geological periods as recorded in fossil remains. The two major classes of fossils that occur on the Peninsula are Foraminifer and Mollusks. Both contain species of fauna that are marine in origin.

Because of the degree of research done in this area and the wide distribution of paleontological resources through the Peninsula, these resources are not thought to be endangered. However, should a particular site exhibit a high degree of paleontological significance, the preservation, excavation, and no action options discussed below relative to archaeological sites would be applicable.

Archaeological Resources. Within the incorporated boundaries of the City, several significant archaeological sites are known to exist. In addition to these known sites, there are areas within the City that are "probable" archaeological sites. The area around these sites should also be considered as "archaeologically sensitive."

The location of these known sites and probable sites are on file with the Community Development Department. To prevent vandalism or "pot hunters" from ruining these sites, their locations are not typically available to the public.

The most prominent of the archaeological phenomena that occurs on the Peninsula is the middens left by the Tongva-Indians who occupied what is now Los Angeles County south of the Sierra Madre, half of Orange County, and the islands of Santa Catalina and San Clemente (Kroeber 1953).

There are locations all along City's coastline where the Tongva-Indians had established campsites for many years. There are also a few locations where excavation has indicated trade centers where it is speculated that the Native Americans from the mainland traded with islanders for otter pelts, abalone shells, and other goods. For these reasons, the entire coastal area in Rancho Palos Verdes should be considered as "archaeologically sensitive," and is designated with an Overlay Control District in the General Plan.

In addition to the coastal area, areas that should be considered as archaeologically sensitive include the vacant land areas north and east of Narcissa Drive in the upper Portuguese Bend community.

There are other areas that have archaeological significance. Many of these sites have already been impacted by construction. As a result, those few remaining undisturbed archaeological sites have an increased significance and added archaeological value in that they are the remaining vestige of human history on the Peninsula.

Historical Resources. Although the land that is now the City of Rancho Palos Verdes is rich in history and past cultures, the objects, sites, and structures of true historic significance are modest in number. The grove of trees planted at Ryan Park; Malaga Cove Library; the lighthouse at Point Vicente, which has guided sailors since 1924 and was placed on the National Register of Historic Places in 1980; Portuguese Bend, which served as a pick-up

point for smuggling operations when the land was ruled by Spanish viceroys; Villa Francesca (i.e., the peppertree gatehouse to the Portuguese Bend community), which was placed on the National Register of Historic Places in 1986; the estate of Frank Vanderlip, principal founder and developer of much of the Palos Verdes Peninsula; the Harden Estate (i.e., the Portuguese Point gatehouse); the Portuguese Bend Riding Club and stables, which serves as the hub of a social sector in the area; and Wayfarers Chapel, which was designed by Lloyd Wright, son of the renowned American architectural pioneer Frank Lloyd Wright, and placed on the National Register of Historic Places in 2005. These sites and structures represent the major historical points in Rancho Palos Verdes.

Several other features, such as the Narcissa gatehouse to Portuguese Bend, are also well known, but they are more points of interest than points of historical significance, given the criteria promulgated in the National Historic Preservation Act of 1966. In recent years, mid-20th century modern residential architecture has gained favor, and the City is home to several examples of this style, such as the 190 Paul R. Williams-designed homes in the City's Seaview neighborhood and other custom, single-family homes designed by such well-known mid-century architects as Lloyd Wright, Richard Neutra, Aaron Green, Thornton Abell, and Pierre Koenig.

6.2 Cultural Resources Options

Should a pre-construction field investigation reveal a significant archaeological site, the site can be preserved, the site can be excavated, or no action to affect the fate of the site can be taken. Traditionally, a policy of non-decision by the affected governmental unit has added to the rapid depletion of the nation's archaeological resources.

Preservation. Preservation of the site can be accomplished through acquisition, development controls, site design, and zoning. The National Historic Preservation Act of 1966 does provide funds for property acquisition, but only when the project is performed in conjunction with a state plan for historic preservation. The California State Office of Historic Preservation provides information regarding potential funding for the preservation of historic property.

Development controls and site design are also effective means of preservation. Examples of this technique are The Village condominium and redevelopment project in Redondo Beach and, locally, what was proposed for site LAN-709 in the Rolling Hills Estates. In both of these cases, the midden areas became parks or open space areas. No grading was allowed that would disturb the distribution of the artifacts that lie a few feet below the surface. This is important since the location and context in which the artifacts are found are as important as the artifacts themselves.

This preservation technique is even more archaeologically desirable for land that is publicly owned, as State law prohibits "pot hunting" on publicly owned lands, but does not deal with securing known or probable archaeological sites in private ownership.

Zoning controls can facilitate preservation if the land is zoned as open space for the preservation of natural or historic resources. However, because of the legal challenge to zoning ordinances for the preservation of these resources, zoning control by itself is not the most effective technique for archaeological preservation.

Excavation. Salvage excavation of a site is the second option when a site is being considered for development. Traditionally, excavations of archaeological sites are rushed because of project budgets and schedules. As a result, the information extracted from the site is highly selective and not always complete. The cost of salvage excavation has almost invariably been from private funding, and the work has often been performed by college and university students. To date, there are no public funding sources for archaeological salvage excavations.

No Action. The option to take no action has traditionally led to the loss of archaeological resources. Such decisions have been based on the rationale that archaeological preservation is a private matter.

Identification and Protection of Archaeological Resources. The California Historical Resources Information System includes the statewide Historical Resources Inventory database maintained by the Office of Historic Preservation and the records maintained and managed, under contract, by 11 independent regional information centers. These information centers provide archeological and historical resources information, on a fee-for-service basis, to local governments and individuals with responsibilities under the National Environmental Policy Act, National Historic Preservation Act, and CEQA, as well as to the general public. The South Central Coastal Information Center, responsible for information collected in Los Angeles County, is located at California State University, Fullerton.

Once a site is identified, and the preservation, excavation, and/or no action options have been decided, the City can use one of several vehicles to implement its decisions relative to the site. As applicable to the project, the City can make its decision a condition of approval for granting the subdivision, the conditional use permit, or the variance sought by the project.

These procedures are intended to preserve and protect all significant archaeological, paleontological, and historic resources in Rancho Palos Verdes. Relative to archaeological resources, where insurmountable circumstances arise whereby some technique of preservation cannot be implemented, the City can require salvage excavation of the site so that the maximum obtainable knowledge is extracted from the site before the archaeological resource is irrevocably damaged.

The Palos Verdes Library District's Local History Center has a historical collection that includes, but is not limit to, materials related to the cities of Palos Verdes Estates, Rolling Hills Estates, Rancho Palos Verdes, and Rolling Hills. It consists of materials in a variety of print and non-print formats, including books, clippings files, early serials, maps, oral histories, historic photographs, and yearbooks.

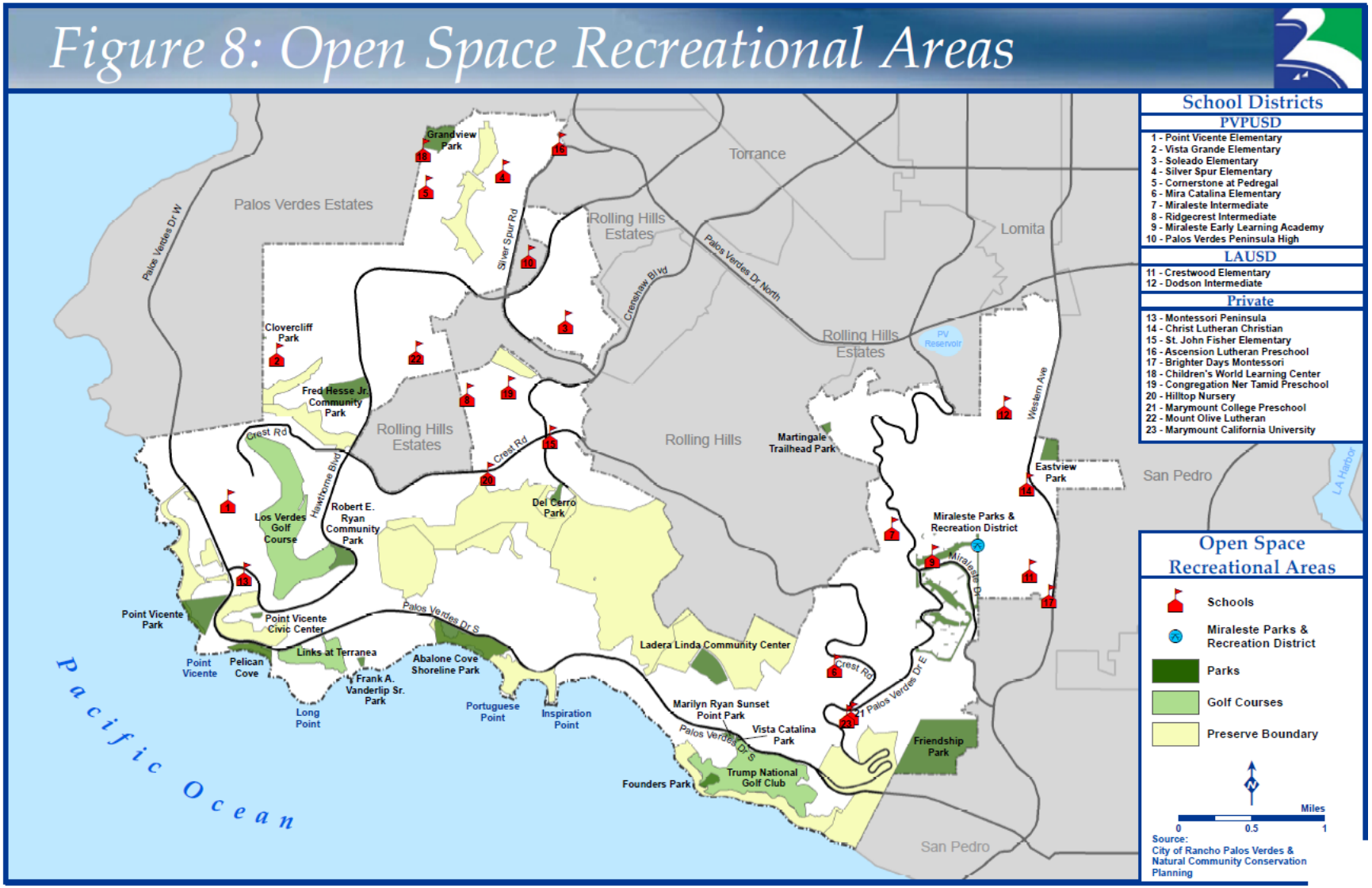
7 Open Spaces and Recreational Resources

The City has natural open space (some privately owned and some under City jurisdiction, including the Preserve subject to NCCP/HCP guidelines) and parks that include a mix of active and passive uses. These open space and recreational areas are shown in Figure 8, Open Space Recreational Areas.

7.1 Open Space Resources

According to the State's General Plan Guidelines, Open Space Land is defined as "Any parcel or area of land or water that is essentially unimproved and devoted to an open-space use for the purposes of (1) the preservation of natural resources, (2) outdoor recreation, or (3) public health and safety." One of the founding principles of the City of Rancho Palos Verdes is to maintain its rural character, a large component of which is its expanse of open land. Consistent with the state's definition, the open space lands within the City serve a variety of purposes, including serving as an aesthetic means to provide an open feel to the City, serving to preserve natural resources, serving to create outdoor recreational opportunities, and serving to protect the public's health and safety. Open space resources are either privately or publicly owned, and serve residents and visitors in different ways.

Figure 8: Open Space Recreational Areas



Private Open Space Areas

To serve aesthetic interests, to preserve natural resources, and to protect the public's health and safety, many of the existing residential subdivisions developed within the City as Residential Planned Developments (RPDs) include areas that are subdivided parcels dedicated to be preserved as open space, and are privately owned, typically by the subdivision's homeowner's association. These open space areas often include trails and vista points that were required as part of the subdivision and are maintained through dedicated public access easements. Some open space areas within existing subdivisions provide recreational opportunities. Within Rancho Palos Verdes, various types of private facilities (tennis courts, equestrian centers, beach clubs) are available to individuals who either pay a fee for their use or are members of the club operating the facility.

Additionally, there are many individual parcels in the City that are privately owned and, due to their topographic and/or geologic nature, may not be developable. As a result, a portion or the entirety of these parcels have a land use designation of "Hazard" or "Open Space Hillside" that prohibit most types of development. These parcels serve to preserve the aesthetic open space feel while protecting the public's health and safety. Some of these natural open spaces could be either acquired by the City or dedicated through an easement to provide wildlife corridor connections and trails.

Some of the larger non-residential projects, such as the Terranea Hotel Resort and the Trump National Golf Club, have private dedicated open space lots that serve to provide mitigation for the project's impacts to habitat and wildlife. These open space areas often include trails and vista points that were required as part of the subdivision and that are maintained through dedicated public access easements.

The City is home to eight elementary schools, three middle schools, and two high school under the jurisdiction of the Palos Verdes Peninsula Unified School District, Marymount California University, and The Salvation Army / Crestmont College. These campuses have fairly extensive open space areas used recreationally by the students and members of the community.

Public Open Space Areas

Publicly-owned open space within Rancho Palos Verdes is plentiful and is provided for by various levels of government. Although the City has acquired and dedicated a large number of parks, each with its own qualities and attributes, in recent years the City has worked extensively toward the purchase of large open space areas to create a habitat Preserve, also known as the Palos Verdes Nature Preserve, as identified by the City's NCCP/HCP. These public open space areas serve residents and visitors by providing an "open feel" to the City, preserving natural resources, and creating outdoor recreational opportunities.

7.2 Recreational Resources

Aside from the Preserve, active and passive recreational facilities that are publicly owned supply approximately 413 acres of recreational areas; 396 acres is developed and 165 acres is a public golf course. This total acreage does not include a significant amount of recreational areas supplied by Palos Verdes Peninsula Unified School District facilities.

Recreational resource areas include sites that have been set aside or are proposed for either active or passive use. These sites are sometimes structured to allow specific activities to take place. Many of these resource areas

provide path and trail networks for transportation or recreation, and are addressed in more detail within the Circulation Element.

Recreation sites are developed into either active or passive facilities. Active recreational facilities are highly structured and designed with specific activity areas, such as recreational buildings, tennis courts, baseball fields, and children's play apparatus. Most passive recreational areas remain unstructured to allow natural ecosystems to function with the least amount of human disturbance. Passive sites are usually used for nature studies, hiking trails, and limited picnicking areas.

Most recreational sites have a specific land use designation from the General Plan Land Use Map of "Recreational-Active" or "Recreational-Passive," clearly establishing the type of use envisioned for the site. However, a few of the sites, based on site conditions, ownership, and/or unknown future use, have multiple land use designations that also include "Institutional" and "Open Space Preserve," or single land use designations other than "Recreational Active" or "Recreational Passive."

The following provides a brief description of each site, including its General Plan Land Use Map designation, and groups the recreational facilities by the level of government that controls and operates the facility.

7.3 Recreational Parks and Facilities

Abalone Cove Shoreline Park – Recreational Passive/Open Space Preserve: This park features access through the Abalone Cove Reserve, which is part of the City's NCCP/HCP area, to two beaches (Abalone Cove and Sacred Cove), tide pools, bluff-top viewing areas, and crisscrossing trails. The park is improved with trails, picnic tables, benches, and viewing nodes, and is within a State Ecological Reserve. There is direct access to a parking lot off Palos Verdes Drive South. Access to Abalone Cove Beach is by a long trail from the parking lot through the Reserve. To access Sacred Cove, users must walk along Palos Verdes Drive South to one of two trails between Portuguese and Inspiration Points, and through the Reserve to the beach. Lifeguards are on duty at Abalone Cove Beach during the summer and weekends. Views of the ocean and Catalina Island are spectacular from this park. Dogs are prohibited on the beach, but on-leash dogs are permitted in the upper picnic area and on designated trails.

Hesse Park (Upper Site) – Recreational Active: This 28.32-acre park, with its well-manicured parkland and active community center, is one of the most popular in the City. Among the features available for public enjoyment in the upper park area are baseball and soccer fields, numerous picnic areas with barbecues, playground equipment suitable for toddlers to adolescents, and a well-used 0.25-mile walking path. Most of the City's privatized recreation classes are offered at this facility, and many activities for older adults are held here. Additionally, three rooms in the community center are available for rental for meetings and private parties, and as space for government meetings.

Hesse Park (Lower Site) – Recreational Active: The lower park site (approximately 18 acres) offers a sand volleyball court, picnic areas (no barbecues permitted), walking paths, natural play elements, and locations for enjoying panoramic views of Catalina Island north to Malibu.

Ladera Linda Community Center – Institutional Public: This former elementary school site's amenities include a parking lot, restrooms, paddle tennis courts, tot lot, playground, and basketball court. Ladera Linda is also the home of the Discovery Room, which features live and static exhibits of local flora and fauna. Volunteers provide educational programs for a variety of school, youth, and other groups, as well as conduct docent-led hikes in the adjacent Forrestal Preserve. This 11.21-acre property also has a multipurpose room and classroom available for rental for meetings, classes, and private parties. The site offers excellent views of the cliff face, hillsides, coastline, and ocean. Improvements at this older facility have been considered for many years. A Master Plan process for this site was included in the 2016 Parks Master Update.

Upper Point Vicente Park/Civic Center – Recreational Passive, Institutional Public, and Open Space Preserve: Formerly a World War II bunker site and Nike Missile Base, this 73.3-acre site is composed of dedicated Institutional Use, Open Space Preserve lands, and Recreational Passive park land. The site surrounds a 4.5-acre parcel that is owned by the U.S. Coast Guard.

The City owns in fee title 8.23 acres, which is not encumbered by deed restrictions or a Program of Utilization. The remainder of the site (65.12 acres) was given to the City by the federal government with a quitclaim deed that included several deed restrictions, including a Program of Utilization calling for passive use of the 65.12-acre parcel with the exception of a potential 6.6 acres to be for active recreational use. The area set aside for Institutional Use (8.23 acres) is on the relatively level hilltop and includes City Hall buildings, a telecommunications site, a multimedia studio, the City's maintenance yard, and a grassy field. A dog park, sand volleyball court, grassy field, and tennis court are located in the Recreational Passive portion of the site. There are spectacular views of the ocean, Pelican Cove, and the Point Vicente Lighthouse, and this is the site of the City's annual July 4th Independence Day Celebration.

The U.S. Coast Guard parcel within this park and overlooking the Point Vicente Lighthouse is the site of several communications towers and an abandoned WWII-era artillery bunker.

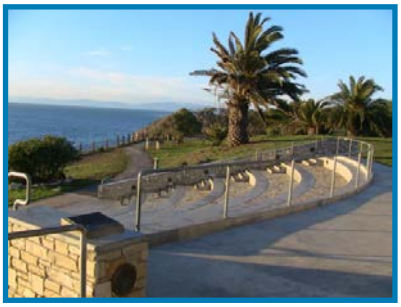
The Open Space Preserve lands sloping down the hillside, known as the Alta Vicente Reserve, are encumbered by a conservation easement, deed restrictions, and the Program of Utilization. The NCCP/HCP permits passive recreation in this Reserve, which includes trails through coastal sage scrub habitat that is actively being restored by the Palos Verdes Peninsula Land Conservancy and trails through an approximately 5-acre area that has been leased to a farming operation for many years, which is a permitted use in the NCCP/HCP and Public Use Master Plan.

Many Master Planning efforts have been pursued for this location, but the future of this site and its uses, which must comply with the Program of Utilization for the site unless an amendment is sought, remains undetermined at the time of drafting. Planning efforts are underway to improve the site with a new City Hall, public safety, and recreational facilities and activities. Any changes to the property through master planning efforts require approval by the Planning Commission and City Council through public hearings, along with review and approval of a change, if necessary, to the Program of Utilization by the National Park Service.

Robert E. Ryan Park – Recreational Active: The City's first park was transferred from Los Angeles County at the time of the City's incorporation in 1973. This 11.61-acre active recreational park features a community building with a small activity room and patio that are available for rent, a tot lot, playground, grassy fields, a baseball diamond, and picnic areas with barbecues. Views from this park are superior, and the mature trees add to the atmosphere.

Eastview Park – Recreational Passive: Facilities on this 9.9-acre site include a children's playground, picnic facilities, jogging path, permanent restroom, landscaping, dog park, and an off-street parking lot.

Lower Point Vicente / Point Vicente Interpretive Center – Recreational Passive and Open Space Preserve: This site is approximately 27.4 acres and was acquired from the federal government with deed restrictions that included a Program of Utilization requiring passive use of the land. The main attraction of the site is the Interpretive Center, which opened in 1984. The Interpretive Center offers educational and recreational opportunities, along with dramatic coastline vistas. Its location provides spectacular opportunities to view the annual migration of the Pacific gray whale (*Eschrichtius robustus*) from December through April. The beautiful bluff-top park includes paths and trails, picnic areas, and picnic benches. The coastal bluffs are part of the City's NCCP/HCP's Preserve referred to as the Vicente Bluff Reserve. In addition, this is the site of the City's annual "Whale of a Day" community event. In 2005, an expansion was completed to the Interpretive Center building and surrounding grounds, including an expanded visitor's center and a large meeting room that is available for rental for meetings and private parties.



Clovercliff Park – Recreational Passive: This 0.17-acre vest pocket park has a path and landscaping, and seating is available on the large rocks. There is a distant ocean view.

Del Cerro Park – Recreational Passive: This 4.49-acre park features panoramic views of canyons, agriculture, coastal headlands, the ocean, and offshore islands, and offers a flat, grassy play area, as well as the Donor Recognition Overlook recognizing those who contributed towards the acquisition of the Palos Verdes Nature Preserve. The park is landscaped and has a safety fence just below the bluff to restrict access to the canyon below without blocking views. The park has a parking lot but no restrooms.

Don C. Wallace Radio Ranch Museum – Residential 2-4 D.U./Acre: This 32,000-square-foot property was originally intended as a radio museum, with funds for the improvement of the museum to be raised by the Wallace Radio Ranch Museum Foundation. When the required funds were not raised, the property became a neighborhood park maintained by the Wallace Ranch Homeowners' Association.

Founders Park – Recreational Passive: Founders Park was formally accepted by the City on January 17, 2006, and named in honor of the City's founders who led the effort to incorporate the City of Rancho Palos Verdes. This 5.5-acre parcel is located adjacent to the Trump National Clubhouse, and offers ocean views, picnic tables, a gazebo, nearby restrooms, coastal access, and adjacent walking and biking trails.

Frank A. Vanderlip, Sr. Park – Recreational Passive: Facilities on this 0.48-acre site include benches, a safety fence at the cliff edge, and landscaping. Unobstructed views of the ocean, headlands, and islands are the main attraction at this park.

Grandview Park – Recreational Passive: A 17-acre park purchased from the Palos Verdes Peninsula Unified School District. There are excellent views of the golf course, greenbelt, inland toward Los Angeles, the coastline, and ocean..

Marilyn Ryan Sunset Point Park – Recreational Passive: This 1.5-acre park was conveyed to the City in 2011 by VH Properties. The park provides access to a trail system near the Trump National Golf Course, and also offers picnic tables and benches for public use. A six-car parking area is located adjacent to the

park for public use. Simmons Bridge and a dolphin statue are two landmarks that can be seen at this park and from Palos Verdes Drive South.

Martingale Trailhead Park – Recreational Passive: This 1.2-acre trailhead provides access to a trails system serving the cities of Rancho Palos Verdes, Rolling Hills, and Rolling Hills Estates. Hikers and equestrians use the park, and facilities include landscaping; a tri-level drinking fountain that serves horses, humans, and small animals; a mounting block; and a seating rock.

Vista Catalina Park – Recreational Passive: This 1-acre trailhead is located adjacent to Trump National Golf Course and offers access to pedestrian trails surrounding the golf course. The park includes the monument sign for Trump National Golf Course and a drinking fountain at the trailhead. This park offers views of Catalina Island and the ocean.

Pelican Cove – Recreational Passive and Open Space Preserve: The City acquired this property from Los Angeles County through a grant deed in May 2004. This 10.5-acre site features a paved parking lot, a restroom building, an improved trail to the shoreline, and views of the ocean and Catalina Island.

Shoreline Park – Open Space Preserve: This 52.8-acre park is entirely within the Ocean Trails Reserve, a subarea of the Palos Verdes Nature Preserve. The property was acquired from the Los Angeles County by quitclaim deed in November 1997. It is a re-vegetation site for the mitigation of the adjacent Trump National Golf Club. Approximately 41 acres are being restored with native vegetation as part of that mitigation. There is a system of trails and a few tables and benches near the bluff edge.

Archery Range – Recreational Passive: The Archery Range parcel has physical and other constraints that make habitat preservation challenging and restoration almost impossible. Thus, the property is not proposed to be included in the City's NCCP/HCP Preserve, but will remain as an open space parcel. The City will probably need to grade the area and repair or replace storm drains in the future to mitigate landslide movement. Additionally, the property is encumbered by an easement that gives the adjacent Portuguese Bend Club the right to perform remedial grading on the parcel on as-needed basis.

Gateway Park – Recreational Passive: The approximately 17-acre Gateway Park is located at the southern tip of the Portuguese Bend Preserve. No permanent structures are envisioned on this property due to active land movement in the area.

7.4 City of Los Angeles and Los Angeles County Facilities

Deane Dana Friendship Community Regional Park – Recreational Passive: This 123-acre natural area park is located partially (97 acres) in the City of Rancho Palos Verdes and partially in the City of Los Angeles, and is managed by the County. The park offers panoramic views of Catalina Island, Los Angeles and Long Beach Harbors, Los Angeles, and the San Bernardino Mountain ranges. Restored native habitat areas and several hiking trails are on the property. The site also includes a 4,000-square-foot nature center with indoor and outdoor classrooms. The park also has a picnic area, barbecues, and playground.

Los Verdes Golf Course – Recreational Active: Los Verdes Golf Course is a fully developed 165-acre site that is operated by Los Angeles County. This facility contains an 18-hole, par-72 course with associated facilities (clubhouse, banquet facilities, coffee shop, lounge, pro shop, two comfort stations, locker and shower rooms, and parking for 300 cars).

7.5 Palos Verdes Peninsula Unified School District Facilities

Although Palos Verdes Peninsula Unified School District's facilities are under its own jurisdiction, the school district is one of the largest suppliers of public, active recreational facilities within the City. The school district provides these facilities for many age levels in the form of open play areas, paved court areas, and gymnasiums. Tennis courts are available on a first-come, first-served basis. All other activities, such as organized soccer, baseball, and football, must be arranged in advance. It would be lengthy to describe each facility on every school site, so this section only points out that site is designed for the age groups that use the school. It can be assumed that intermediate and high school sites contain facilities that fulfill the needs of young adults, and elementary schools provide recreational activities designed for children. It is to the City's advantage for the school district to maintain an open-school-grounds policy to help fulfill active recreational demands of the community.

Ladera Linda Fields is a former school site, owned by PVPUSD, and licensed and operated by Palos Verdes American Youth Soccer Organization for its youth soccer program. Ladera Linda Fields include upper and lower soccer fields and a parking lot.

7.6 NCCP/HCP Reserve Areas (Palos Verdes Nature Preserve)

Abalone Cove Reserve. This Reserve consists of a 65.2-acre portion of Abalone Cove Shoreline Park. The property features two beaches (Abalone Cove and Sacred Cove), tide pools, bluff-top viewing areas, and a network of designated trails. Excluded from the NCCP/HCP Reserve are the upper parking lot and picnic area, the lower parking lot and preschool/lifeguard area, and the shoreline. This Reserve also contains a State Marine Conservation Area and Ecological Reserve under state jurisdiction that protects marine and intertidal resources.

Three Sisters Reserve. This property, generally located in the vicinity of Barkentine and McCarrell Canyons, was purchased by the City from Palos Verdes Portuguese Bend Land in August 2001 for $3,887,154; it was funded by Proposition A, County Park Bonds. The property is approximately 98.4 acres. This reserve is located on the western side of the Portuguese Bend Reserve. It contains outstanding habitat and is heavily used by hikers, mountain bikers, and equestrians. It also contains habitat corridors deemed essential for maintaining stable populations of California gnatcatcher and cactus wren.

Filiorum Reserve. This 189.8-acre parcel was purchased by the City from a private developer with a combination of funds from the California Coastal Conservancy, State Wildlife Conservation Board, and private donations, and is mostly located within the City's landslide moratorium area. The site contains outstanding habitat and is used by hikers and equestrians.

Portuguese Bend Reserve. This 427.2-acre property is owned by the City and includes a portion of an active landslide area. This Reserve serves as the most heavily used entrance to the Preserve and is used by hikers, bicyclists, and equestrians. This Reserve also includes the Del Cerro Buffer, which is owned by the City, is 17.4 acres, and consists of very steep slopes immediately adjacent to Del Cerro Park.

Forrestal Reserve. This property is owned by the City and was acquired from the Diamond Brothers Three Partnership in December 1996. The total cost of the property was funded through two revenue sources: the Los Angeles County Regional Park and Open Space District at $4,300,000, and the California Wildlife Conservation Board at $3,400,000. The property is 158 acres. Multi-use trails exist on the property, as well as a paved road and significant drainage structures remaining from a proposed subdivision.

Agua Amarga Reserve. This 61-acre property is partially owned by the City and the Palos Verdes Peninsula Land Conservancy, and contains two canyons – Agua Armaga and Lunada, which merge at their western ends just above the border with Palos Verdes Estates. This reserve has pedestrian and bicycle trails. Agua Armaga was acquired in 2005 and is home to many California gnatcatchers. Lunada Canyon was a gift from the E.K. Zuckerman family to the Palos Verdes Peninsula Land Conservancy. The parcel contains coastal sage scrub and willow wetland.

Alta Vicente Reserve. This 50.9-acre parcel is below the upper flat area of the Upper Point Vicente Civic Center property. It has pristine coastal sage scrub habitat for the endangered coastal California gnatcatcher and southern cactus scrub habitat for coastal cactus wren, a State Species of Concern. Johnathan Atwood did an extensive study of coastal California gnatcatcher at this site and influenced the policies for the species for the NCCP/HCP. The Palos Verdes Peninsula Land Conservancy has planned further habitat restoration and trail enhancements for this area. There is the potential to create a wildlife corridor through the northern border of Lower Point Vicente to connect this reserve to the Vicente Bluffs Reserve.

Vicente Bluffs Reserve. Approximately 62.5 acres were acquired through dedication as a condition of the development of the 79-lot Ocean Front Estates subdivision. The dedications were made under the Quimby Act. Included in the dedication, at the top of the bluff and extending the full length of ocean frontage, are open space served by a trail system and a public parking lot. A restored native habitat are also included in the project. A majority of the Pelican Cove open space lot is part of the Vicente Bluffs Reserve. The City acquired the Pelican Cove open space lot from Los Angeles County in May 2004. This site features a paved parking lot, a restroom building, an improved trail to the shoreline, and incredible views of Catalina Island and the ocean. Improvements to the site, including an expansion of the parking lot and trails that lead to the Terranea Resort, were completed as part of the Terranea Resort project in 2009.

Ocean Trails Reserve. This 116.6-acre Reserve is within the Trump National Golf Club site. Although the 5.5-acre Founders Park and some open space lots have been dedicated and accepted by the City, various other open space lots have not yet been accepted. The proposed dedication of open space includes approximately 78.8 acres of open space, much of which has been restored to native vegetation. The open spaces have walking and biking trails along the bluff, as well as access to the ocean. There are two public parking lots and public restrooms, as well as picnic benches in the parks. Shoreline Park is within the Ocean Trails Reserve.

San Ramon Reserve. This 94.5-acre Reserve was received pursuant to the Quimby Act in conjunction with development of the Seacliff Hills Tract. It surrounds the switchback roadway of Palos Verdes Drive East as that roadway heads north from Palos Verdes Drive South. The property is very steep with commanding views of the ocean and Catalina Island. Although Palos Verdes Drive East is within this Reserve boundary, parking and access to the open space areas are difficult and limited. Portions of the Reserve extend to the San Ramon Canyon bottom, which may require some erosion mitigation.

Vista Del Norte Reserve. A 16.8-acre parcel was purchased by the former Rancho Palos Verdes Redevelopment Agency for approximately $702,000 in March 2000 in the hopes of developing affordable housing for older adults to meet the City's affordable housing needs. The purchase amount came from the Redevelopment Agency's Housing Set-Aside Fund. In 2009, the City and Redevelopment Agency approved a Parcel Map that subdivided the parcel into two parcels: Parcel 1, a 2.92-acre parcel to accommodate development of a 34-unit senior affordable housing project ("Mirandela"), and Parcel 2, which is part of the City's Preserve called the Vista Del Norte Reserve. This is a 16.8-acre steep parcel that was split off from the Redevelopment Agency Crestridge Parcel. It borders Rolling Hills Estates along Indian Peak Road and has some trails and native habitat.

Malaga Canyon Reserve. In February 2014, the City purchased open space in Malaga Canyon from private landowners using WCB and USFWS Section 6 Habitat Conservation Plan Land Acquisition grant funds. This 61.5-acres Reserve provides open space into the Preserve.

7.7 Additional Public Open Space

Cherry Hill Lots. Six Cherry Hill lots were purchased from the Redevelopment Agency when the City moved Palos Verdes Drive South back into its original easement in 1988. Since that time, additional lots were purchased, and as of 2018, the City owns 13 lots totaled 6.02 acres. Most of these lots are unimproved, but at least one lot has dewatering facilities on a portion of the property.

McKay Property. The McKay property was donated in 1994 to the City by the family that owned it. The property is 2.05 acres and is currently zoned as Commercial Professional. The property is mostly a steep hillside and has no practical use except to provide a view.

7.8 Miraleste Recreation and Park District

Open Space. The Miraleste Recreation and Park District contains 32 acres of canyon area, used as a sanctuary for native wildlife. The area is on the east side of the Peninsula and includes hiking trails.

7.9 Parks Master Plan

Adopted on October 6, 2015, the Parks Master Plan updated the previous 1989 Parks Master Plan, following almost two years of planning and extensive public outreach. The Parks Master Plan will function as a living document to help guide and respond to changes in the City's future park, open space, and recreational needs.

7.10 Open Space for Military Support

The California Military Land Use Compatibility Analyst does not identify military operations (e.g. military bases, installations, etc.) or military aviation routes and airspace over the City. However, the United States Coast Guard is located next to the Point Vicente Interpretive Center. The U.S. Coast Guard often utilize the coastal cliffs, Point Vicente Interpretative Center, and City Hall to conduct training exercises.

7.11 Open Space for Tribal Resources

There are no public land containing any Native American cemeteries, places of worship, religious or ceremonial sites, or sacred shrines in the City. 8 References

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VI ENVIRONMENTAL JUSTICE ELEMENT

Adopted April 2018

Source: Kremer, Neil. 2010. "1st Tripod Shot." Flickr. Accessed at https://flic.kr/p/8NRtnh. October 28, 2010.

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VI Environmental Justice Element

Environmental Justice as defined by Government Code section 6540.12(e) means, "The fair treatment of people of all races, cultures, and incomes with respect to development, adoption, implementation, and enforcement of environmental laws, regulations, and policies." Environmental justice laws have been established to ensure that all people have equal protection from environmental hazards where they live, work and play, as well as to ensure that all people have equal ability to participate in the decision-making process regarding environmental regulations.

This Element seeks to address environmental justice through the development of a comprehensive set of goals and policies, consistent with State requirements, to encourage greater public participation and reduce environmental hazards to target populations in the City. This Element serves as a blue-print for the physical development of the City and is intended to assist elected and appointed officials in the decision-making process. This Element also provides direction to City Staff, developers and the general public to ensure that environmental justice factors be considered during the planning and development process

Background

The Environmental Justice movement existed for several decades at a grass roots, city, county, state and federal level before gaining institutional support by the Clinton Administration with Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations" in 1994.

State legislation adopted in 2016, Senate Bill 1000, requires cities and counties that have disadvantaged communities to incorporate environmental justice policies into their general plan, either in a separate environmental justice element or by integrating related goals, policies and objectives throughout other elements.

An Environmental Justice Element is required to identify a disadvantaged community within the area covered by the plan. A disadvantaged community means, "An area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposures, or environmental degradation" (Gov. Code Section 65302(h)(4)(A)). Section 39711 of the Health and Safety Code further identifies a disadvantaged community as areas with sensitive populations.

The General Plan of the City of Rancho Palos Verdes has historically included goals and policies that seek to address environmental justice concerns in the community, including greater accessibility to parks and recreational activities, as well as the promotion of energy efficiency in residential design and public and commercial facilities.

1 Goals

1 Promote public input and participation in the decision making process by all members of the community.

2 Protect the environment in order to reduce environmental hazards in the community.

3 Promote the efficient and equitable use of public facilities by all members of the community.

4 Promote healthy and affordable housing opportunities for all segments of the community.

5 Promote healthy food access and physical activities for all segments of the community.

6 Prioritize improvements and programs in the City to better address the needs of its senior population.

2 Policies

Public Input and Participation

1 Support mechanisms for participation with area-wide districts and jurisdictions for the betterment of the residents of the City.

2 Encourage and provide facilities and resources for recreational, social, cultural, and educational programs for residences.

3 Involve residents in community and civic activities.

4 Seek input from residents and address their concerns during the planning process for projects.

5 Aid in matching the facility needs of the community with existing and future facility resources throughout the City.

6 Utilize culturally and linguistically inclusive approaches to public participation and involvement.

7 Continue using town meetings and forums to obtain public input. Encourage community events.

8 Develop information services designed to reach as many residents as practical that lists organizations, events, issues, and services available to City residents.

9 Encourage the development of homeowner associations and other community groups as a vehicle for increased participation in government.

Environmental and Health Risks

11 Implement policies and programs identified in the City's Emissions Reduction Action Plan (ERAP) in order to improve air quality in the City.

12 Promote transit improvements or facilities that are powered by electricity and alternative fuels.

Public Facilities

13 Plan for a Civic Center.

14 Provide leadership in solving the need for community meetings, cultural events, and recreational facilities.

15 Encourage the building of meeting facilities by private or nonprofit groups. Existing and new businesses, churches, utilities, and other organizations should be encouraged to allow some use of their facilities by community groups.

17 Design recreational facilities including parks and trails for the use of older adults in the City with limited mobility.

Safe and Sanitary Homes

18 Promote the incorporation of universal design[1] concepts in new construction and rehabilitation projects, including but not limited to, general internal space planning consideration to accommodate wheelchair bound individuals.

19 Prioritize enforcement activities of residential structures with known health hazards.

20 Promote efforts to repair, improve, and rehabilitate substandard housing.

Healthy Food Access and Physical Activity

21 Create recreational opportunities for all City residents.

22 Be an advocate for the efficient delivery of services to City residents.

23 Work with neighboring jurisdictions and organizations to identify and address common issues. This should include the encouragement of dialogue between the City and employees of neighboring jurisdictions and organizations.

24 Continue the implementation of community education and programming related to healthy living and physical activity.

25 Continue to provide a variety of active and passive parks and recreational activities accessible to all residents.

26 Promote the use of alternate modes of transportation including biking and walking.

Improvements and Programs

27 Recognize residents' cultural, educational, and recreational needs, and encourage programs in these areas.

28 Work with neighboring cities, agencies, and organizations to identify, provide, and/or promote services for the large population of older adults within the City.

29 Establish City committees to use residents' skills to benefit the community.

[1] Universal design refers to the concept of designing environments to be used by all people, to the greatest extent possible, without the need for adaption or specialized design.

3 Setting

The population of those 60 years and older in the City has grown to almost 30% of the total City population. As such, the City acknowledges and works to support the needs of this large segment of its population. In addition to coordinating recreational classes for older adults, the City assists older adults through organizations such as the Peninsula Seniors.

Peninsula Seniors

Established in 1982 with help from the League of Women Voters, Peninsula Seniors is a nonprofit membership organization that caters to the needs and interests of the older adult community. With more than 2,000 members, Peninsula Seniors provides a variety of programs and services for Rancho Palos Verdes residents and those from surrounding cities.

In addition to Peninsula Seniors, the following other services are also available in the area:

- H.E.L.P. (Healthcare and Elder Law Programs);
- Peninsula Transit Authority's Dial-a-Ride Program; and
- South Bay Senior Services.

The City works with each of these organizations to assist in addressing concerns for this specific demographic. Due to the activity and involved participation of the City's older adult population, the City is continuously receiving input and suggestions for new or improved services to be provided, and the City works with members of the community to help in areas that it is able.

To further ensure that the City continues to provide and/or make available specific and appropriate services addressing this portion of the City's population, this element sets forth goals and policies to promote public input and participation, reduce unique environmental and health risks, and prioritize improvements and programs amongst this segment of the City's population.

4 Public Input and Participation

Community input and participation is a fundamental part of the decision making process, as for example, the public can voice their concerns or support of a proposed development project. Public input and participation is particularly important with respect to environmental justice because it allows communities that have often not been included in the planning process to be engaged to improve their community. Participating in the public decision making process is important, but as a result of various factors such as cultural and linguistic barriers or lack of information, many members of the community, including the senior population in the City do not participate in the process. The City has been posting various notices, such as voter information, in other languages in an effort to encourage participation. The City issues public notification for various projects under consideration by the City in the local newspaper, on the City's website, to listserv subscribers, mailings, and social media platforms.

5 Environmental and Health Risks

Promotion of Public Facilities

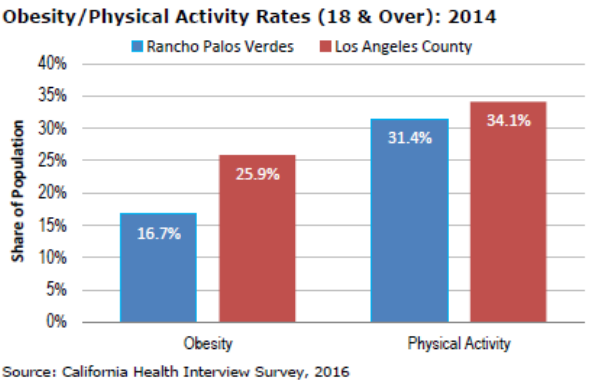
As described in the Conservation and Open Space Element, the City has multiple active and passive recreational sites that provide the community with usable outdoor areas for picnics and hiking, and also various other amenities. The Recreation and Parks Department handles the rental and usage of these facilities, providing the community with meeting facilities for private and nonprofit groups, as well as playing fields for multiple uses by various recreational groups from the Palos Verdes Peninsula and surrounding areas.

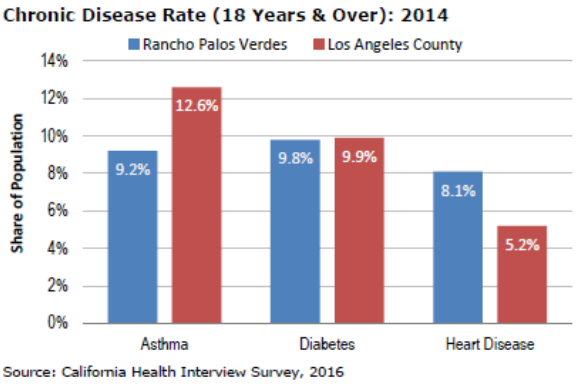
Promotion of Safe and Sanitary Homes

The quality of housing available impacts the health of residents and community members. Factors such as indoor air quality, mold and moisture, pests, safe drinking water availability, lead and second-hand smoke affect the safety and health of residents' homes. Housing policies can direct housing quality by mitigating or preventing health impacts. The City's Housing Element addresses current and future housing needs in the community, as it relates to affordability, construction, conservation, and preservation.

Promotion of Healthy Food Access and Physical Activity

Based on public health data, the City has lower rates of obesity, asthma, and diabetes as compared to Los Angeles County. However, the City has higher rates of heart disease and lower rates of physical activity than the County. The promotion of healthy food access and physical activities serve as a means to further improve public health in the community, including that of its senior population.





6 Improvements and Programs

Special Events: Each year, the City hosts three events that are coordinated by the Recreation and Parks Department: Whale of a Day, July 4th Independence Day Celebration, and Shakespeare by the Sea. Each of these free events is located at City parks and provides opportunities for social, recreational, cultural, and educational interactions for residents and people from around the Peninsula and South Bay areas.

Point Vicente Interpretive Center: This beautiful park and facility, located adjacent to the Point Vicente Lighthouse, offers recreational and educational opportunities to the public. In addition to a museum presenting the unique features and history of the Peninsula, there is also meeting rooms for private parties and meetings, a gift shop, areas for whale watching, and an outdoor amphitheater. The City trains volunteers (docents) to lead tours, with the Los Serenos de Point Vicente being the City's volunteer docent organization.

Reach Program: Administered by the City's Recreation and Parks Department, Reach is designed to serve the social and recreational needs of youth and young adults with developmental disabilities in Palos Verdes and the South Bay.

Dog Parks: The City has two separate dog parks in the City: Point Vicente Park/Civic Center and Eastview Park. Both parks are half-acre in size, has separate small and large dog areas, water faucets and bowls for dogs, restroom and hand wash station, and are ADA accessible.

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VII FISCAL ELEMENT

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VII Fiscal Element

Providing City services, maintaining the infrastructure, and implementing various goals and policies of the General Plan depends on the City's ability to prudently manage its revenues and expenditures. The Fiscal Element of the General Plan establishes the policy framework necessary to guide all of the City's short- and long-term fiscal decisions. In addition to identifying policies that City officials will follow in conducting the financial affairs of the City, it serves as a planning document to assist in making fiscal decisions from a comprehensive perspective. It is intended to ensure that the fiscal aspects of policy issues are considered whenever and wherever possible. It does so by establishing clear relationships between City goals and policies and their fiscal needs and impacts.

The City values prudent and responsible fiscal management, as described in the practices throughout this Fiscal Element. Additionally, the availability of funding, and its appropriate use, guides all aspects of City government. Thus, this Element contains the City's financial policies and provides the overall framework upon which all fiscal decisions are made to achieve the goals laid out in each of the General Plan's elements.

In particular, the Fiscal Element:

- Defines and describes the City's financial planning structure, including its:
  - Financial management structure
  - Approach to budgeting
  - Financial planning
  - Use of reserves
  - Capital improvement planning
  - Revenue and expenditure management
  - Accounting and financial reporting practices
  - Purchasing
  - Debt management

- Analyzes the City's past and present fiscal health, and identifies its revenue and expenditure base;
- Identifies the long-range goals needed for fiscal sustainability and establishes the action strategies necessary to achieve these goals; and
- Sets forth the foundation for the City's financial policies.

This Element is arranged in several sections designed to take the reader through a logical progression of information that provides the proper context for the establishment of the City's financial goals and policies. Section 3, Financial Management, describes the various financial planning tools of the City, including a discussion of how the General Plan is used as an important financial planning tool. Section 4, Fiscal Health, Revenue, and Expenditure Structure, provides an important discussion on the limitation that California municipalities face in raising revenues and provides an overview of the City's revenue and expenditure structure. Section 5, Fiscal Sustainability, generalizes the City's

projected fiscal health and identifies potential fiscal issues in relationship to future development and infrastructure improvements within the City. Section 9.5 outlines policies of the Fiscal Element.

1 Goals

1. Hold taxes and assessments to a minimum and continually explore and analyze the advantages and disadvantages of alternate or new sources of revenue.
2. Explore cooperative financing strategies that might be undertaken in association with others.
3. Consider the use of regulatory legislation and other options to obtain contributions, dedications, reservations (option to purchase) and rights-of-way (i.e., easements).
4. Plan for revenues generated by development to sufficiently cover costs related to such development.
5. Thoroughly evaluate capital asset expenditures to ensure that available financing is sufficient to meet related ongoing operating expenditures.
6. Maintain a prudent general fund reserve.
7. Consider all available funding sources for City expenditures.
8. Maintain competitive rates for taxes and fees charged for the use of community resources.
9. Adopt a balanced budget.
10. Control the growth of expenditures.

2 Policies

1. Consider the cost effectiveness and community benefits of new City services and facilities.
2. Require that wherever appropriate, City services be paid for by the users in the form of specified fees or taxes.
3. Work toward integration of common services among neighboring jurisdictions, agencies, and organizations for improved cost effectiveness and quality of service.
4. Consider the financial impacts of City decisions on other governmental agencies and/or public utilities serving City residents.
5. Encourage state legislative action to provide equitable distribution of tax revenues commensurate with the City's responsibilities.
6. Seek or accept funds from government sources only if the obligations of the City caused by accepting such funds do not negate the benefits of receiving those funds.
7. Evaluate the merits of contracting for services versus in-house staffing.
8. Encourage private contributions and donations to the City.
9. Consider administrative and enforcement capabilities and available funding before imposing new regulations to address whether such new regulations can be effectively administered.
10. Consider the financial impact of City decisions on City residents.
11. Finance recurring expenditures from recurring revenues.
12. Consider the cost impacts of approving any new development within the City.

13. Actively pursue energy-efficient methods and equipment in existing and future City buildings and spaces, as well as public infrastructure, to help reduce operating costs.

3 Financial Management

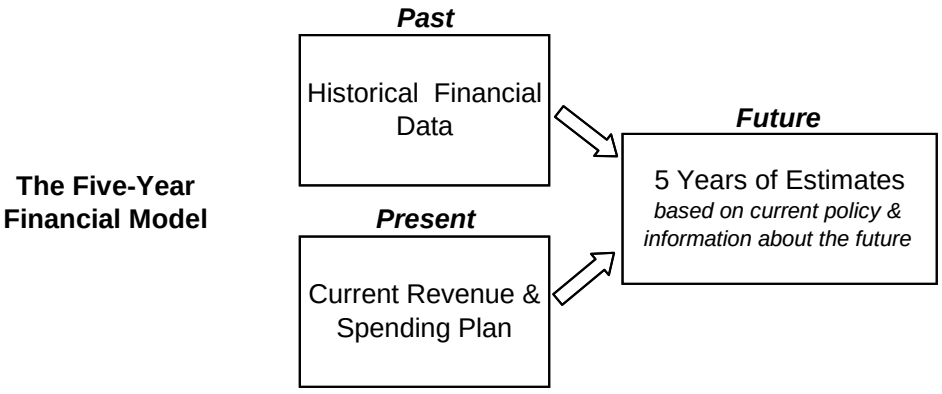
Financial Management Structure: Financial management in the City is supported by a number of City-wide systems and processes that impact most financial decisions. The systems provide a structure that ensures accountability for services provided. Rancho Palos Verdes also maintains a system of internal financial management practices and controls that support sound fiscal stewardship. These include financial planning, accounting and reporting practices, purchasing, and capital planning.

As the City Council has ultimate fiscal responsibility for the City, financial reporting is an important component of financial management. The City Council is provided with monthly and quarterly financial reports, periodic cash position reports, periodic reports of reserve position, and an overview of the comprehensive annual financial report.

Approach to Budgeting: The City's budget is more than just a compilation of revenues and expenditures. It represents a financial and policy implementation plan. The budget establishes a legal operating and capital plan for each fiscal year to ensure compliance in conformance with local and state laws. In addition, it is a communication medium for the City Council, staff, and the public. It encompasses the City's commitment to match the delivery of quality, customer-oriented services to the community with the financial resources available. The City strives to prepare an annual balanced budget. Due to the City's limited ability to raise revenues, careful consideration is given to service expansion or additions. The budget is adopted annually by the City Council.

The City prepares a 5-Year Financial Model as required by City Council policy on an annual basis. The model includes all funds of the City and its component units (successor agency to the redevelopment agency, and improvement authority). The City also develops a 5-Year Capital Improvement Plan (CIP) on an annual basis that allows the programming and planning of capital facilities and improvements. The Model and the CIP help the City Council to develop the annual operating budget by projecting future anticipated revenues and expenditures, and identifying those larger CIP projects that may be funded during the annual operation budget.

Financial Planning: While annual budget review and approval is a sound business practice and is required by the State of California Government Code and the City's Municipal Code, an understanding of the City's long-term financial picture is more important than just looking at a 1-year snapshot. While preparing the 5-Year Financial Model, staff works with all departments to assess expected trends for future expenditures and performs a complete analysis of all revenues based on a set of assumptions. After developing future estimates, fund balances are analyzed to ensure that reserves are maintained and expenditures do not exceed funding sources. Each year, the City Council-appointed Finance Advisory Committee is presented with the draft Model and provides comments prior to the City Council's review at the Budget Workshop. The budget is developed based on estimates consistent with the model.



Use of Reserves: The establishment and management of reserves (sometimes referred to as rainy-day funds, or contingency funds) is a prudent fiscal policy, as well as an important consideration in the evaluation of the City's credit rating. Local governments have experienced much volatility in their financial stability due to the economy, natural disasters, and actions taken by state government, which includes taking revenues from local governments to resolve state budget problems. California cities are at an even greater disadvantage than the rest of the country due to the unique regulations imposed through a strong voter initiative process, and the difficulty to raise property taxes should the need arise.

Sound financial management includes the practice and discipline of maintaining adequate reserve funds for known and unknown contingencies. Such contingencies include, but are not limited to, cash flow requirements; economic uncertainties including downturns in the local, state, or national economy; local emergencies and natural disasters; loss of major revenue sources; unanticipated operating or capital expenditures; uninsured losses, tax refunds, future capital projects; unanticipated infrastructure repairs; vehicle and equipment replacement; and scheduled capital asset and infrastructure repair and replacement. The establishment of prudent financial reserve policies is important to ensure the long-term financial health of the City.

The City has a conservative reserve policy that requires that the City maintain a minimum reserve in the General Fund. The General Fund reserve policy threshold is 50% of annual budgeted expenditures. The City also maintains a minimum reserve in the CIP fund for major improvement projects related to roadways, storm drains, parks, buildings, rights-of-way, and the sewer system. In addition to these reserve levels, there are smaller reserves established for several other City funds. Specific reserve information is outlined in a separate City Council policy statement. The City Council can amend the reserve policy at any time.

Capital Improvement Planning: A CIP is a guide for the efficient and effective provision of resources for improving and maintaining public infrastructure and facilities. Programming capital facilities and improvements over time can promote better use of the City's limited financial resources, reduce costs, and assist in the coordination of public and private development. Staff compiles an inventory of projects through a comprehensive review of existing reports, infrastructure plans, community input, and City Council direction. Projects without a funding source are included on an "unfunded" project list as a part of the CIP document. Projects with available funding sources are integrated into the 5-Year Model and presented to the City Council during each annual budget process. The California Government Code Section 65103 & 65401 requires the Planning Commission also reviews the CIP to ensure that all projects are consistent with the goals and policies in the General Plan.

Revenue Management: Since its incorporation in 1973 as a "no-property tax city," the City has long recognized the importance of managing City revenues to maintain and enhance fiscal strength and stability over both the short and long term. A "no-property tax city" is one that prior to the passage of Proposition 13, did not levy a local property tax. Following the passage of Proposition 13, cities that previously had levied a local property tax were allocated a larger share of the 1% property assessment established by Proposition 13. As the City did not levy a local property tax, it was allocated a minimal share (approximately 6%) of the 1% property assessment.

Staff annually assesses revenue trends as part of the City's 5-Year Financial Model. Revenue assumptions are reviewed and revised each fiscal year. Some tax revenues are apportioned by state or county agencies, and some tax revenues are imposed locally (e.g., utility users' tax and transient occupancy tax). Staff coordinates periodic audits of the collection process of locally imposed tax revenues. Staff also manages investment of the City's idle cash and lease arrangements for the use of City property. City staff continually monitors the collection of all revenues to ensure maximum receipt of monies legally due to the City.

Expenditure Management: Once the operating and capital budgets have been prepared and adopted by the City Council, staff is responsible for closely monitoring the expenditures and results to ensure that resources are being used as effectively as possible to maintain desired service levels in compliance with the budget adopted by the City Council.

The City's Municipal Code calls for appropriations to be made by budget program. Any changes in the total appropriation for any given program require City Council approval, while the changes within that program can be approved by the City Manager.

Article XIIIB of the California Constitution, approved by the voters in 1979 as Proposition 4, placed limits on the amount of revenue that can be spent by government entities. The proposition also established a formula for annual calculation of the appropriation limit. Each year the City calculates its appropriations limit, which is adopted by the City Council as part of the budget approval. Historically, the City's revenue budget has been well below the annual appropriation limit.

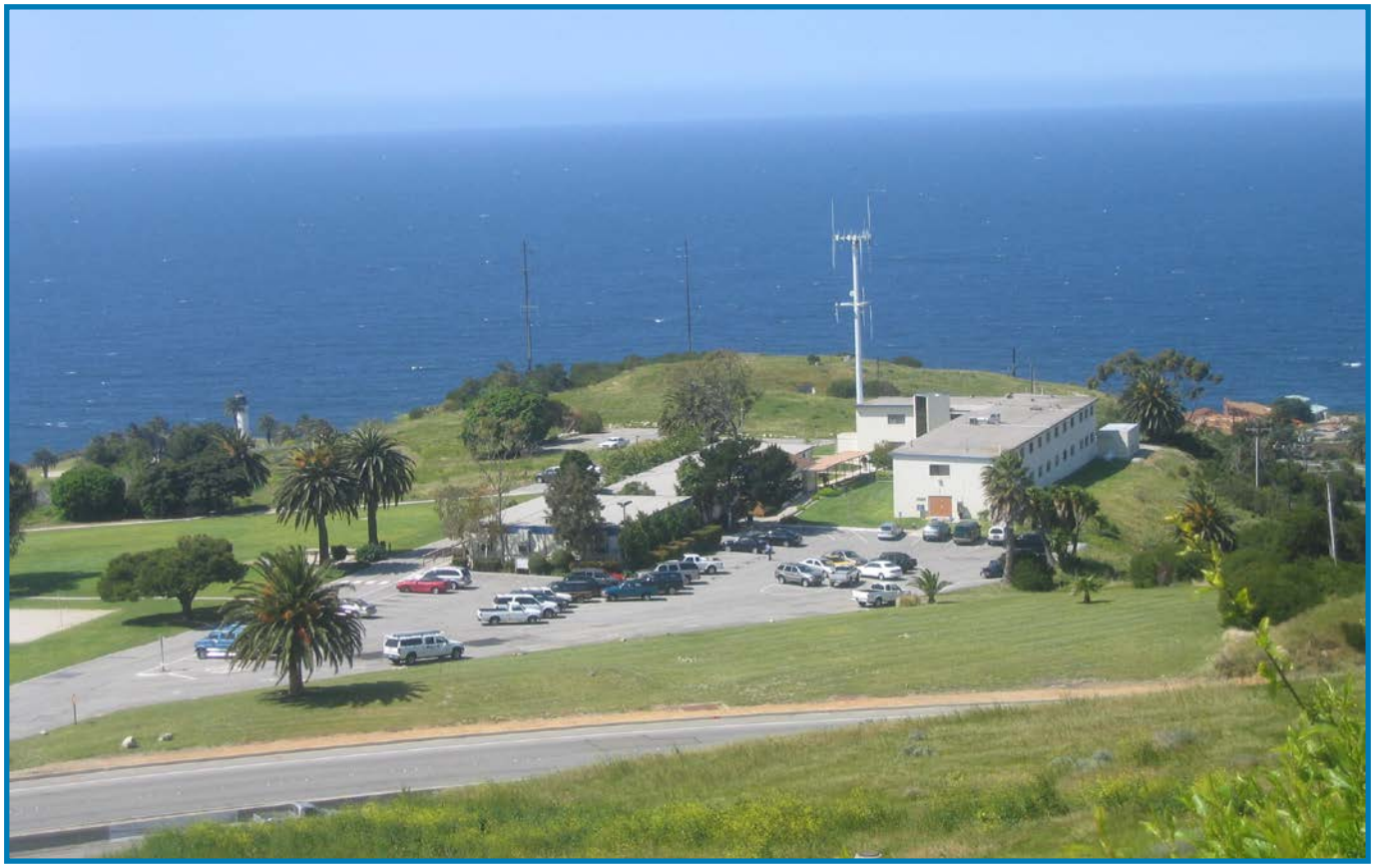
Accounting and Financial Report Practices: Local and State law requires that the city issue an annual report on its financial position and activity, and that an independent firm of certified public accountants audit the report. The City annually prepares and issues a Comprehensive Annual Financial Report (CAFR). The CAFR includes financial statements, which are presented in conformity with generally accepted accounting principles and audited in accordance with generally accepted auditing standards. While traditionally addressed to the City Council, the annual financial audit is also intended to provide relevant financial information to residents, City staff, creditors, investors, and other concerned readers. The City maintains its financial records in accordance with standards set by the Governmental Accounting Standards Board (GASB) and implements all recommended Board pronouncements.

Purchasing: As a contract city, the City engages in a wide range of contracts to deliver the full range of local government services, and construction and maintenance of City facilities and infrastructure. These include contracts for the acquisition of personal property (supplies, equipment, materials, and goods), public projects (maintenance, landscaping, etc.), and professional services performed by an independent contractor (e.g., engineering and public safety).

The City's ordinance governing bid requirements, purchasing, and contracting procedures is intended to achieve the following objectives:

- Obtain cost-effective results;
- Avoid wasteful practices;
- Achieve a balance between costs and benefits of maximizing quality within available resources;
- Guard against favoritism, fraud, and conflicts of interest; and
- Ensure compliance with applicable state and federal statutes.

Debt Management: The City does not currently carry any debt. However, when planning for capital projects, the City will consider the issuance of debt as a financing mechanism and the City's ability to repay any debt incurred.



4 Fiscal Health, Revenue, and Expenditure Structure

Section 4.1, Fiscal Health, provides a brief history of the City's fiscal health since incorporation. Section 4.2, City's Revenue Base, is an overview of the City's revenue structure. Section 4.3, Revenue Overview by Source, provides descriptions of the City's major revenue sources. Section 4.4, Expenditure Structure, provides an overview of the City's major expenditures.

4.1 Fiscal Health

Since the City's incorporation in 1973, the City maintained a conservative approach based on keeping property taxes low and providing necessary services to meet the needs of residents. The City incorporated as a "no property tax city," so this is reflected in the basic level of services provided. Over the years, funding has not been adequate to proactively maintain the City's major infrastructure systems causing the City to be faced with significant costly repairs in recent years. Certain assessment districts have been formed over the years in some areas to assess individual property owners for specific infrastructure repairs. For example, a unique aboveground sewer system was constructed in the Abalone Cove portion of the City's landslide area. Property owners are assessed for the maintenance of the system. In 2005, property owners approved a storm drain user fee, providing a 10-year revenue stream to help pay for improvement of the City's storm drains, which ended in 2016. However, given the age and condition of the infrastructure in the City, the need to repair infrastructure extends beyond what these limited assessments and fees can provide. The City still maintains a conservative approach to managing its infrastructure and strives to seek out any available sources of funding, such as grants or other contributions to pay for infrastructure projects.

4.2 City's Revenue Base

The structure of the City's revenue sources has a major influence on the City's ability to maintain and expand services. The structure and source of City revenue are also very important to the City's ability to withstand economic downswings. If possible, it is prudent for a city to have a diversity of revenue sources since each individual revenue source reacts differently to economic conditions.

The two major categories of revenues received by government are taxes and user fees. In 1978, Proposition 13 created a distinction between "general" and "special" taxes. A general tax is any tax imposed for general governmental purposes, while special taxes are collected or earmarked for a specific purpose or program. Restrictions on the establishment, extension, or increase of any tax were also imposed by Proposition 13 and Proposition 218, which was passed later in 1996. In order to levy a new tax or increase an existing tax, local governments must hold an election to obtain voter approval, while fees may be imposed without a public vote. The taxes collected by the City are primarily general taxes that are used to support general governmental purposes. Through Fiscal Year 2016–2017, the City's major revenues have been property tax, utility user tax, franchise tax, transient occupancy tax, and sales tax.

User fees, in contrast, are charges imposed for discretionary services that benefit a specific segment of the community. Fees are distinguished from taxes in two principal ways. First, the amount of the fee may not exceed the cost of providing the service, while the amount of a tax has no such restriction. Second, those who benefit from the service is charged a fee. In general, user fees are reviewed annually and set by the City Council to recover the full cost of providing a particular service. The City Council may choose to charge a fee for a service that does not recover the cost in order to achieve a specific policy objective. The City engages a consultant approximately every 4 or 5 years to perform a

complete analysis of all user fees to ensure that fees are set at appropriate recovery levels. User fees are published in the Annual Fee Schedule.

User fees, in contrast to taxes, are charges imposed for services that benefit a specific segment of the community. User fees are generally set to cover the full cost of providing the service, unless the City Council chooses to charge a lower fee to achieve a specific policy objective.

Protection of the City's property values, including public safety and infrastructure maintenance, will help to ensure the stability of property tax revenue. Commercial development in the City will enhance future revenue, including transient occupancy tax and sales tax. As the City continues to develop proactive programs for infrastructure maintenance, and replacement, additional dedicated revenue sources such as fees and assessments should be considered.

The ways that cities are financed have continued to change since the development of the original Fiscal Element in the General Plan. The passage of Proposition 218 in 1996, which added new procedural steps for the enactment of taxes, assessment, and property-related fees, had a notable impact in this regard. In summary, Proposition 218 requires majority voter approval for general taxes and two-thirds voter approval for special taxes. It also requires majority approval for benefit assessments on real property and imposes certain notice and hearing and voter approval requirements for a fee or charge that is property related.

Several other state legislative actions have occurred that either reduced the City's revenue base or altered its composition. The most significant action was in 2004, when voters passed Proposition 1A, a constitutional amendment to protect local governments from revenue take-away by the state. Proposition 1A was the culmination of a historic agreement between the state and local governments to limit the state's ability to shift city revenue to its General Fund. In addition, Proposition 1A provided a mechanism to the state to declare a fiscal emergency and take a property tax loan from cities equal to 8% of the City's annual property tax revenue. If enacted, such a loan is required to be repaid within 3 years with interest. The state cannot take a property tax loan more than twice in any 10-year period, and may only take the second loan if the first loan has been repaid.

The result of these changes has been that property tax has become the City's single largest General Fund revenue source, while revenues such as the Motor Vehicle License Fee and other state apportionments have decreased significantly. Due to the significance of property tax to the City, it is important to maintain facilities and provide services that protect the City's property values.

4.3 Revenue Overview by Source

Unrestricted General Fund Revenue Sources

The General Fund accounts for a variety of unrestricted revenues that may be used for any expenditure of the City. Primarily, General Fund revenue consists of general-purpose taxes. The most significant General Fund revenue sources are described below.

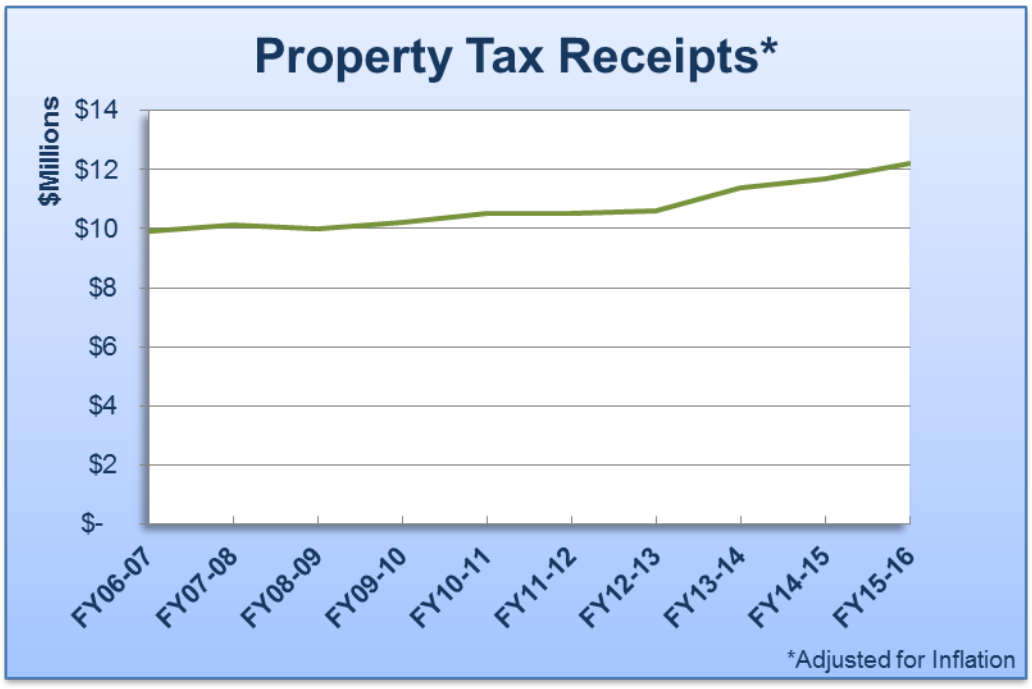
Property Tax: The City's share of property tax is the largest single source of revenue to the General Fund. The Los Angeles County Assessor determines property valuations for all real property within the City. The County levies the base property tax of 1%, equaling $1 per each $100 of assessed valuation (subject to growth limitations of 2% per year). The City's share of the $1 is approximately 6%. (Example: For a home with a $600,000 assessed valuation, the base property tax billed by the County is $6,000 per year, and the City's 6% share is about $360 per year.) A

number of other governmental agencies providing services within the City receive the remaining share of the 1% levy, with the majority going to the County and the School Districts.

This has been a stable and steadily increasing source of revenue for the City due to strong property values. Long-term ownership of properties, combined with Proposition 13 limits on increases in assessed valuation, has resulted in assessed values that are much lower than market value. Therefore, any time a property changes ownership and is re-assessed at current market value, the City's property tax revenue increases. This source of revenue is expected to continue to grow in the future.

Property Tax In-Lieu of Vehicle License Fees: Prior to 1999, state residents paid a Vehicle License Fee of 2% of the market value of their respective vehicles to the Department of Motor Vehicles. This Vehicle License Fee funding is passed through to cities and counties throughout California. The state legislature reduced the Vehicle License Fee tax rate from 2% to 0.65% over a period of 3 years ending in 2001. The same legislation also guaranteed cities and counties that the state would "backfill" or pay the difference between the two rates.

The Property Tax In-Lieu of Vehicle License Fee component of the State's Budget eliminated the backfill portion (1.35%) of the Vehicle License Fee payment and replaced it dollar-for-dollar with property tax taken from the Educational Revenue Augmentation Fund. The Property Tax In-Lieu of Vehicle License Fee is permanent and took effect on July 1, 2004. Property Tax In-Lieu of Vehicle License Fee revenue is an allocation of property tax that increases each year in direct correlation to the increase in assessed value of taxable property within the City.



Sales and Use Tax: In accordance with the California Revenue and Taxation Code and the Bradley-Burns Uniform Local Sales and Use Tax Law of 1955, this tax is currently imposed at the rate of 9.00% on the sales price of any taxable transaction in the County (as of October 1, 2014).

The State Board of Equalization administers sales and use tax. The City currently receives an apportionment equivalent to 1% of taxable sales. The state, County, and Transportation District share the remaining sales tax collected.

The City is primarily a bedroom community with limited commercial activity. Because of the limited amount of taxable business, economic fluctuations typically do not have a material impact on the General Fund in any given year.

Utility Users Tax: In 1993, the voters of the City approved a tax of 3% on the consumers of natural gas, electricity, water, and services. The tax is collected by each of these utilities as a part of its regular billing procedure and remitted to the City. As utility rates continue to increase in the future, this revenue source is expected to grow accordingly.

Franchise Tax: Under several state statutes, the City imposes franchise tax on natural gas, electric, water, trash, and cable television companies operating in the City for the privilege of using the City rights-of-way. The amounts paid are based on a percentage of gross receipts. This revenue source is also expected to grow in direct correlation to utility rates.

Business License Tax: Title 5 of the Municipal Code requires all entities conducting business within the City to pay annual business license tax, generally based on the gross receipts of the business. The business license tax was enacted solely to raise revenue for municipal purposes, and was not intended for regulation. The business license tax rate increases by the County's Consumer Price Index each year.

Transient Occupancy Tax: The City's transient occupancy tax (TOT) is 10% of rent charged by an operator for the privilege of occupying a hotel. In 2009, the Terranea Resort was completed and was opened to the public, thereby increasing the City's TOT revenue significantly. In the future, this revenue source will fluctuate based on economic conditions.

Golf Tax: In 1993, the golf tax was established as 10% of golf fees charged by the golf course operator.

Community Development Permits: The Community Development Department issues permits for building/remodeling construction activities involving residential, institutional, and commercial structures to ensure compliance with the City's Development Code. Permit fees are charged to recover the cost of providing such services.

Use of Money and Property: This includes earnings from investment of City funds as well as rents received for the use of City property. The City maintains an annual City Council adopted investment policy that restricts investment choices based first on safety, then to liquidity, and finally to yield.

Restricted Revenues

The revenue sources listed below are restricted by law or administrative action for specific purposes. These monies are deposited into other funds of the City. The most significant sources of restricted revenues are listed below.

> **Transportation:** The City receives allocations of various cents-per-gallon transportation taxes that are administrated by the state and county. These revenue allocations are primarily based on population. As these taxes are not percentages of the price of gasoline, the revenue sources remain flat when consumption is consistent from year to year. When consumption decreases in times of conservation, so does the revenue to the City. State-shared transportation revenues may be subject to future potential state-legislated reductions.

Transportation revenues are restricted and can only be used for the construction, improvement, and maintenance of public rights-of-way. Activities financed by the transportation revenues include, but are not limited to, street patching, slurry sealing, street reconstruction, curb/gutter/sidewalk repair, public transit contributions, and street sweeping.

Landscape and Street Lighting: The City has several benefit assessment districts for landscape and street lighting maintenance. These funds may be used for improvements within the defined district in addition to activities including operation, servicing, and maintenance.

Infrastructure Maintenance: The City has assessments related to the improvement and maintenance of specific types of infrastructure (e.g., storm drains, sewers). These fees are typically based on the parcel's proportionate use of the infrastructure system.

In 2005, property owners approved a 30-year storm drain user fee based on each parcel's proportionate use of the City's storm drain system. The storm drain user fee generated approximately $1.2 million of revenue annually, and is used to maintain and repair the City's storm drain system. In 2007, via general election, the voters amended the storm drain user fee to sunset in 10 years which ended in 2016.

Development Impact Mitigation: The City levies several Development Impact Mitigation fees to be used for specific purposes. The City's goal is to ensure that all revenues generated by growth and development are sufficient to cover the costs related to development growth.

4.4 Expenditure Structure

The City provides most of its services through vendor contracts. For example, police and fire services are contracted with Los Angeles County, city attorney services are provided by an outside law firm, and public works are provided by vendors who provide responsive bids. By operating as a contract city, the City is able to obtain competitive pricing and retain a small workforce of employees to manage the City's business. The City has consistently had a low per-capita expenditure ratio when compared with other agencies.

Only the most basic essential services are provided by the City. The county collects a separate share of property tax to provide fire service; however, the City pays for police service out of its General Fund. The City owns and maintains the roadway, sewer, storm drain, and park infrastructure. Utility service is provided by the private sector.

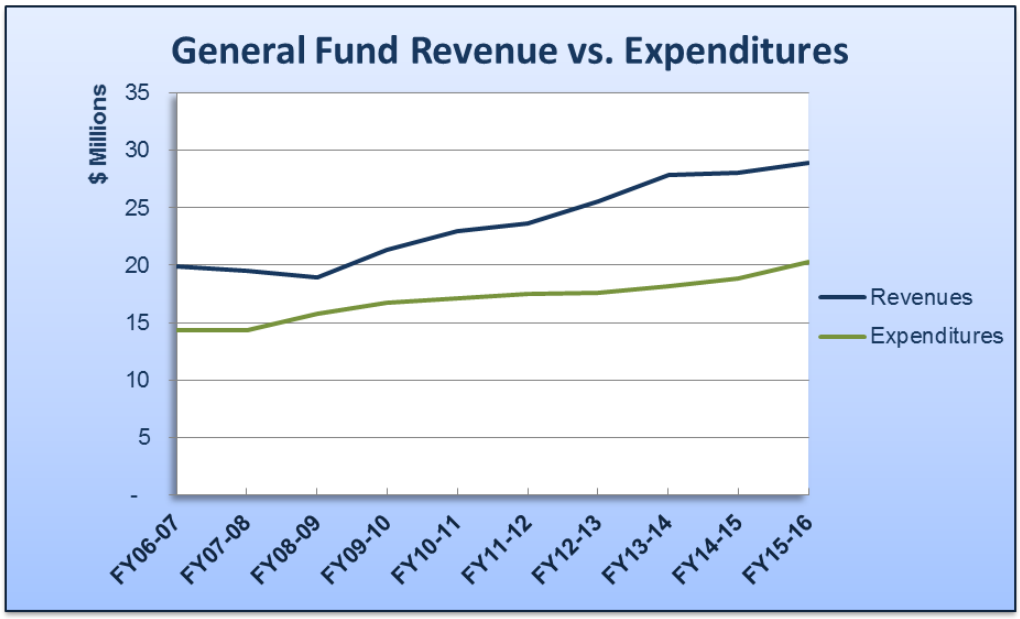
Without a vote of the residents, the City's options to raise additional revenue are very limited. Therefore, additional services and improvements desired by residents must compete with essential expenditures such as public safety and infrastructure for limited resources. Much of the City's infrastructure was built in the 1960s, and is at the end of its useful life. The aging infrastructure must be either repaired or replaced to continue functioning. Additionally, most of the City's buildings are more than 30 years old and are in desperate need of replacement. Furthermore, to protect biological resources, the City has acquired more than 1,400 acres of open space as the Palos Verdes Nature Preserve that must be maintained to standards imposed by state and federal wildlife agencies. As street maintenance expenditures grow, the City's General Fund must provide an increasing subsidy, as transportation revenues discussed previously typically remain flat.

5 Fiscal Sustainability

Resource Management: The City's budget is managed conservatively and expenditures are controlled to every extent possible. Quite often, the only source of funding for infrastructure repairs and maintenance is the excess of General Fund revenues over General Fund expenditures.

With additional TOT and golf tax revenue from the Terranea Resort that began in Fiscal Year 2009–2010, revenues are expected to continue to exceed operating expenditures, thereby providing excess revenues to help maintain the City's infrastructure. However, this trend could be impacted with addition or expansion of services, costs associated with a disaster (e.g., earthquake, slope failure, and fire), or with state legislation that shifts certain revenues away from the City (e.g., vehicle license fees and highway users' tax). Management of the City's resources should always include proactive planning tools such as the CIP, as well as continual monitoring of the state and its potential actions.

The City's prudent fiscal policies allow the City to conduct its business in a resource-scarce environment. The City strives to secure outside funding sources (e.g., grants and earmarks) or use new revenue sources (e.g. tax from the newly developed luxury hotel) for necessary infrastructure projects identified in the CIP instead of adding or expanding services. Future projects include roadway stabilization due to stormwater runoff issues, traffic safety improvements, and replacement of aging facilities.



Economic Outlook: Due to the climate of California and the coastal location of the City, property values are likely to remain high into the future. However, future economic development will likely be minimal as the City has very little developable land remaining. Furthermore, the state will continue to look to local government to help solve its financial problems. With the solid and consistent property tax revenue base, proactive planning, and cautious management of the City's resources, the City will be able to continue providing basic services that the community expects.

VIII LAND USE ELEMENT

Source: Hsu, Ming-yen. 2009. “Point Vicente Lighthouse, Palos Verdes.” Flickr. Accessed at https://flic.kr/p/6THRXz. August 7, 2009.

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VIII Land Use Element

The State of California requires a Land Use Element to be included in every local government's general plan. According to California's 2017 *General Plan Guidelines*, the Land Use Element must designate the proposed general distribution and location and extent of the uses of the land for housing, business, industry, and open space, including agriculture, natural resources, recreation, enjoyment of scenic beauty, education, public buildings and grounds, solid and liquid waste disposal facilities, and other categories of public and private uses of land. The location and designation of the extent of the uses of the land for public and private use must consider the identification of land and natural resources suitable for designation in the Conservation and Open Space Element. The Land Use Element must also include a statement of the standards of population density and building intensity recommended for the various districts and other territory covered by the plan. Additionally, the Land Use Element shall identify and annually review those areas covered by the plan that are subject to flooding identified by floodplain mapping prepared by the Federal Emergency Management Agency (FEMA) or the Department of Water Resources.

The City's Land Use Element is a composite of the other elements of the General Plan. The determination of appropriate land uses is derived from the natural environmental, socio/cultural, and urban environmental constraints and opportunities analyzed throughout the General Plan. Other sections of the General Plan also contain land use policies.

Determinants of appropriate uses include the following:

- Natural environmental constraints: climate, geotechnical factors, hydrology, and biotic resources.
- Social and cultural resources and needs of the community and region.
- Existing and future adjacent development patterns, intensities, and structural types.
- Capacity of infrastructure, both local and regional.
- Safety.
- Visual and noise considerations.

In the original General Plan, where it was determined that there were no constraints severe enough to preclude development, areas were then analyzed for appropriate uses, based on all determinants, and controls that might be necessary to preserve and/or enhance environmentally sensitive areas. Since the adoption of the first General Plan, developable areas of the City have become nearly built out. As such, the discussion of land uses now focuses on describing existing conditions to be preserved and policy direction for those few sites that still remain to be developed. Descriptions of each land use and residential density based on the determinants follow below in addition to the concepts of overlay control districts and specific plan areas.

There are two broad classifications of land use in the City: Natural Environment/Hazard Areas and Urban Activity Areas.

- The Natural Environment/Hazard Areas include areas that possess extreme physical constraints due to the impacts of features such as active landslides, sea cliff erosion, and extreme slopes. They also represent areas designated as Open Space Preservation, which make up the City's Palos Verdes Nature Preserve.

- The Urban Activity Areas include the Residential (also discussed in the Housing Element), Commercial, Institutional, Recreational, Agricultural, and Infrastructure Facility land use designations.

Also included in the General Plan is the analysis of population and housing trends from the City's incorporation to "build out" in 2030. This Element also discusses the application of special districts such as Overlay Control Districts and the Specific Plans that have been adopted for certain sites or areas within the City. This Element briefly discusses the compatibility of development activity in adjacent jurisdictions as it related to the City. Finally, this Element enumerates the City's land use policies.

1 Goals

1. Provide for land uses that will be sensitive to and enhance the natural environment and character of the City; supply appropriate facilities to serve residents and visitors; promote fiscal balance; and protect the general health, safety, and welfare of the City.
2. Carefully control and direct future growth towards making a positive contribution to all elements of the community. Growth in Rancho Palos Verdes should be a cautious, evolutionary process that considers the capacity limitations for the City, and the environmental factors and quality of life on the Peninsula.
3. Preserve and enhance the visual character and physical quality of existing neighborhoods and housing in a manner that serves the needs of the residents.
4. The City shall discourage industrial and major commercial activities that are not compatible with the terrain and environmental characteristics of a respective region of the City. Activities shall be carefully and strictly controlled and limited, giving consideration to the respective neighboring residential or open space areas.
5. Encourage the development of institutional facilities to serve the needs of its residents.
6. Endeavor to provide, develop, and maintain recreational facilities and programs of various types for a variety of activities for persons of all age groups and in all areas of the community.
7. Existing agricultural uses within the City shall be allowed so long as they are in concert with the environmental objectives stated elsewhere in the General Plan.
8. Retain the present predominance of single-family residences found throughout the City. Allow for the maintenance and replacement of existing non-conforming multifamily residential uses.
9. Control the alteration of natural terrain.
10. Preserve the rural and open character of the City through zoning, cooperation with other jurisdictions, and acquisition of open space land.

2 Policies

Compatibility of Adjacent Land Use Areas

1. Work in conjunction with neighboring jurisdictions when development plans are submitted to the City or other jurisdictions that generate impacts on the City across jurisdictional lines.

Residential

2. Require all new housing developed to include suitable and adequate landscaping, open space, and other design amenities to meet the City's standards.
3. Encourage and assist in the maintenance and improvement of all residential neighborhoods so as to maintain local standards of housing quality and design.

4. Maintain and update the Development Code with quality standards, being flexible to new technology and techniques of building.
5. Require all developments that include open space held in private ownership to provide legal guarantees to protect these areas from further development and to establish mechanisms enforceable by the City to ensure continued maintenance.
6. Encourage energy and water conservation in housing design.
7. Require that development reasonably protects corridor-related views.
8. Prohibit encroachment on existing scenic views reasonably expected by neighboring residents.
9. Enforce height controls to reasonably minimize view obstructions.
10. Encourage all development to preserve neighboring site privacy.
11. Require all new housing and significant improvements to existing housing to consider neighborhood compatibility.

Commercial

12. Place commercial and institutional developments under the same building orientation controls as residential developments in regard to topographic and climatic design factors.
13. Require that commercial and institutional activity buffer and mitigate negative impacts on adjoining residential areas.
14. Require commercial and institutional development to be designed to maximize pedestrian safety.
15. Require that scenic view preservation by commercial and institutional activities be taken into account not only in the physical design of structures and signs, but also in night lighting of exterior grounds.
16. Require commercial and institutional sites to limit the exposure of parking and exterior service areas from the view of adjoining sites and circulation routes.
17. Specify the mix of standard and compact parking spaces for new development to ensure that all parking requirements are met.
18. Require adequate screening or buffering techniques for all new and existing commercial activities in order to minimize odors, light, and noise pollution.

Institutional (Public, Educational, and Religious)

19. Require any new schools and encourage existing schools to provide adequate on-site parking and automobile access.
20. Incorporate the Coast Guard Station into Lower Point Vicente Park when it is deactivated.
21. Coordinate with the school district on cross-jurisdictional issues.
22. Encourage implementation of plans for pedestrian and bicycling networks linking residential areas with schools for the safety of children.
23. Review the location and site design of future institutional uses to ensure their compatibility with adjacent sites.
24. Encourage mitigation of the adverse aesthetic impacts of utility facilities.
25. Encourage the unification of the Eastview students into the PVPUSD.

Recreational

26. Encourage local groups to participate in the planning, development, and maintenance of recreation facilities.

Agricultural

27. Encourage preservation of agricultural activities.

Open Space Preservation

28. All land with an Open Space Preservation Land Use Designation shall be used in compliance with the City's Natural Community Conservation Plan / Habitat Conservation Plan (NCCP/HCP).

3 Natural Environment/Hazard Areas

Natural Environment/Hazard Areas to be maintained encompass approximately 1,710 acres of land. There are four separate land use designations (Figure 1) that encompass these areas: "Hazard," "Open Space Hillside," "Open Space Preservation,. and "Greenways." Descriptions of each of these designations are as follows.

3.1 Hazard

The Hazard areas possess extreme physical constraints and will be maintained as open space, with permitted light-intensity uses such as landscaping, agriculture, and recreational activities, for the protection of public health, safety, and welfare. The constraints include active landslide, sea cliff erosion hazard, and extreme slopes of 35% and greater. These relate directly back to the analysis and policies in the Conservation and Open Space Element and the Safety Element in consideration of public health and safety.

The Hazard area designation includes an area of existing properties that are part of the Portuguese Bend community, located within the active Portuguese Bend landslide. This Plan recognizes that these properties are in a density range of 1–2 dwelling units per acre (d.u./acre), overlaid with the Hazard designation. The criteria and policies to regulate this area have been codified in the City's Landslide Moratorium Ordinance (Chapter 15.20 of the City's Municipal Code), which was originally enacted in September 1978. The purpose of the Landslide Moratorium Ordinance is discussed in more detail in this Element.

The Hazard area designation also occurs on other properties throughout the City that are blufftop lots along the City's coastline. In many cases, the Hazard designation along the coastline has been applied to portions of these properties.

3.2 Open Space Hillside

The Open Space Hillside areas also are subject to extreme physical constraints and will be maintained as open space, with very light-intensity uses permitted, such as landscaping, agriculture, recreational activities, and very minor structures, for the protection of the public health, safety, and welfare. The constraints include active landslide and extreme slope of 35% or greater. These relate directly back to the analysis and policies in the Conservation and Open Space Element and the Safety Element in consideration of public health and safety. The Open Space Hillside areas are typically steep-sloped areas near canyons and are found on private property that contain existing residential structures and related accessory structures.

3.3 Open Space Preservation

The Open Space Preservation areas are composed of the City's Palos Verdes Nature Preserve. These are lands that have been acquired by the City as permanent open space, which are managed by the Palos Verdes Peninsula Land Conservancy. The purpose of these lands is to provide permanent open space buffers within the community, to protect sensitive plant and animal communities, and to provide opportunity for passive recreational uses that are compatible with this purpose.

The Land Use Element designates approximately 1,400 acres for Open Space Preservation. This designation includes portions of properties acquired by the City for open space purposes that previously had other land use designations such as Hazard and Residential (Figure 1). These properties have primarily been consolidated under the ownership of the City to form the "backbone" of the Preserve (refer to the Conservation and Open Space Element).

3.4 Greenways

Greenways are pedestrian and bicycle, non-motorized vehicle transportation, and recreational travel corridors that meets certain requirements, including being located adjacent to an urban waterway. Urban waterways are creeks, streams, or rivers that cross developed residential, commercial, industrial, or open space land use (Civil Code Section 816.52). While the City has various trails and pathways, none are considered greenways as there are no urban waterways as defined in Civil Code Section 816.52.

4 Urban Activity Areas

Urban Activity Areas encompass the majority of the land uses in the City, totaling approximately 6,564 acres (Figure 1).

Urban Activity Areas consist of sites that have been set aside for some structured use that either directly (primary activity areas) or indirectly (secondary activity areas) serve a function oriented toward urbanization. Primary activity areas are those sites where residential, commercial, recreational, or institutional activities take place. Secondary activity areas are those sites that are used in infrastructure activities that provide service to primary urban activity areas. Since secondary activity areas were considered to be a reflection of infrastructure, they are, therefore, included in the infrastructure section of the General Plan's Circulation Element.

The following section deals with both existing and proposed primary Urban Activity Areas. As of 2017, the City is nearly built out. As described in Table 1, limited opportunities remain for new residential or non-residential development of undeveloped land within the City. As such, new development activity is expected to be mainly limited to the re-development of existing improved sites.

TABLE 1
LAND USE ACREAGE BY LAND USE TYPE BY 2030

	Developed Acreage	Undeveloped Acreage	Total Acreage
Natural Environment/Hazard Areas:			1,710
Hazard	0	92	92
Open Space Hillside	0	251	251
Open Space Preservation	0	1,367	1,367
Urban Activity Areas:			6,564
Residential*	5,111	389	5,500
Commercial	273	9	282
Institutional	338	10	348
Recreational	396**	17	413
Infrastructure	21	0	21
		TOTAL	8,274

Notes:

* Residential includes the combined land use designation of Residential 1–2 d.u./acre and Hazard that is found within the active Portuguese Bend landslide area.

** Recreational facilities that fall under the "Developed Acreage" column may be partially developed with buildings, other structures, landscaping, and/or hardscaping, while other portions of the same Recreational facility are undeveloped.

4.1 Residential

Residential activities are the major land use in the City (Figure 1), with existing and proposed residential uses encompassing approximately 5,500 acres (66.5% of the total land area). The predominance of residential use is based on several factors: the ability of residential activity to produce low environmental stress, the geographic location of the community with no major transportation facilities, the geology of the site, lack of market potential for any major commercial development, and need for support facilities only to meet the community's demand.

Residential Intensity and Density Standards

This element establishes several ranges of residential intensity and density standards. The density, or the number of existing and projected population per land use is shown under Section 3.4 Population Projections. The intensity ranges, which are described in more detail below, are intended to accommodate residential development spanning the spectrum from very low density, semi-rural detached homes to moderately dense, attached multifamily residences.

- **1 Dwelling Unit per 5 Acres.** Land designated in this density possesses or is immediately adjacent to sensitive plant or animal habitats, and development could have a direct effect on these habitats and/or the watershed of canyon habitats. Such land generally has slopes of 25% to 35%. It is anticipated that any future residences could be positioned in the most buildable sections of such lands, extending existing dead-end streets, and providing development types consistent with the adjacent neighborhoods, while preserving the most sensitive areas of the canyons. This development approach would serve to mitigate environmental impacts.
- **1 Dwelling Unit per Acre.** Land designated in this density in the original General Plan was of two primary types. First, areas identified in Chapter 2, Conservation and Open Space Element, as having high slopes, wildlife habitats, natural vegetation, canyons within the general area, some ancient landslide, plus some immediately adjacent areas included for continuity, are designated at this density. This density would tend to promote development that would have low environmental stress and be so designed under the use of overlay control districts that the physical and social impacts could be minimized. Much of the land originally designated at this density in these environmentally sensitive areas has now been re-designated as Open Space Preservation, as discussed above. Exceptions include the undeveloped Point View and Plumtree properties within the City's Landslide Moratorium Area. Second, areas in or near the Coastal Specific Plan District that were not yet committed to urban use at the time of the City's adoption of its first General Plan (which is further described in Section 3.6, Specific Plan Districts) was designated at this density. Since the adoption of the first General Plan, most of this land has been committed to urban use, including the Lunada Pointe and Oceanfront Estates neighborhoods and the Trump National Golf Club. There currently remain only a few vacant lots within the Coastal Specific Plan District that are designated for future development at this density, mostly within the Trump National Golf Club project.
- **1 to 2 Dwelling Units per Acre.** Land designated in this density range in the original General Plan had low and moderate physical and social constraints, such as public views and vistas, which at this density could be controlled through subdivision design. This density is compatible with the Peninsula environment and with adjacent existing densities and/or a reasonable transition between lower and higher densities. There currently remain only a scattering of vacant lots to be developed at this density, mostly within the City's equestrian neighborhoods, and along Palos Verdes Drive East and Via Campesina.
- **2 to 4 Dwelling Units per Acre.** Land designated in this density range in the original General Plan had low and moderate physical and social constraints and the density was compatible with the adjacent existing and future densities. There currently remain only a few, widely scattered larger parcels designated for this density that could be developed in the future.

- **4 to 6 Dwelling Units per Acre.** Land designated in this density range in the original General Plan had generally low physical and social constraints. At the time of the adoption of the City's first General Plan, most of this land had already been committed to urban use. This includes the single-family neighborhoods in the formerly unincorporated Eastview area that were annexed into the City in 1983. There currently remain only a scattering of small vacant lots to be developed at this density.
- **6 to 12 Dwelling Units per Acre.** Land designated in this density range in the original General Plan had much the same determinants as that in the 4 to 6 d.u./acre range, but the vacant sites were small and almost completely surrounded by existing high-density uses. This includes the multifamily neighborhoods in the formerly unincorporated Eastview area that were annexed into the City in 1983. No vacant parcels remain designated for this density that could be developed in the future.

- **12 to 22 Dwelling Units per Acre.** Land designated in this density range in the original General Plan mainly encompassed existing, moderate- to high-density multifamily residential projects that were constructed prior to the City's incorporation. No vacant parcels remain designated for this density that could be developed in the future.

4.2 Commercial

Commercial Land Use Designations

The Land Use Element designates approximately 282 acres for commercial use (Figure 1), including the neighborhood-scale commercial centers along Western Avenue that were annexed to the City in 1983, and are analyzed as part of the Western Avenue Specific Plan Districts. Commercial activities would comprise 3.4% of the total land area, with mostly retail or office types. There is a total of 11 commercial shopping centers with approximately 240 tenants in the City. Most are single-story strip malls with an open parking lot and considered low density. There are four larger multi-story centers, two of which contains a mix of retail, office, and restaurant uses while the other two contain all office and medical uses. There is one larger hotel/resort (Terranea Resort) that is developed with sleeping accommodations, restaurants, banquet facilities, restaurants, retail shops, and golf on site.

Approximately 9 acres of vacant land are designated for new commercial office use. While this is a very small amount of commercial use, it is based on the existence of major commercial facilities in neighboring cities and the need to preserve the character of the Peninsula.

Over the course of the past 35 years, the community has become accustomed to and dependent upon certain commercial activities, which are located throughout the City. The locations of these commercial uses are on corner lots along the City's most predominant arterials or collector streets. Due to the length of time that these businesses have been in existence, and the community's demand for them, it is preferable that these sites should not revert to the surrounding land use, but rather that the sites should retain the flexibility to either continue the existing use or revert to the underlying land use as warranted by future economic and social conditions.

Existing Peninsula-wide Commercial Uses

The major share of commercial activity on the Peninsula occurs in Rolling Hills Estates, which contains the Peninsula Center and Town & Country shopping centers, which are sub-regional shopping centers with a variety of retail outlets; the Promenade at the Peninsula which is an open-air mall with several major national retailers and a 13-screen multiplex cinema; and numerous smaller freestanding and multi-tenant commercial and office buildings and centers. Since 1975, however, the amount of commercial development in the City has increased, both as the result of new development of formerly vacant or under-developed land, and the annexation of existing commercial districts in the formerly unincorporated Eastview area.

Retail The Terraces at South Bay is the largest commercial center in the City. The Terraces occupies a 10.95-acre site at 28901 Western Avenue that was extensively renovated during the late 1990s and in 2016. At this time, major tenants in The Terraces include LA Fitness, Marshall's department store, Trader Joe's market, and a six-screen multiplex cinema.

The second-largest retail facility in the City is the 6.35-acre Golden Cove Center, located at Hawthorne Boulevard and Palos Verdes Drive West. The Golden Cove Center was also extensively renovated and expanded in 2001. Major tenants in the Golden Cove Center include the Peninsula Montessori School, a Trader Joe's market, and the Admiral Risty restaurant. The three freestanding buildings along the Palos Verdes Drive West were constructed in 2001 and are occupied by a Starbucks coffee shop, a Subway sandwich shop, and other food/restaurant tenants. The existing two-story building on the site is occupied by a mix of ground-floor retail and upper-floor office and service businesses. Although not technically a part of the Golden Cove Center, there is a 7-11 convenience store and Citgo gasoline station at the corner of Hawthorne Boulevard and Palos Verdes Drive West.

Westmont Plaza is the third-largest multi-tenant retail center in the City. The 5.95-acre shopping center is located at the southeast corner of Western Avenue and Westmont Drive. The center has undergone modest renovation since the annexation of the Eastview area in 1983. Major tenants in Westmont Plaza includes a Smart & Final store, a Wells Fargo bank, medical offices, retail (pet store), and service shops (e.g. nail salon, cleaners, etc.).

The fourth-largest commercial center in the City is the Ralphs supermarket, located on a 4.52-acre site at 30019 Hawthorne Boulevard. The building was renovated into an upscale "Ralphs Fresh Fair" supermarket in the early 2000s and includes a bank branch and a Starbucks coffee shop.

Other commercial centers in the City include:

- Miraleste Plaza, with several small retail and service businesses serving the neighborhood surrounding the intersection of Palos Verdes Drive East and Miraleste Drive;
- A small, multi-tenant commercial building anchored by a 7-11 convenience store at 28041 Hawthorne Boulevard;
- Several small, multi-tenant "strip" commercial centers and freestanding retail, service, and restaurant businesses along Western Avenue;
- Six automotive service stations at various locations in the City; and
- A stand-alone Veterinarian Hospital near the Golden Cove Center along Palos Verdes Drive West.

Office Space. Office space activities in the City occur mainly in a strip of multi-tenant buildings along the north side of Silver Spur Road and on Western Avenue. On Silver Spur, there is a 17.03-acre area developed with 5 multistory office buildings constructed during the 1980s and 1990s. Office uses are also found in several existing commercial centers, particularly those that contain more than a single story. These include the Golden Cove

Center, the 7-11 building at 28041 Hawthorne Boulevard, and the Harbor Cove shopping center at 28924 and 29000 Western Avenue.

Commercial Recreational. Commercial recreational activity in the City consists of the 102-acre Terranea Resort along the coastline at 100 Terranea Way. The resort includes 400-rooms, 50 casitas, 32 villa units, a 9-hole golf course, conference center, banquet facilities, spa, pools, restaurants, public trails and parks, public beach, public parking, and natural open space and habitat areas.

Industrial. There are no industrial uses as the City does not have the ability to support traffic and site impacts that are associated with such use, unless it is of the research and development type, more closely related to office uses.

Cemetery. The unincorporated territory annexed by the City in 1983 included Green Hills Memorial Park, a 121.57-acre cemetery located at 27501 Western Avenue. Green Hills has been in operation on this site since 1948, and the oldest structures on the site were built beginning in the early 1950s. Existing uses and structures on the site include a mortuary and crematorium; administrative and consulting offices; a flower shop; a chapel; a maintenance yard; and several mausoleums, columbariums, and other interment structures.

Future Commercial Activity

Since the adoption of the first General Plan, there has been limited new commercial development within the City, primarily as a result of the very limited amount of land designated for this purpose. This section discusses the opportunities for and constraints upon additional commercial development within the City.

Retail. As of 2018, no available vacant land exists within the City that will accommodate new retail development. However, in the future—given the age of many of the City's existing retail establishments—there may be opportunities for major renovations to existing retail developments, as was completed at the Golden Cove Center. One such opportunity is the City's recent efforts to improve the Western Avenue Corridor through the development of a new Western Avenue Vision Plan, which when completed will form the foundation for a revision to the existing Western Avenue Specific Plans.

Office Space. Only one available vacant office space site of approximately 9.4 acres located off Silver Spur Road exists in the City. This site is heavily constrained by existing extreme slopes. No other potential sites are available to accommodate additional office space within the City. However, in the future—given the age of some of the City's existing office establishments—there may be opportunities for the renovation of existing office developments.

Service Stations. The number of service stations in the City has decreased from 10 in 1975 to 6 in 2018. In order to ensure that the supply of automotive service stations in the City remains sufficient to provide for the needs of the City's residents, the City amended the General Plan in 1993 to adopt the Automotive Service Station Overlay Control (OC-4) District. This overlay control district is discussed in greater detail below.

4.3 Institutional

Institutional land uses (Figure 1) encompass public activities (primarily related to the provision of government and public safety services), educational activities (including public and private schools at all grade levels, as well as libraries), assisted living facilities, homes for the aged, and religious activities. Given the broad range of activities covered under the general heading of institutional uses, they are broadly distributed throughout the City.

The Land Use Element designates approximately 348 acres for institutional use, which makes up 4% of the City. Approximately 9.82 acres are vacant and may be proposed for new institutional use. Institutional uses include facilities for the public, educational, health, religious, and cultural activities. Recreational activities are generally compatible with institutional uses and are often part of such uses.

The major area designated for institutional use, the Crestridge Road/Indian Peak Road area, has generally moderate physical constraints and is centrally located in the Peninsula. The intent of concentrating institutional use in this area is to provide for a complex of such uses, rather than allowing them to be located throughout the community, where they are sometimes incompatible with other uses. Within this area are the following three senior living facilities:

- Belmont Village is a 150-bed senior assisted-living facility on a 4.57-acre site at 5701 Crestridge Road. It was completed in 2003 and provides assisted living, skilled nursing, and Alzheimer's care for its residents.
- Mirandela is a 34-unit senior affordable housing apartment complex that was completed and fully occupied in 2010. It is located on a 19.63-acre site at 5555 Crestridge Road. The project was a joint venture of the City's former Redevelopment Agency and the affordable housing developer, AMCAL Multi-Housing Inc.
- Sol-y-Mar is a 60-unit age-restricted (55 years+) market-rate senior condominium complex that includes a clubhouse, resident services, three affordable housing units, and a public access trail through site. It is located on a 33.97-acre site at 5601 Crestridge Road.
- The Canterbury is a non-profit, nondenominational continuing care retirement community on a 5.2 acre lot at 5801 Crestridge Road that provides seniors independent living, assisted living, and memorial care. There are 98 independent living units and 60-bed assisted and memorial care living at the facility.

Another major area designated for institutional use is a portion of the current Point Vicente Park and Civic Center which was a former Nike missile site that was acquired from the U.S. government in 1976. Strategic planning is underway to improve the civic center site with facilities that would support a City Hall, public safety, and recreation facilities and activities.

The remaining areas designated for institutional use located throughout the City include the following uses: religious facilities, public and private schools, automotive repair shops, senior assisted living facilities, So Cal Edison, Cal Water offices and facilities, Palos Verdes Art Center, Mary & Joseph Retreat Center, U.S. Coast Guard station, Marymount California University, Salvation Army / Crestmont College, Fire Stations, Federally owned Radar Station, and City facilities. Most of these uses are on a single parcel with open parking areas.

Public Activities

City Facilities. The City is presently operating as a contract city. Contracts with Los Angeles County include services for police and fire protection. City staff provides most other administrative and public service to the City's residents. Since 1975, the City has acquired the old Nike missile sites for parkland (Del Cerro Park) and the City Hall site. While the City Hall site is not in the geographic center of the City, it has the potential for becoming a strong focal point for the community. The buildings at the City Hall site have undergone very simple and modest upgrades over the years to accommodate expanded City services that are nearing their life expectancy (see Figure 11, Public Facilities). Planning is underway to improve the civic center site with facilities that would support a City Hall, public safety, and recreation facilities and activities. In the years since incorporation, the City has also acquired property for other City facilities from the County (Lower Point Vicente, Pelican Cove, Abalone Cove Park, and Shoreline Park) and the Palos Verdes Peninsula Unified School District (Hesse Park, Ladera Linda Park, and Grandview Park).

City Parks

The City has the following 18 public parks, improved with trails, benches, play equipment, dog park, and other amenities:

Abalone Cove Shoreline Park
Clovercliff Park
Del Cerro Park
Eastview Park/Dog Park
Founders Park
Frank A. Vanderlip Park
Fred Hesse, Jr. Community Park
Grandview Park
Ladera Linda Community Center
Marilyn Ryan Sunset Point Park
Martingale Trailhead Park
Pelican Cove Park
Point Vicente Interpretive Center
Point Vicente Park/Civic Center
Rancho Caninos Dog Park
Rancho Palos Verdes Beach
Robert E. Ryan Community Park
Vista Catalina Park

A detailed description of each park and its amenities are discussed in the Conservation and Open Space Element.

Fire Protection Facilities. Currently, the County provides fire protection to the City through the operation of the fire stations listed in Table 2, two of which are located within the City.

TABLE 2
FIRE PROTECTION FACILITIES

Fire Station No. 53	
Address	6124 Palos Verdes Drive South, Rancho Palos Verdes
Equipment	1 Fire Engine, 3 Personnel
Fire Station No. 56	
Address	12 Crest Road West, Rolling Hills
Equipment	1 Fire Engine, 1 Patrol Unit, 4 Personnel

Fire Station No. 83	
Address	83 Miraleste Plaza, Rancho Palos Verdes
Equipment	2 Fire Engines (active and reserve), 1 Patrol, 4 Personnel
Fire Station No. 106	
Address	413 Indian Peak Road, Rolling Hills Estates
Equipment	1 Fire Engine, 1 Truck, 1 Paramedic Rescue Squad, 1 Battalion Chief, 1 Patrol, 1 Reserve Wagon, 1 Utility Vehicle, 12 Personnel

County Facilities Aside from fire stations, the County has no service facilities in the City. However, County-owned land within the City includes Los Verdes Country Club, a portion of Friendship Park, and a communications tower located south of the Peninsula Center area.

State Facilities While there are no state facilities or land in the City, the Abalone Cove contains a State Ecological Preserve with important natural marine resources at the bottom of the Portuguese Bend landslide area.

Federal Facilities There are three federal facilities in the City. These include the Point Vicente Lighthouse and Coast Guard Station (29 acres), the United States Air Force and Federal Aviation Administration Radar Station (11 acres) on San Pedro Hill, and a World War II bunker and Coast Guard antenna site (4 acres) at Point Vicente Park/Civic Center.

Postal Service. The City successfully petitioned the U.S. Postal Service to designated the "90275" zip code to the entire City in the early 1990s, which resulted in combining a portion of the 90274 zip code assigned to the rest of the Palos Verdes Peninsula with the portion of the 90732 zip code in San Pedro that had been assigned to the formerly unincorporated Eastview area. Postal services for the City are headquartered at the main post office in Rolling Hills Estates; there is no branch post office in the City.

Airport Facilities. There are no public or private airports or airstrips in the City.

Educational Activities

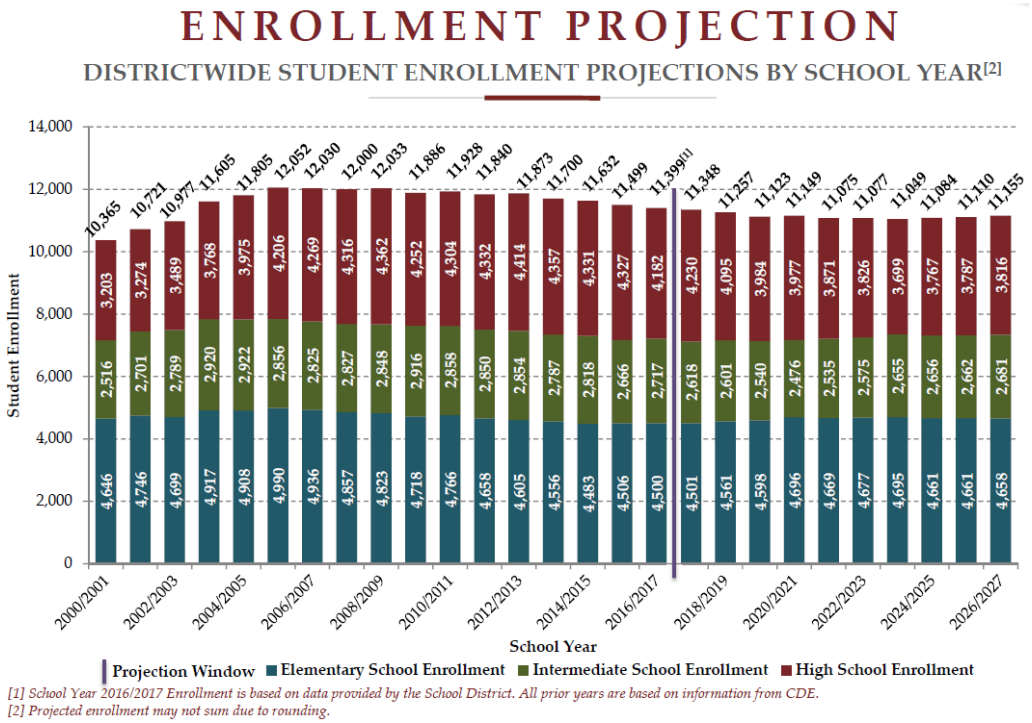
Public Schools – Palos Verdes Peninsula Unified School District The entire Peninsula is served by the Palos Verdes Peninsula Unified School District (PVPUSD). PVPUSD's reputation for having a high-quality education system attracts many families to this semi-rural area for its schools. Students of the Peninsula can attend 2 early childhood centers, 10 elementary schools, 3 intermediate schools, 2 comprehensive high schools, and 1 continuation school. PVPUSD owns no other property in the City with the exception of playing fields adjacent to the Ladera Linda Community Center site.

PVPUSD currently occupies the former site of the Malaga Cove Elementary School in the City of Palos Verdes Estates as its administrative offices. Until 2009, these offices were located at the former Valmonte Elementary School in the City of Palos Verdes Estates.

PVPUSD schools continue to be recognized for outstanding achievement at the local, state, and national level. Community and parent volunteers make significant contributions to the public schools. The Peninsula Education Foundation has been successful in raising local funds to meet and supplement classroom needs. Strong Parent-Teacher Association programs support and enrich school systems.

PVPUSD grew most rapidly between 1955 and 1965, when 14 of the 18 schools were constructed. Enrollment later began to level off, but continued to increase at the rate of 3% annually in the early 1970s. In the early 1980s, four elementary schools were closed due to declining enrollment. School enrollment reached a high of 17,836 in 1973–1974. There was a small "bump" in enrollment in 2005–2006, but the District's enrollment has declined over the years. As such, the demand for additional classrooms and classroom seats is not expected to increase in the

foreseeable future. Below is a graph from the 2017 Enrollment Analysis for the Palos Verdes Peninsula School District. It shows the historical enrollment data from 2000 to 2017 and projected enrollment to 2027. This enrollment data is only for PVPUSD and does not include any data for private schools in the area.



Student bus transportation is provided by the Palos Verdes Peninsula Transit Authority, a joint powers authority serving the PVPUSD and all four cities on the Peninsula and beyond. The Transit Authority operates from PVPUSD-owned property in the City of Rolling Hills that was originally used as the district's administrative offices. Nevertheless, there is typically a large volume of vehicle trips to and from all schools in the City.

PVPUSD's primary sources of income are property taxes and state funding. Because the Peninsula is a primarily residential community, an above-average school tax rate has been necessary. While expectations are high in this highly-educated community, and the citizens have generally supported tax increases in the past, the most recent revenue limit increase election was defeated. Consequently, the district is challenged with managing programs and other costs.

In the past, the greatest population increase within the District was expected to be in the City. With the adoption of the original General Plan, the residential densities previously proposed by the County were substantially reduced, particularly within the coastal portion of the City. The City's acquisition of undeveloped, open space areas has also reduced the potential future inventory of new households within the district's boundaries. The City must continue to work closely with the District in planning, projections, and school needs.

Public Schools – Los Angeles Unified School District. The Eastview area of the City falls within the jurisdiction of the Los Angeles Unified School District (LAUSD). LAUSD is among the largest urban school districts in the country. The Eastview area falls within LAUSD Local District 8, which serves San Pedro, Lomita, Harbor City, Wilmington, Carson, Gardena, and other nearby communities. In 2010, district-wide enrollment for LAUSD exceeded 617,000

students. Within the boundary of the City, LAUSD has two facilities: Crestwood Elementary School and Dodson Middle School.

Since 1983, the City has attempted unsuccessfully to "annex" the Eastview area of the City into the PVPUSD. As a result, property owners in the Eastview area continue to pay for property taxes, bonded indebtedness, and development fees for new construction to LAUSD. Since 1998, thanks to the help of local state legislators, citizens who reside within the LAUSD have the option to send their children to PVPUSD schools.

Private Schools. The Peninsula contains several private schools: Chadwick School, Peninsula Montessori School, Rolling Hills Country Day School, and St. John Fisher, plus several nursery schools and day care centers. While the enrollment for PVPUSD is experiencing a decline and is projected to further decline over the next 10 years, the growing demand for private pre-school child care centers and nursery schools has generated a need to ensure such facilities are adequately available in accessible locations.

Colleges. The community college district serving the Peninsula is the Los Angeles Community College District. The nearest community college is Los Angeles Harbor College located in the Wilmington neighborhood of the City of Los Angeles. Marymount California University has been in Rancho Palos Verdes since 1958 and offers 4-year Bachelor's degree programs. The previous Marymount campus located on Hawthorne Boulevard is now occupied by Crestmont College, which is a training academy for the Salvation Army.

Libraries. The Palos Verdes Library District serves the entire Peninsula with three library facilities: Malaga Cove in Palos Verdes Estates, Peninsula Center in Rolling Hills Estates, and Miraleste in Rancho Palos Verdes. These branches currently have an annual circulation of approximately 1,000,000 books, which is extremely high for the Peninsula's population. The Palos Verdes Library District has plans for improving these existing facilities, but not for additional facilities at this time. If a new facility is proposed in the future, it would be appropriate geographically, and from a population distribution point-of-view, for it to be in the southern portion of the Peninsula, in Rancho Palos Verdes.

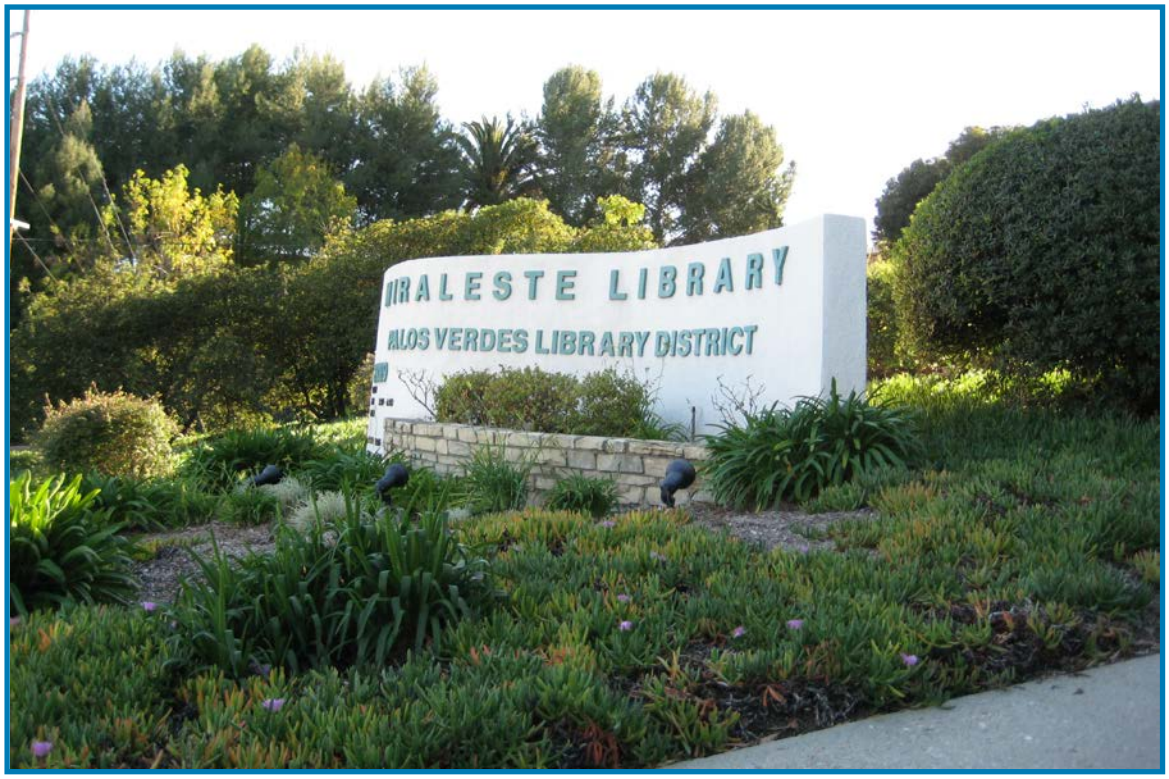
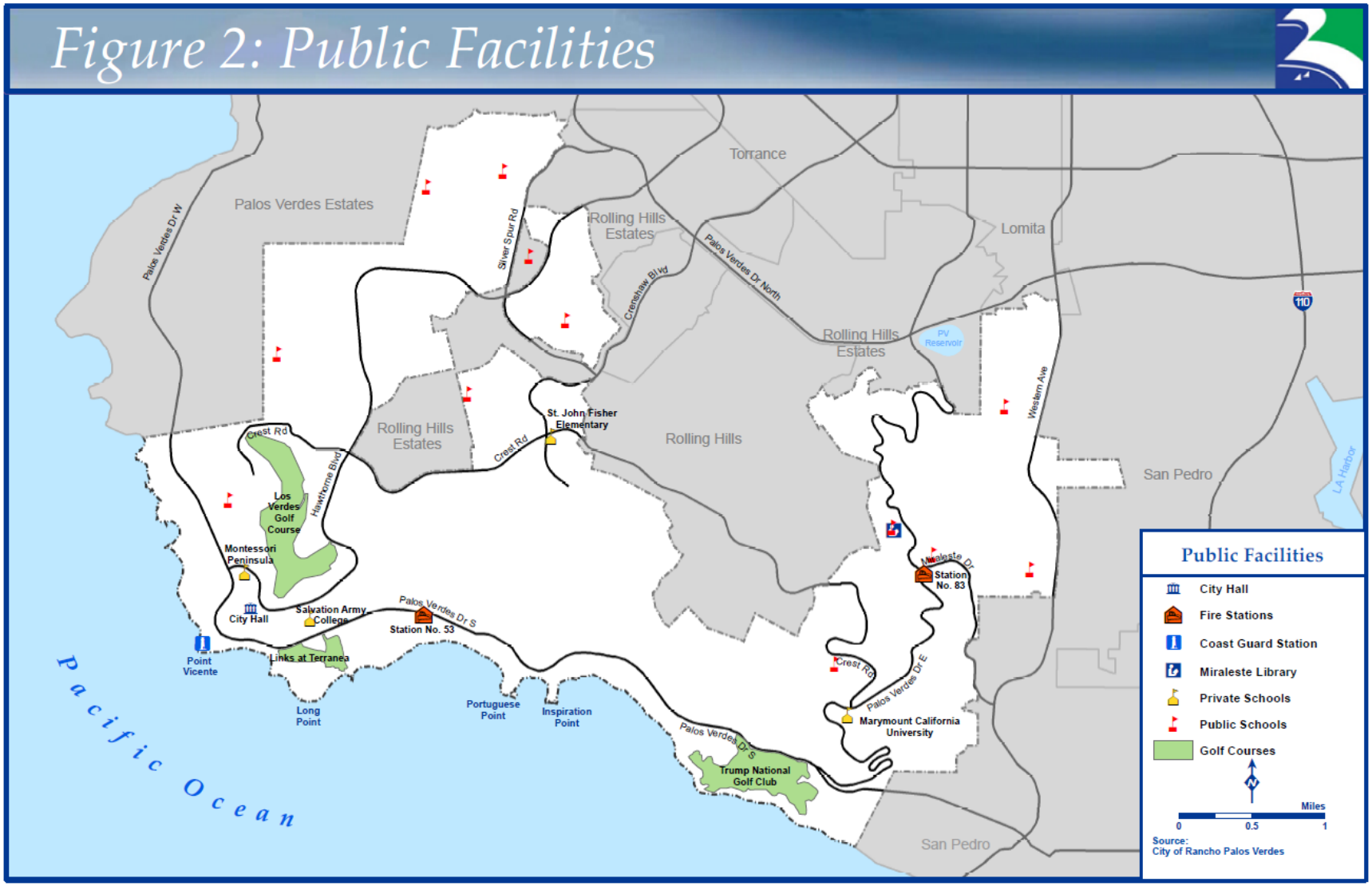


Figure 2: Public Facilities



Religious Activities

There are 20 churches and 1 synagogue on the Peninsula. Ten churches are based in the City; 7 have their own physical facilities. Several of the these religious facilities are located along Crestridge Road, between Indian Peak Road and Crenshaw Blvd. on property designated for religious and institutional activities. This area is centrally located therefore easily accessible from the rest of the City, and buffered from residential neighborhoods. This area is also appropriate for other institutional, cultural, and recreational activities.

4.4 Recreational

Recreational activity areas include sites that have been set aside or are proposed for either active or passive use. These sites are structured to various degrees to allow specific site activities to take place. While this section briefly covers recreational activity areas. Conservation and Open Space Element, provides, a detailed discussion of the available active and passive recreational activity areas in the City. Additionally, path and trail networks, systems that involve linear right-of-way for the purpose of transportation or recreation, are addressed within Chapter 4, Circulation Element.

Approximately 413 acres are designated for recreational use. Recreational land are held by public agencies and developed or proposed for development for active or passive recreational activity. Additional recreational land may be designated after a more specific study is made of community needs and, as new development creates an additional demand. The Municipal Code requires new development to provide parkland land.

As authorized by the Subdivision Map Act, the Municipal Code requires the dedication of parkland or the payment of in-lieu fees (known as "Quimby fees") by the developers of new residential projects. These fees are earmarked for the provision of new and/or expanded park facilities to serve the City's residents. Although the General Plan does not delineate specific additional recreational areas, it is intended that facilities may be added in conjunction with proposed developments, and through further study of existing neighborhoods. Additionally, some existing facilities may be changed to either increase or decrease their recreational opportunities.

The City has established a City-wide park acreage standard of 4 acres per 1,000 population. Based on the City's 2016 census population of 42,435 persons, this equates to a park acreage standard of 169.74 acres. Currently, the City owns and/or operates approximately 413 acres of public park facilities, which equates to roughly 9.92 acres per 1,000 population. This total does not include other publicly accessible recreational facilities such as the Palos Verdes Nature Preserve (which provides 1,400 acres of open space and passive recreation), golf courses, private recreational facilities, public school playing fields, and the property owned and managed by the Miraleste Recreation and Park District.

Dog Parks

The city opened its 1st dog park November 8, 2012. The half-acre, temporary facility is located within Point Vicente Park / Civic Center adjacent to the tennis court. It is separated into small and large dog areas and has a cedar chip surface. The park is named Rancho Caninos, and the city was granted permission by the Ruth Family to use the swinging heart cattle brand for the park logo, which is historically significant to Rancho Palos Verdes. The park has shaded areas, seating, water faucets and bowls for dogs, a restroom and hand wash station and adjacent parking. The park is also ADA accessible. The second dog park is a 9.9 acre site including a children's playground, picnic tables, walking path, permanent restroom, and an off-street parking lot at Eastview Park

4.5 Agricultural

There are no land uses designated for Agriculture. However, non-commercial agricultural use is permitted in all single-family residential and certain open space land use designations. There is one farm is located on a leased portion of City-owned Alta Vicente Reserve, which could be maintained as a visual accent without placing a major limitation on the uses that share the site.

Timberland Production Activity

The City has no land which is devoted to and used for growing and harvesting timber. Therefore, there is no designated land use category that provides for timber production.

4.6 Military Readiness Impacts

The California Military Land Use Compatibility Analyst does not identify military operations (e.g. military bases, installations, etc.) or military aviation routes and airspace over the City. However, the United States Coast Guard is located next to the Point Vicente Interpretive Center at Lower Point Vicente. The U.S. Coast Guard often utilize the coastal cliffs at Lower Point Vicente and City Hall to conduct training exercises.

4.7 Infrastructure Facility

Approximately 21 acres are designated for infrastructure facility use. This designation includes existing public utility uses and facilities. Designated facilities include reservoirs and electric utility substations.

Solid and Liquid Waste Disposal Facilities

There are no existing solid and liquid waste disposal facilities within the City. However, the collection of refuse in the City is a service that is carried out by two private companies, which is described in more detail under Disposal and Recovery systems in the Circulation Element.

5 Population Projections

Appoximately 399.48 acres are designated for new residential development. Table 3 provides a breakdown by land use category of where new residential development is expected.

TABLE 3
CAPACITY OF RESIDENTIAL ACREAGE BY DENSITY BY 2030

Density Range	Developed (Acres)	Proposed (Acres)	Total (Acres)	Percent Total Residential
1 d.u./5 acres	0	25.16	25.16	0.60
≤ 1 d.u./acre	115	145.93	260.93	6.21
1–2 d.u./acre	1,262	130.87	1,438.79	34.23
1–2 d.u./acre/Hazard Area*		45.92		
2–4 d.u./acre	2,208	40.07	2,248.07	53.48
4–6 d.u./acre	44	0.48	44.48	1.06

TABLE 3
CAPACITY OF RESIDENTIAL ACREAGE BY DENSITY BY 2030

Density Range	Developed (Acres)	Proposed (Acres)	Total (Acres)	Percent Total Residential
6–12 d.u./acre	135	0.00	135.00	3.21
12–22 d.u./acre	40	1.23	41.23	0.98
Institutional	0	9.82	9.82	0.23
TOTAL	3,804	399.48	4,203.48	100.00

Notes: * This combined land use designation occurs within the active Portuguese Bend landslide area.
d.u. = dwelling unit

Although it was difficult to estimate existing dwelling units and population in the City at the time that the General Plan was originally adopted in 1975, there have subsequently been decennial U.S. censuses in 1980, 1990, 2000, and 2010 to help further refine these estimates. Table 4 reflects the most recent U.S. census figures and Department of Finance estimates; showing that the population in 2010 was 41,643. The table also shows that the total "build-out" population estimate is 43,570 in 2030, which is based upon Table 5's estimate of the total number of "build-out" dwelling units being 16,935 in 2030.

TABLE 4
DWELLING UNITS BY TYPE AND TOTAL POPULATION, 1980–2030

	Census 1980	Census 1990	Census 2000	Census 2010	Projected 2020	Projected 2030
Single-family	9,347	13,312	13,379	13,534	13,868	14,202
Multifamily	2,934	2,156	2,290	2,645	2,673	2,733
Total Units	12,281	15,468	15,669	16,179	16,541	16,935
Total Population	36,577	41,667	41,145	41,643	42,168	43,570

Most of the new dwelling units to be constructed in the City by 2030 are expected to be single-family residences, as depicted in Tables 5 and 6. The greatest increases in population are expected within areas of the City designated for development at a density of less than 4 d.u./acre, which for the most part tend to be in-fill lots.

TABLE 5
CAPACITY OF RESIDENTIAL DWELLING UNITS BY TYPE BY 2030

	Existing (d.u.)	Existing (%)	Proposed (d.u.)	Proposed (%)	Total (d.u.)	Total (%)
Single-Family	13,534	83.65	668	88.36	14,202	83.86
Multifamily*	2,645	16.35	88*	11.64	2,733	16.14
TOTAL	16,179	100.00	756	100.00	16,935	100.00

Notes:
* "Multifamily – Proposed (d.u.)" is defined as a density of more than 6 d.u./acre (regardless of type of ownership) as well as Institutional land uses.
d.u. = dwelling unit.

TABLE 6

PROJECTED NEW RESIDENTIAL UNITS AND POPULATION INCREASE BY DENSITY RANGE BY 2030

Density Ranges	Undeveloped Acreage	Projected Dwelling Units	Projected Additional Population**
1 d.u./5 acres	25.16	5	13
≤ 1 d.u./acre	145.93	146	372
1–2 d.u./acre	130.87	262	668
1–2 d.u./acre/ Hazard Area*	45.92	92	234
2–4 d.u./acre	40.07	160	408
4–6 d.u./acre	0.48	3	8
6–12 d.u./acre	0.00	0	0
12–22 d.u./acre	1.23	28	71
Institutional	9.82	60	153
TOTAL	399.48	756	1,927

Notes:

* This combined land use designation occurs within the active Portuguese Bend landslide area.

** Population projections assume 2.65 persons/d.u. and 3.80% vacancy rate, based upon State Department of Finance estimates (2010).

d.u. = dwelling unit

6 Overlay Control Districts

The purpose of Overlay Control Districts is to further reduce impacts resulting from proposed and existing developments in sensitive areas. Although the developable areas are not of an extremely critical condition that could endanger future residents (areas with extreme conditions are restricted to open space uses), major disruptive treatment of these land areas would alter features that form the City's character and environment. Overlay Control Districts perform the following functions:

- To guide developments to make wise and prudent use of Rancho Palos Verdes' natural environment, urban environment, and socio/cultural factors.
- To regulate the manner in which lands are urbanized and maintained in order to ensure a proper relationship between special features and urban uses.
- To enhance watershed management, groundwater recharge, and water quality to ensure a continuing supply of safe water.
- To maintain and enhance land areas necessary for continued survival of valuable wildlife and vegetation habitats.
- To maintain and promote the historic and archaeological heritage of the community.
- To preserve the continued availability of significant land areas that are used for the production of food and enjoyment of scenic beauty.

The use of overlaying control districts on land areas is initiated so that more flexibility may be employed in mitigating site-specific conditions. The proposed use of any one development technique, such as cluster development, is considered an effective way of dealing with all the varied site conditions within the City. This flexibility also allows for the City's housing supply to contain a variety of development treatments (e.g.,

conventional lot designs, cluster lot designs, etc.). The control districts are grouped into categories that reflect their respective elements, and detailed factors involving sub-breakdowns are presented. The location and extent of the Overlay Control Districts are depicted on the General Plan Land Use Map (Figure 1).

6.1 Control Districts Applying to Natural Factors

The Natural Design control district applies to the entire coastal zone (all properties seaward of PVDS and PVDW) and portions of low density zoning districts (RS-A-5[1], RS-1 [2]and RS-2[3]). Areas delineated within this control district are developed under the following conditions:

- Site activities shall protect, conserve, and maintain land and water areas that possess, affect, or encompass significant natural factors (such as vegetation, wildlife, minerals, and soils) whose use or recovery can best be realized by restricting and regulating the use of land.
- Site activities shall protect the function of natural and existing water courses as a part of the system for surface water collection and dispersal.
- Site activities shall maintain the quality of surface and marine water as a valuable public resource.
- Site activities shall regulate the modification of water runoff characteristics.
- Site activities shall maintain the characteristics of land areas that contribute to groundwater recharge, stormwater storage, silt retention, and marine water quality.
- Site activities shall regulate use, development, and alteration of land in slope areas, so that essential natural characteristics, such as land form, vegetation and wildlife communities, groundwater recharge, scenic qualities, and open space can be substantially maintained.
- Site activities shall preserve unique and significant geologic, biologic, and hydrologic features of public value.
- Site activities in hill areas shall use alternative approaches to conventional flatland construction practices.

6.2 Control Districts Applying to Socio/Cultural Factors

The Socio-Cultural control district applies to the entire coastal zone (all properties seaward of PVDS and PVDW). The purpose of this type of overlay district is to preserve, protect, and maintain land and water areas and improvements that have significant historical, archaeological, or cultural importance to the public.

6.3 Control Districts Applying to Urban Activities

The Urban Design control district applies to the entire coastal zone (all properties seaward of PVDS and PVDW) and portions of low density zoning districts (RS-A-5, RS-1 and RS-2). This control district is established to ensure that developments conform to the following:

- Site activities shall ensure the continuing availability of land particularly suited to food and flower production.
- Site activities shall preserve, protect, conserve, and maintain land and water areas that are of significant value to the public because of their recreational, aesthetic, and scenic qualities.

[1] Single Family Residential Zoning District, 1 d.u./5 ac.
[2] Single Family Residential Zoning District, 1 d.u./1 ac.
[3] Single Family Residential Zoning District, 2 d.u./1 ac.

- Site activities shall achieve land use concentrations that are consistent with the natural characteristics of hill areas, such as slope, land form, vegetation, and scenic quality.
- Site activities shall protect predominant view of and from slope areas in order to maintain the identity, image, and environmental quality of the City.

6.4 Control Districts Applying to Automotive Service Uses

The Automotive Service Overlay Control District is established to preserve existing automotive commercial services, which are essential to the residents of the City. There are eight specific parcels in the City with this overlay district. Four of them are gas stations, two are automobile repair facilities, and one is a tire shop. One of the sites on Crest Road was recently developed with two single-family residences.

The development criteria for such projects shall require that the design of the project reduce adverse impacts on adjoining residential areas.

In evaluating the development criteria for such projects, the City shall consider the characteristics of the particular site and the surrounding area, and shall attempt to achieve a reasonable balance between the optimum design for the commercial automotive use and the environmental, social, and aesthetic impacts of the proposed use on the existing surrounding uses. The specific locations of the properties affected by the Automotive Service Overlay Control District are identified in the City's Zoning Code.

6.5 Control Districts Applying to the Mira Vista Neighborhood (Tract No. 16010)

Tract No. 16010 (Mira Vista) is the oldest subdivided neighborhood in the Eastview area of the City, which was annexed in 1983. The 215-home neighborhood was subdivided and developed just after World War II. By modern standards, the existing dwelling units are very small and often have substandard parking and setbacks.

The purpose of the Mira Vista Overlay Control District is to:

- Acknowledge the unique qualities of the overlay area, which is generally characterized by very small homes on small lots, with substandard or no off-street parking facilities; and
- Allow for the modernization and enlargement of the homes in the overlay area, in a manner compatible with the unique character of the neighborhood, and with the needs and desires of current property owners.

The specific location and extent of the neighborhood affected by the Mira Vista Overlay Control District is identified in the City's Zoning Code.

6.6 Control Districts Applying to Keeping Large Domestic Animals

There are four established Equestrian Overlay (Q) Districts in the City. They include the Portuguese Bend community; the residential neighborhoods along Palos Verdes Drive East between Coral Ridge Road to the south and the City of Rolling Hills Estates to the north; the residential neighborhoods along Via Campesina abutting the City of Palos Verdes Estates, including Rollingridge Road and Yellow Brick Road; and 34 lots in the easterly portion of the Ridgecrest community abutting the City of Rolling Hills. These neighborhoods share a semi-rural character and are generally located adjacent to areas of the Peninsula that are served by existing equestrian trails. "Large domestic animals" include horses (and other equines), sheep (and other ovines), goats (and other caprines), and cows (and other bovines).

The purpose of the Equestrian Overlay (Q) District is to:

- Allow property within the district to be used for the keeping of horses, other large domestic animals and cows, subject to all applicable requirements of the Municipal Code;
- Regulate the keeping of horses and other large domestic animals by property owners or lessees within the district, where such use is clearly accessory to the allowable use of the land, as provided for by the underlying land use designation;
- Impose reasonable regulations and standards upon animal owner so as to preserve the rights of neighbors by maintaining and controlling animals in a safe, sanitary, and healthy manner at appropriate locations;
- Prohibit the creation or maintenance of any private or public nuisance related to the keeping of large domestic animals; and
- Provide development incentives to property owners within the district to continue to provide opportunities for the future keeping of large domestic animals on privately owned property.

7 Specific Plan Districts

The purpose of a Specific Plan District is to designate functionally interrelated geographic areas where detailed planning studies may be conducted. These studies shall provide the means for coordinating, balancing, and regulating the development of property within a Specific Plan District in order to provide consistency with the goals of the General Plan.

The City has established five Specific Plan Districts, one within its coastal region (Coastal Specific Plan District), and four others located in inland areas of the City (Western Avenue Specific Plan Districts 1, 2, and 3, and the Eastview Park Specific Plan District). The three Specific Plan Districts along Western Avenue were consolidated into a single document in June 2001, although they remain separate districts. The procedure for establishing Specific Plan Districts is provided for under Section 65450 of the Government Code. Other specific plans may also be initiated in the future and it is not necessary for them to be designated in the General Plan for the City to do so.

7.1 Coastal Specific Plan District

The Coastal Specific Plan district comprises all land seaward of Palos Verdes Drive South and Palos Verdes Drive West and is separated into three areas (in addition to the base districts) as indicated on the City's official Zoning Map: the coastal zone, the coastal structure setback zone, and the coastal setback zone. Within these zones are designated areas which development therein is nonappealable or appealable, from a City decision, to the California Coastal Commission. Appealable areas are those areas which are located between the mean high tide line and the first public road; and nonappealable areas are those areas which are located landward of the first public road to Palos Verdes Drive South and Palos Verdes Drive West. Development and uses in the Coastal Specific Plan District must conform with the City's Coastal Specific Plan and state regulations.

The Coastal Specific Plan District is divided into 8 subregions, each area sharing common characteristics using the criteria established in the General Plan. These subregions have different development patterns and varied levels of activities (i.e. residential, recreational, commercial, etc.). Each subregion has its own set of policies customized for that area.

7.2 Western Avenue Specific Plan Districts

There are three separate Western Avenue Specific Plans covering three distinct districts, as discussed below. The City has begun efforts to improve the Western Avenue Corridor through the development of a new Western

Avenue Vision Plan, which, when completed, will form the foundation for a revision to the existing Western Avenue Specific Plans.

- **District No. 1:** The Plan area includes The Terraces commercial center, located at the southwest corner of Caddington Drive and Western Avenue (28901 Western Avenue). The Plan strives to provide a safe, convenient, and attractive commercial development related to the needs of the area. Any project in this area should be oriented towards Western Avenue with a secondary access from Caddington Drive. A Mediterranean theme to provide identity and cohesiveness is established. Architecture, landscaping, and accessories should complement each other and be consistent with the theme. Western Avenue Specific Plan District No. 1 was adopted by the City in January 1986.
- **District No. 2:** The Plan area includes the southwest corner of Crestwood Street and Western Avenue, and extends southward to the City boundary near Summerland Street. The Plan area encompasses street addresses ranging from 29505 to 29701 Western Avenue, including the nonconforming, 70-unit Eastview Townhouse condominiums located at 29641 Western Avenue. The Plan strives to provide a safe, convenient, and attractive commercial development related to the needs of the area. Any project should be oriented toward Western Avenue. General use of the Summerland Street driveway is discouraged. A Mediterranean theme to provide identity and cohesiveness is established. Architecture, landscaping, and accessories should complement each other and be consistent with the theme. Western Avenue Specific Plan District No. 2 was adopted by the City in October 1986.
- **District No. 3:** The Plan area includes all properties that front along the west side of Western Avenue from and including 29019 to 29421 Western Avenue. It should be noted that a sliver of the parking lot and some existing freestanding signage for the Western Plaza shopping center (29105 to 29229 Western Avenue) is located outside of the City limits and is not covered by the Plan. The Plan is for retail/service commercial use. The City would like to encourage merging lots held in common ownership to encourage master plan development. Pedestrian access to the commercial use is encouraged. The Plan seeks to improve the existing access to the area and to provide for safe pedestrian, bicycle, vehicular, and transit access to the area. The Plan is directed toward protecting views of surrounding residences while minimizing adverse sensory impacts of the area through effective buffering. A Mediterranean theme is required. Western Avenue Specific Plan District No. 3 was adopted by the City in October 1987.

7.3 Eastview Park Specific Plan District

Eastview Park is a 10-acre park located at 1700 Westmont Drive. The property is owned by the Los Angeles County Sanitation Districts and provides a secure access point for the Districts' Joint Outfall System sewer lines. The City leases the property from the Districts for park purposes. With the annexation of the Eastview area in 1983, the park was designated by the City as a specific plan area. The intent of the plan is to ensure that the park is maintained and developed for passive recreational use that is compatible with the surrounding residential and commercial land~~s~~ uses, and that preserves the Districts' rights and ability to access and maintain the underground sewer lines. Eastview Park Specific Plan District was adopted by the City in November 1989.

8 Former Redevelopment Project Area

The City's Redevelopment Agency (RDA) was established in 1984 with the primary purpose of providing mitigation measures to stabilize landslides in the Abalone Cove and Portuguese Bend areas of the City. The RDA project area encompassed roughly 1,100 acres along the south-central coastline of the City, and included the Portuguese Bend and Portuguese Bend Club communities, 36 homes located at the west end of the Seaview community, the City's Abalone Cove Shoreline Park and Portuguese Bend Reserve (a subarea of the Palos Verdes Nature Preserve), the Lloyd Wright-designed Wayfarers Chapel, and the coastal bluff-face along Sea Cove Drive in the Abalone Cove community.

The City and RDA had carried out an active and successful redevelopment program since the activation of the RDA in 1984. However, on October 1, 2011, ABX126 dissolved all existing redevelopment agencies in California, designated successor agencies as successor entities to the former redevelopment agencies, imposed numerous requirements on the successor agencies, and subjected successor agency actions to the review of oversight boards established under the new law. On January 31, 2012, the City's RDA was formally dissolved and the Successor Agency to the RDA was formed pursuant to state law.

Other than the City Council's election to retain the housing assets and function of the former RDA, which resulted in a transfer of approximately $5.5 million of assets to the City, all actions of the Successor Agency and its Oversight Board have been required by state law. The Successor Agency continues to wind down the affairs of the former RDA in accordance with state law.

9 Landslide Moratorium Area

Roughly contiguous with the former RDA project area is the City's Landslide Moratorium Area (LMA). The LMA was originally established in 1978 in response to potentially unstable soil conditions and active landslide movement. Since 1978, development activity has been strictly limited within the LMA. In 1993, a former City Geologist (Dr. Perry Ehlig) investigated the possibility of allowing development of certain areas within the boundaries of the LMA by establishing overlay zones. Dr. Ehlig divided the LMA into 8 separate zones and provided suggested guidelines for permitting development in each area based on geologic characteristics. The City considered Dr. Ehlig's findings, but decided not to proceed with establishing overlay zones.

The specific restrictions imposed within the LMA are described in the City's Landslide Moratorium Ordinance (Chapter 15.20 of the City's Municipal Code). In general, properties in the LMA that are currently developed with residential structures are permitted to make limited improvements if the City grants a Landslide Moratorium Exception (Exception). New construction is not permitted on properties in the LMA that are not currently developed with residential structures unless a Moratorium Exclusion (Exclusion) is granted, which would effectively remove the subject properties from the LMA.

In 2002, a group of Portuguese Bend property owners filed an Exclusion application to exclude their undeveloped lots within the area known as "Zone 2" from the LMA. Zone 2 is a portion of the LMA that had been designated by the late Dr. Perry Ehlig in 1993 as being potentially suitable for development. Shortly after this Exclusion application was deemed incomplete for processing, the applicants filed suit against the City. Eventually, the case (*Monks v. Rancho Palos Verdes* (2008) 167 Cal.App.4th 263) was decided in the applicants'/plaintiffs' favor in December 2008, the City being found to have taken the plaintiffs' property by virtue of preventing the development of their undeveloped lots. The City has been ordered to remove regulatory impediments in its Municipal Code that prevent the development of the 16 *Monks* plaintiffs' lots. The City began this process with the adoption of Ordinance 498 in 2009 to allow the *Monks* plaintiffs to apply for Exceptions for their lots. The City began issuing Exception permits

for these properties in 2010. At the same time, the City was considering broader revisions to the Landslide Moratorium Ordinance that could also permit the owners of the other undeveloped lots in Zone 2 to be developed with new residences. Although this discussion has been tabled at this time, if enacted, this would result in the possible future development of new residences on existing legal lots in Zone 2 within the Portuguese Bend community. Additionally, in early 2016, a code amendment was adopted, revising the Landslide Moratorium Ordinance that allows the property owners of the 94-acre Point View property and the 28-acre Plumtree property to be developed with one dwelling unit on each lot plus ancillary structures.

In addition to the consideration of new development on existing vacant lots in the LMA, there have been inquiries through the years to consider excluding certain larger undeveloped properties from the LMA to allow for future development. The City has yet to act upon a request for an Exemption.

10 Flood Hazard Areas

Government Code Section 65302(a) requires general plans for cities and counties to consider those areas covered by the plan that are subject to flooding identified by floodplain mapping prepared by FEMA (Federal Emergency Management Agency) or the Department of Water Resources. The Flood Insurance Rate Maps prepared by FEMA indicate that most of the City falls within "Zone X," which is not a designated flood hazard area. Other portions of the City fall within "Zone D," which are identified as areas where flood hazards are possible but not yet determined. Areas of the City included within "Zone D" include Lunada and Agua Amarga canyons, the Portuguese Bend and Forrestal Reserves, and other public and private properties. Much of this property is designated as Hazard Area or Open Space Preservation in the Land Use Element. Therefore, the development potential within "Zone D" is generally limited, as is the risk of the exposure of the general public to flood hazards. However, in accordance with the requirements of the Government Code, the City will annually monitor the portions of the City designated within "Zone D" for any changes in flood hazard status, as determined by FEMA. For additional information about flood hazards, see the Safety Element (Chapter 6).

11 Compatibility of Adjacent Activity Areas to the City

In evaluating the impacts of adjacent activity areas outside of the City, the major concern is compatibility of these activities with adjoining areas in the City. Compatibility is primarily reflected in use and intensity of the adjacent activities.

In the past, the main areas of concern to the City were two sections of Rolling Hills Estates that are nearly landlocked by Rancho Palos Verdes. The southernmost area (bounded by City boundaries on both the north and east, Crest Road to the south, and Hawthorne Boulevard on the west) previously contained Northrop's research and development facility, a small nursery, and large amounts of undeveloped land, a portion of which was then in agricultural use. In recent years, nearly all of these sites have been developed or redeveloped, with the exception of the former nursery at the northeast corner of Crest Road and Highridge Road. The City of Rolling Hills Estates is considering residential development on this property. The northern area consists of residential condominium developments along Highridge Road and the Peninsula Center commercial district. The major concern here was the degree of intensity to which vacant commercial lands might develop in the future. Major new development in the Peninsula Center commercial district during the 1980s and 1990s included the construction of the (then enclosed) Peninsula Center mall, the main library for the PVLD and the main post office serving the Peninsula.

With the annexation of the Eastview area in 1983, new development activity within San Pedro along the Western Avenue commercial corridor also became a concern to the City and its new residents. Since the mid-1990s, a primary focus of these concerns has been the reuse of the former Navy housing facilities on Western Avenue and Palos Verdes Drive North (now known as Ponte Vista). Although the City and its residents became involved in the development of a reuse plan for these sites, the City continued to address the impacts of development in adjacent jurisdictions upon the City and its residents on an *ad hoc* basis until the early 2000s.

Beginning in 2002, the City Council began to receive regular monthly reports on so-called "border issues," which were identified as projects in surrounding jurisdictions having potential adverse effects upon the City and its residents. Typically, the City's involvement in these border issues has been to submit written and oral comments to decision makers as a part of a project's California Environmental Quality Act (CEQA) and/or entitlement process. Since 2002, the City has offered its input on a number of controversial proposals in surrounding jurisdictions, including:

- The Highpark project at the former Navy housing site on Western Avenue in San Pedro;
- A proposed County golf course to be developed on the site of the former Palos Verdes Landfill in Rolling Hills Estates;
- The proposed "Peninsula Village Overlay Zone" in Rolling Hills Estates, which would have increased the density and intensity of residential development allowed in the Peninsula Center commercial district;
- A number of proposals for the expansion of container terminals and other facilities in the Port of Los Angeles.

The City will continue to monitor development in nearby communities to ensure that adverse impacts upon the City and its residents are avoided or minimized.

11.1 Unincorporated Island, Fringe or Legacy Communities

There are no disadvantaged unincorporated fringe, island, and legacy communities that are within the City's sphere of influence. The City is surrounded by the Cities of Los Angeles, Palos Verdes Estates, Rolling Hills Estates, and Rolling Hills.

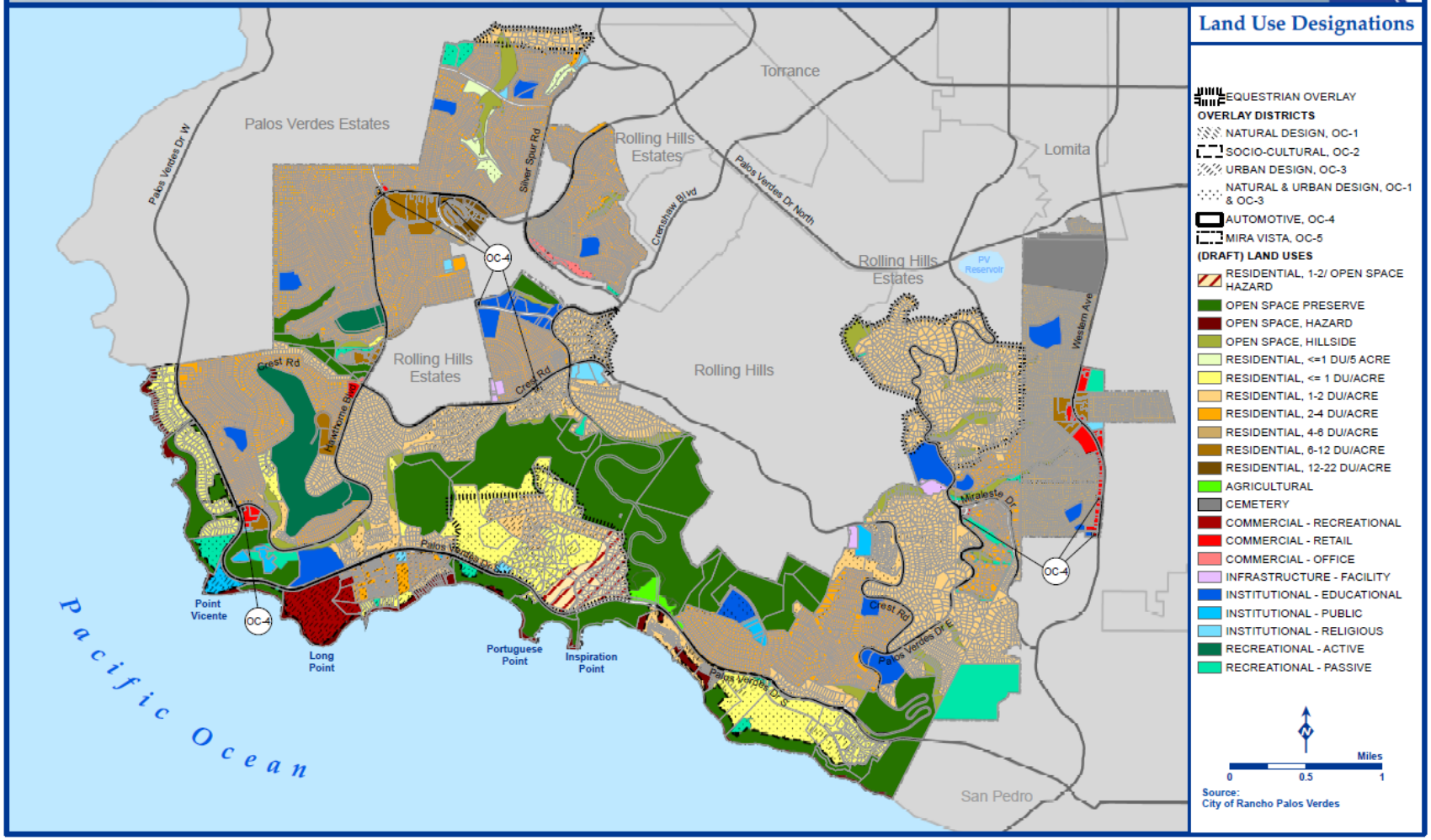
12 References

Governor's Office of Planning and Research 2017 *General Plan Guidelines*.

State Department of Finance. 2010. Population projection estimates.

Federal Emergency Management Agency. Flood Insurance Rate Map. Retrieved from https://msc.fema.gov/portal

Figure 1: General Plan Land Use Map



IX NOISE ELEMENT

Source: Migulski, Bogdan. 2007. “Rancho-Palos-Verdes-Lighthouse.” Flickr. Accessed at https://flic.kr/p/5UWaw9. July 14, 2007.

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IX Noise Element

The Noise Element is intended to identify existing and potential future sources of noise within the community, and to identify strategies to limit the exposure of the community to excessive noise levels.

1 Goal

1. Through proper land use planning and regulations, to provide for a quiet and serene residential community with a minimum of restriction on citizen activity.

This chapter identifies the fundamentals of noise and its effects upon human beings. The methods for measuring existing noise levels and projecting future noise levels in the community are then discussed. From these discussions, mitigation measures are identified to minimize the exposure of community residents to excessive levels of noise. Finally, this element enumerates the City of Rancho Palos Verdes' (City's) noise policies.

2 Policies

Transportation Noise

1. Encourage through traffic to existing arterials and collectors so that local roads are not used as by-passes or shortcuts, in order to minimize noise.
2. Control traffic flows of heavy construction vehicles en route to and from construction sites to minimize noise.
3. Encourage the state and federal governments to actively control and reduce vehicle noise emissions.
4. Encourage state law enforcement agencies to vigorously enforce all laws that call for the control and/or reduction of noise emissions.

Community Noise

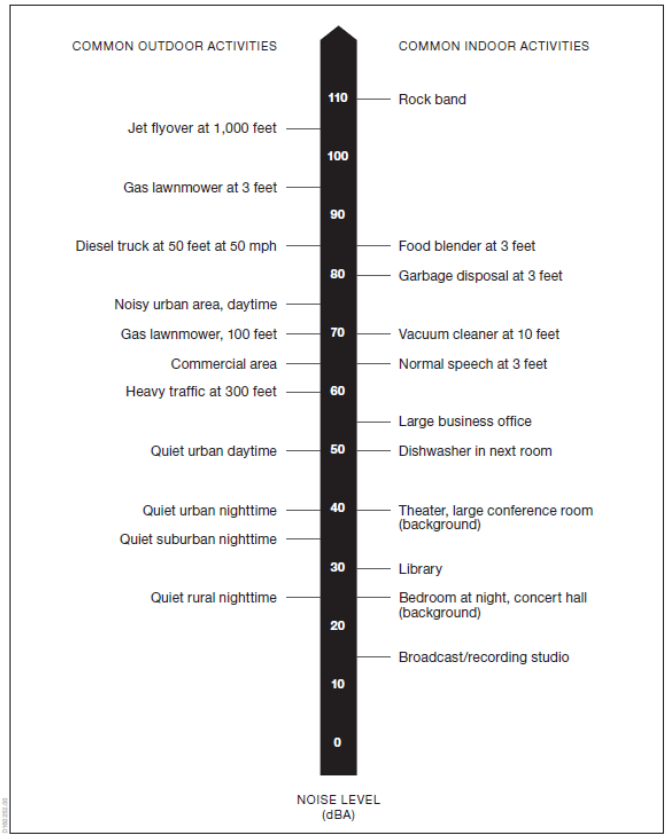
5. Develop an ordinance to control noise commensurate with local ambiance.
6. Maintain current and up-to-date information on noise control measures, on both fixed-point and vehicular noise sources.
7. Coordinate with all public agencies, especially our adjoining jurisdictions to study and/or control noise emissions.

Land Use Planning and Noise Control

8. Mitigate impacts generated by steady state noise intrusion (e.g., with land strip buffers, landscaping, and site design.
9. Regulate land use so that there is a minimal degree of noise impact on adjacent land uses.
10. Require strict noise attenuation measures where appropriate.
11. Review noise attenuation measures applicable to home, apartment, and office building construction, make appropriate proposals for the City zoning ordinance, and make appropriate recommendations for modifying the Los Angeles County Building Code as it applies to the City.
12. Require the minimization of noise emissions from commercial activities by screening and buffering techniques.

3 Fundamentals of Noise

For the purposes of this section of the General Plan, noise means any loud sound. Sound has physical properties that are not only heard but can be measured and felt. The decibel (dB) is a conventional unit for measuring the amplitude of sound, as it accounts for the large variations in sound pressure amplitude, and reflects the way people perceive changes in sound. When describing sound and its effect on humans, A-weighted (dBA) sound levels are typically used to account for the response of the human ear. The term "A-weighted" refers to a filtering of the noise signal in a manner corresponding to the way the human ear perceives sound. Some representative common outdoor and indoor noise sources and their corresponding A-weighted noise levels are shown in the figure to the right.



4 Measurement of Noise within the City

Pursuant to Section 65302(f) of the Government Code, a noise contour map was created to characterize the existing ambient noise environment throughout the City (Figure 1). ESA conducted 24 short-term (15-minute duration) ambient noise measurements at various residences along various roadways. Average noise levels range from 58 to 74.2 dBA L_{eq}. The dominant noise source in the City is traffic noise disseminating from the roadways. Other noise sources include yard equipment, car alarms, construction activity, emergency vehicle sirens, airplane and helicopter flyovers, and air conditioning units.

In creating the noise contour map, the Federal Highway Administration (FHWA) highway traffic noise prediction model (FHWA RD-77-108) was used to evaluate highway traffic-related noise conditions along major arterials within City limits. This model requires various parameters, including traffic volumes, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent noise levels during daytime, evening, and nighttime hours. The resultant noise levels are weighted and summed over 24-hour periods to determine the community noise equivalent level (CNEL) values. Traffic noise would be considered low if the 70, 65, and 60 dBA CNEL contours are all confined within the roadway right-of-way; moderate if the 70 dBA CNEL contour is confined within the roadway right-of-way but the 65 and 60 dBA CNEL contours extend to beyond the right-of-way; and high if the 70, 65, and 60 dBA CNEL contours all extend beyond the roadway right-of-way. As depicted in the noise contour map (Figure 1), traffic noise along the major arterials within the City range from moderate (Highridge Road, Indian Peak Road, Miraleste Drive, Palos Verdes Drive East, Palos Verdes Drive South, Palos Verdes Drive West, Silver Spur Road, Crest Road, Crestridge Road, and a portion of Crenshaw Boulevard and Hawthorne Boulevard) to high (Hawthorne Boulevard, the majority of Crenshaw Boulevard, and Western Avenue).

5 Current Noise Levels in the City

In urbanized areas such as the City of Rancho Palos Verdes, the noise environment generally includes two major components: transportation noise and community noise sources. Sensitive noise receptors include residences, schools, medical facilities, and similar uses. In general, the City's residential communities are spread throughout the entire City. These sensitive land uses, along with schools, medical buildings, nursing homes, and churches, may be potentially affected by the noise associated with increased traffic on the City's major arterial roadways, as well as the construction and operation of future development projects in the community. Finally, the transmission of sound and vibration through the common walls and/or floors of condominiums, apartments, hotel rooms, and other non-detached single-family structures are critical components of the enjoyment of quiet interior environments.

The following is a discussion of the three major components of the noise environments within the City: transportation noise sources, community noise sources, and structural transmission of sound and vibration.

5.1 Transportation Noise Sources

Primary Arterials and Major Local Streets

Transportation noise sources include automobiles, trucks, motorcycles, buses, trains, helicopters, and planes. Rancho Palos Verdes has no railroad lines either in or abutting the City. The predominant noise sources in the City include roadway traffic noise on major arterials, such as Hawthorne Blvd., Crenshaw Blvd., Palos Verdes Drive, Crest Road, Crestridge Road, Silver Spur Road, Western Ave., Highridge Road, Indian Peak Road, Miraleste Drive, and Montemalaga Drive. Secondary noise sources include activities related to the operation of commercial businesses in the area including loading area/delivery truck activities, trash compaction, and refuse collection. Table 3 of ESA's Noise and Vibration Study Technical Report provides the existing traffic noise levels 50 feet from the centerline of the outermost lane of 36 roadway segments with average daily traffic volumes provided in the Traffic Impact Analysis (Translutions, August 15, 2017). These noise levels represent the worst-case scenario, which assumes that no shielding is provided between the traffic and the adjacent properties. The existing land uses along certain roadways are potentially exposed to existing traffic noise levels. The effect of vehicular noise as emitted from the City's arterials and major collectors are reflected in the noise contour map (Figure 1).

Railroad and Rapid Transit Systems

The City has no passenger or freight railroad operations within or abutting the City. Rail traffic in the Port of Los Angeles may be audible at times to residents on the east side of the City, but does not pose a substantial impediment to residents' quiet enjoyment of their property.

Rancho Palos Verdes is served by three regularly scheduled regional and sub-regional transit providers: the Los Angeles Metropolitan Transit Authority (Metro or MTA), the Palos Verdes Peninsula Transit Authority (PVPTA), and the Los Angeles Department of Transportation (LADOT). The routes and services provided by these transit agencies are discussed in detail in Chapter 4, Circulation Element. Marymount College Palos Verdes also operates shuttle buses between its Palos Verdes Drive East campus and its two off-campus housing complexes in San Pedro.

Airport Operations

There are no airport operations in the City or designated airport take-off or jet approach paths over the City. The three airports nearest to the City are Los Angeles International Airport (LAX – 8 miles), Long Beach Daugherty Field (LGB – 11 miles), and Torrance Zamperini Field (TOA – 1.5 miles). The City is outside of the 60 dBA CNEL contours for all of the airports. However, over the years, the City's residents have increasingly reported noise complaints regarding commercial and general aviation aircraft flying over and just off-shore from the Palos Verdes Peninsula. This includes commercial turbopropeller freight aircraft departing LAX for points east over the Peninsula; high altitude commercial jets departing LAX and "looping" counterclockwise around the Peninsula to head east, but are vectored from their flight path over the Peninsula; small planes towing advertising banners; pilot training (i.e. LA County Sherriff, LAPD, Coast Guard), test flights, and aerobatics; small planes carrying tourists; WWII vintage planes; and ultralight "flying lawnmotor" aircrafts. Table 1 below summarizes average daily operations at several nearby airfields.

TABLE 1
NEARBY PUBLIC AIRFIELD OPERATIONS

Airfield	Average Daily Operations (Annual)			
	Total	Commercial	General Aviation	Other
Los Angeles (LAX)	1,745	89%	4%	7%
Long Beach (LGB)	808	8%	89%	3%
Torrance (TOA)	326	<1%	99%	<1%
Hawthorne (HHR)	220	0%	99%	1%
Compton (CPM)	181	0%	100%	0%
Catalina (AVX)	45	0%	86%	14%

Notes: Average daily operations based upon data reported for a 12-month period, ending November 30, 2016. "Other operations" include military aircraft and air taxi services.
Source: AirNav LLC 2018.

Since 2010, the City has also been involved with issues related to helicopter routes to and from Torrance airport. In 2011, the so-called "South Crenshaw" helicopter route was approved by the Torrance City Council, based in part upon input from the City. This route avoids subjecting sensitive receptors—such as the Terranea Resort, Abalone Cove Shoreline Park, and residences in the Portuguese Bend community—to helicopter noise.

The City is part of the LAX Community Noise Roundtable, which was created to mitigate adverse aircraft noise impacts on nearby cities. The Roundtable communicates noise impacts to the Federal Aviation Administration (FAA). The Roundtable meetings are open to the public and are held every other month.

Industrial Plants

The City does not have industrial operations in the City, including, but not limited to, railroad classification yards.

5.2 Community Noise Sources

Community noise has two basic components: steady state or constant level noise, and intermittent, single-event noise. These two types of noise affect the outdoor noise level, causing it to rise above the ambient noise level.

Ambient noise is the all-encompassing noise within a given environment. Ambient noise levels range from approximately 58 to 74 dBA Leq near residential properties (ESA 2017 Noise and Vibration Report).

Steady State Noise

In Rancho Palos Verdes, steady state noise would include noise generated from traffic flows, activities around service stations, shopping centers , and other non-residential uses in the community. A neighbor's air conditioner or pool equipment might also be considered as contributors to steady state or quasi-steady state noise intruders.

For the most part, the impact of these steady state noise intruders can be mitigated through the use of land strip buffers, landscaping, berms, and site design. These solutions would be quite effective in mitigating noise intrusion for both traffic and non-residential steady state noise generators.

Controlling noise intrusion emitted by residential steady state noise producers will require an ordinance that will prescribe setbacks and quantifiable permissible noise-level limits.

Single-Event or Intermittent Noise

Although of shorter duration, the intermittent or single-event noises are often more annoying than the steady state constant level noise. These include such noise as a plane flying overhead, a neighbor with the stereo or television turned up too loud, barking dogs, a roaring motorcycle, and special events permitted by the City.

The annoyance caused by intermittent sources is heightened because of the difficulty in controlling such noise intrusion. The intermittent nature of the noise makes the enforcement of noise control ordinances extremely difficult. Even after the development of a noise ordinance, which could set quantifiable permissible noise-level limits, it can only be enforced if the enforcing official is present at the time the permissible noise level is being exceeded.

Although the industry component of noise is inapplicable to Rancho Palos Verdes, it should be noted that noise from the construction of new homes is definitely industry-related. Unlike other single-event noises, construction noises tend to be steady-state noise. The operation of bulldozers, heavy trucks, and the non-rhythmic pounding of hammers present a continuous noise intrusion violating the peace, quiet, and serene nature of any community in Rancho Palos Verdes.

The City controls construction noise by setting constraints and guidelines in the building permit process. Some methods to accomplish this include: (1) Controlling hours of operation; (2) Designating the routes trucks and other construction-related vehicles are to use in traveling to and from the various project sites; and (3) In some areas, where several parcels are involved in close proximity to existing residents, temporary screening measures should be considered.

Military Installations

Military installation means a base, camp, post, station, yard, center, homeport facility for any ship, or other activity under the jurisdiction of the United States Department of Defense. The United States Coast Guard is located next to the Point Vicente Interpretive Center. The U.S. Coast Guard often utilize the coastal cliffs, Point Vicente Interpretative Center, and City Hall to conduct training exercises.

5.3 Sound and Vibration

Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration (e.g., construction equipment and heavy trucks). Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment (e.g., electronic equipment) . The effects of ground-borne vibration include rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction.

Aside from periodic construction work, other sources of ground-borne vibration in the City include heavy-duty vehicular travel (e.g., refuse trucks and delivery trucks) on local roadways. Truck traffic at a distance of 50 feet typically generates ground-born vibration velocity levels of approximately 63 VdB. The abbreviation "VdB" is used for vibration decibels to reduce the potential for confusion with sound decibels. These levels could reach 72 VdB where trucks pass over irregularities in the road surface. In residential areas, the background vibration velocity level is usually around 50 VdB, which is below the vibration velocity level threshold of perception for humans of approximately 65 VdB. A vibration velocity level of approximately 75 VdB is considered to be the approximately dividing line between barely perceptible and distinctly perceptible levels for many people.

Sound Transmission Control Standards in the California Administrative Code, Title 24, Building Standards, Chapter 2.5, outline noise insulation performance standards for new hotels, motels, apartment houses, and dwellings other than detached single-family units. For projects near noise sources (airports, major roads, and industrial areas), an acoustical analysis may be required to show compliance with these standards.

The Rancho Palos Verdes Development Code also establishes development standards for attached dwelling units. These standards include minimum requirements for the sound transmission class and impact insulation class of common wall and floor assemblies, as well as the appropriate insulation of plumbing fixtures and water and drainage lines within these assemblies.

Figure 1: Existing Noise Contour Map

6 Projected Noise Growth and Measures to Reduce Potential Noise Effects

The General Plan calls for a slight population increase though General Plan build-out. The bulk of this increase will be reflected in low-density residential development and therefore would not require the extensive and ongoing use of heavy trucks that commercial, industrial, or other land uses might induce. Heavy trucks are a major contributor to increased noise levels in the environment.

In addition to the low-density residential growth that will continue to characterize Rancho Palos Verdes' future development, the State of California has set noise standards for motor vehicles. Since the state regulates noise emissions from motor vehicles, a major source of noise in Rancho Palos Verdes, the City is pre-empted from passing any laws or ordinances that call for stricter regulations or enforcement related to vehicle noise emissions. For this reason, the City is highly dependent on the state for the control and the enforcement in this area. Therefore, the City encourages the State Legislature and the state law enforcement agencies, such as the California Highway Patrol, to actively pursue legislation to reduce and control vehicle noise emissions and to vigorously enforce all such laws.

Active enforcement on the part of state agencies and the County, coupled with a viable City ordinance controlling community noise, will ensure that Rancho Palos Verdes' future environment will be free of abusive sound and unnecessary noise.

The following is a discussion of the four major components of future noise growth within the City and the corresponding measures needed to reduce these noise effects: traffic noise impacts, construction noise impacts, steady state noise impacts, and aircraft and train noise impacts.

6.1 Traffic Noise Impacts

After General Plan build-out, future traffic noise levels along the major arterials and collector roads within the City would add 0.2 to 0.7 dBA CNEL to corresponding existing traffic noise levels along arterials and major collector roads within the City. This range of traffic noise level change is not considered significant and thus no significant growth-related traffic noise impacts would occur on existing uses throughout the City. Future (2040) roadway noise contours are shown in Figure 2. In comparison with the existing noise contour map in Figure 1, the land uses along following roadways would be potentially exposed to future traffic noise exceeding 65 dBA CNEL:

- Palos Verdes Drive East between the North City Limit and Miraleste Drive
- Miraleste Drive between Palos Verdes Drive East and Via Colinita

Based on the Land Use Element and Circulation Element of the General Plan, it is anticipated that development would occur on parcels along the City's major arterial roadways before General Plan build-out in 2040. To reduce potential noise impacts to these vacant parcels, one of the City's existing noise policies requires residential uses in the 70 dBA location range to provide regulatory screening or some other noise-inhibiting agent to ensure compliance with the noise ordinance.

Outdoor Active-Use Areas

The noise contour map (Figure 1) shows that the 65 dBA CNEL noise contour along arterials and major collector roads would potentially affect the outdoor active use areas such as backyards, patios, or balconies along these roads. To address these noise effects, outdoor active-use areas proposed within the impact zone of the 65 dBA CNEL should require a sound wall to ensure that the 65 dBA CNEL exterior noise standard is not exceeded. Therefore, outdoor active-use areas, such as backyards, patios, or balconies proposed on vacant parcels that are within the 65 dBA CNEL contour may require mitigation measures, such as stand-alone sound barriers (along the property line for the backyards or along the perimeter of the patios and/or balconies), to reduce the exterior traffic noise to 65 dBA CNEL or lower. If there are substantial differences between the elevations of the noise-generating roadway segment and the private outdoor active-use areas, sound barriers are most effective when constructed at the side with higher elevation.

Interior Noise Levels

The vehicle traffic generated on roadways from the General Plan build-out can potentially impact the 45 dBA CNEL interior noise level standard. A typical, unmodified dwelling can provide 25 dB of noise level reduction for interior receptors, which is applied to the projected exterior CNEL value to estimate the projected interior CNEL. Therefore, homes exposed to exterior traffic noise levels lower than 70 dBA CNEL (45 + 25 = 70 dBA) would not have their interior noise level exceeding the 45 dBA CNEL standard with windows closed. Residential homes without any natural or manmade barriers providing shielding would be potentially exposed to traffic noise levels exceeding 70 dBA CNEL and would require mitigation measures such as building façade upgrades (double-paned windows, solid-core wood doors, etc.).

Measures to Reduce Potential Traffic Noise Impacts

Outdoor Land Uses: All outdoor active-use areas (backyard, patio, or balcony, etc.) proposed within the following distances from the roadway centerline should consider, to the extent practicable, building a wall with a minimum wall height of 5 feet to reduce the exterior noise level to 65 dBA CNEL or lower for residential or other noise-sensitive land uses:

- Crenshaw Boulevard between the North City limit and Indian Peak Road: 244 feet;
- Crenshaw Boulevard between Indian Peak Road and Crest Road: 123 feet;
- Crest Road between Ganado Drive and Northern City Limits, 173 feet;
- Crest Road between Palos Verdes Drive East and Ganado Drive, 123 feet;
- Hawthorn Boulevard between the North City Limit and Blackhorse Road: 198 feet;
- Hawthorn Boulevard between Blackhorse Road and Silver Spur Road: 189 feet;
- Hawthorn Boulevard between Silver Spur Road and Grayslake Road/Highridge Road: 269 feet;
- Hawthorn Boulevard between Grayslake Road/Highridge Road and Granvia Atlamira/Ridgegate Drive: 179 feet;
- Hawthorn Boulevard between Granvia Atlamira/Ridgegate Drive and Eddinghill Drive/Seamount Drive: 134 feet;
- Hawthorn Boulevard between Eddinghill Drive/Seamount Drive and Crest Road: 108 feet;

- Hawthorne Boulevard between Crest Road and Vallon Drive, 114 feet;
- Hawthorn Boulevard Vallon Drive and Palos Verdes Drive West: 108 feet
- Miraleste Drive between Palos Verdes Drive East and Via Colinita: 53 feet;
- Palos Verdes Drive East between north City limit and Miraleste Drive, 51 feet;
- Palos Verdes Drive West between north City limit and Hawthorne Boulevard, 85.7 feet;
- Palos Verdes Drive West between Hawthorne Boulevard and Palos Verdes Drive South, 98.9 feet;
- Palos Verdes Drive South between Palos Verdes Drive West and Crestmont Lane/Terranea Way: 104 feet;
- Palos Verdes Drive South between Crestmont Lane/Terranea Way and Narcissa Drive: 91 feet;
- Palos Verdes Drive South between Narcissa Drive and Palos Verdes Drive East: 77 feet;
- Palos Verdes Drive South between Palos Verdes Drive East and the East City Limit: 73 feet;
- Silver Spur Road between Hawthorne Boulevard and Dry Bank Road: 153 feet;
- Western Avenue between the North City Limit and Dilasonde Drive: 256 feet;
- Western Avenue between Dilasonde Drive and Trudie Drive: 269 feet;
- Western Avenue between Trudie Drive and South City Limit: 283 feet.

Interior Noise: To meet the state's 45 dBA CNEL interior-noise standard and to achieve the indoor air-exchange ventilation requirements specified in Chapter 35 of the Uniform Building Code, all residential structures along the following roadway segments proposed within the following distances from the roadway centerline on the vacant parcels and without shielding from natural or manmade barriers should have mechanical ventilation to ensure that windows can remain closed for a prolonged period of time.

- Crenshaw Boulevard between the North City limit and Indian Peak Road: 67 feet;
- Hawthorne Boulevard between Silver Spur Road and Grayslake Road/Highridge Road: 70 feet;
- Western Avenue between the North City Limit and Dilasonde Drive: 65 feet;
- Western Avenue between Dilasonde Drive and Trudie Drive: 70 feet;
- Western Avenue between Trudie Drive and South City Limit: 74 feet.

6.2 Construction Noise Impacts

Short-term noise impacts are associated with excavation, grading, and erecting of buildings during construction. Construction-related short-term noise levels are higher than existing ambient noise levels but would cease once construction of the individual project is completed.

Two types of short-term noise impacts can occur during the construction of a project. First, construction crew commutes and the transport of construction equipment and materials to the individual construction site would incrementally increase noise levels on access roads leading to that individual site. There will be a relatively high

single-event noise exposure potential at a maximum level of 87 dBA with trucks passing at 50 feet. However, the projected construction traffic will be small when compared to the existing traffic volumes on affected streets in the vicinity, and its associated long-term noise level change will not be perceptible. Therefore, short-term construction-related worker commutes and equipment transport noise impacts would not be substantial.

The second type of short-term noise impact is related to noise generated during excavation, grading, and/or construction. Construction is performed in discrete steps, each of which has its own mix of equipment and, consequently, its own noise characteristics. These various sequential phases may change the character of the noise generated on the site. Therefore, the noise levels vary as construction progresses. Average construction noise levels at various construction stages range from approximately 71 to 80 dBA L_{eq} at 100 feet and approximately 65 to 74 dBA L_{eq} at 200 feet from construction activities.

Measures to Reduce Potential Construction Noise Impacts

Construction will be limited in accordance with the City's Municipal Code requirements.

The following measures can be implemented to reduce potential construction noise impacts on sensitive receptors adjacent to a project development area:

1. Use noise attenuating shields, shrouds, or portable barriers or encloses to reduce operating noise of noise producing equipment, such as jackhammers and pavement breakers.
2. Place all stationary construction equipment so that emitted noise is directed away from sensitive receptors nearest the project site. Non-noise producing equipment, such as trailers, may be located as a sound barrier between the stationary noise sources and sensitive receptors.
3. Locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receptors during all project construction.
4. Construct a temporary sound barrier/wall. The temporary construction barriers can use particle boards or gypsum boards, with no gaps or holes in them that could potentially deteriorate the noise attenuation effect.
5. Unless safety provisions require otherwise, adjust all audible back-up alarms at the lowest volume appropriate for safety purposes.
6. Include sound-deadening material (e.g., apply wood or rubber liners to metal bin impact surfaces) to line or cover hoppers, storage bins, and chutes.
7. During demolition, construction and/or grading operations, trucks shall not park, queue and/or idle at the project site or in the adjoining street rights-of-way in accordance with the permitted hours of construction.
8. When feasible to do so, the construction contractor shall provide staging areas on-site to minimize off-site transportation of heavy construction equipment. These areas shall be located to maximize the distance between staging activities and neighboring properties.

6.3 Stationary Noise Impacts

Future residents of proposed projects would generate and would be exposed to on-site noise sources typical of residential neighborhood related activities including; air conditioning units, lawn care equipment, radio/stereos systems, domestic animals, etc. These noise sources contribute to the ambient noise levels experienced in all similarly-developed areas and typically do not exceed the noise standards for the types of land uses proposed on the project site. In addition, these noise sources are consistent with the planned developments adjacent to the project site. Therefore, residential-related on-site stationary noise impacts would be less than significant.

6.4 Aircraft and Train Noise Impacts

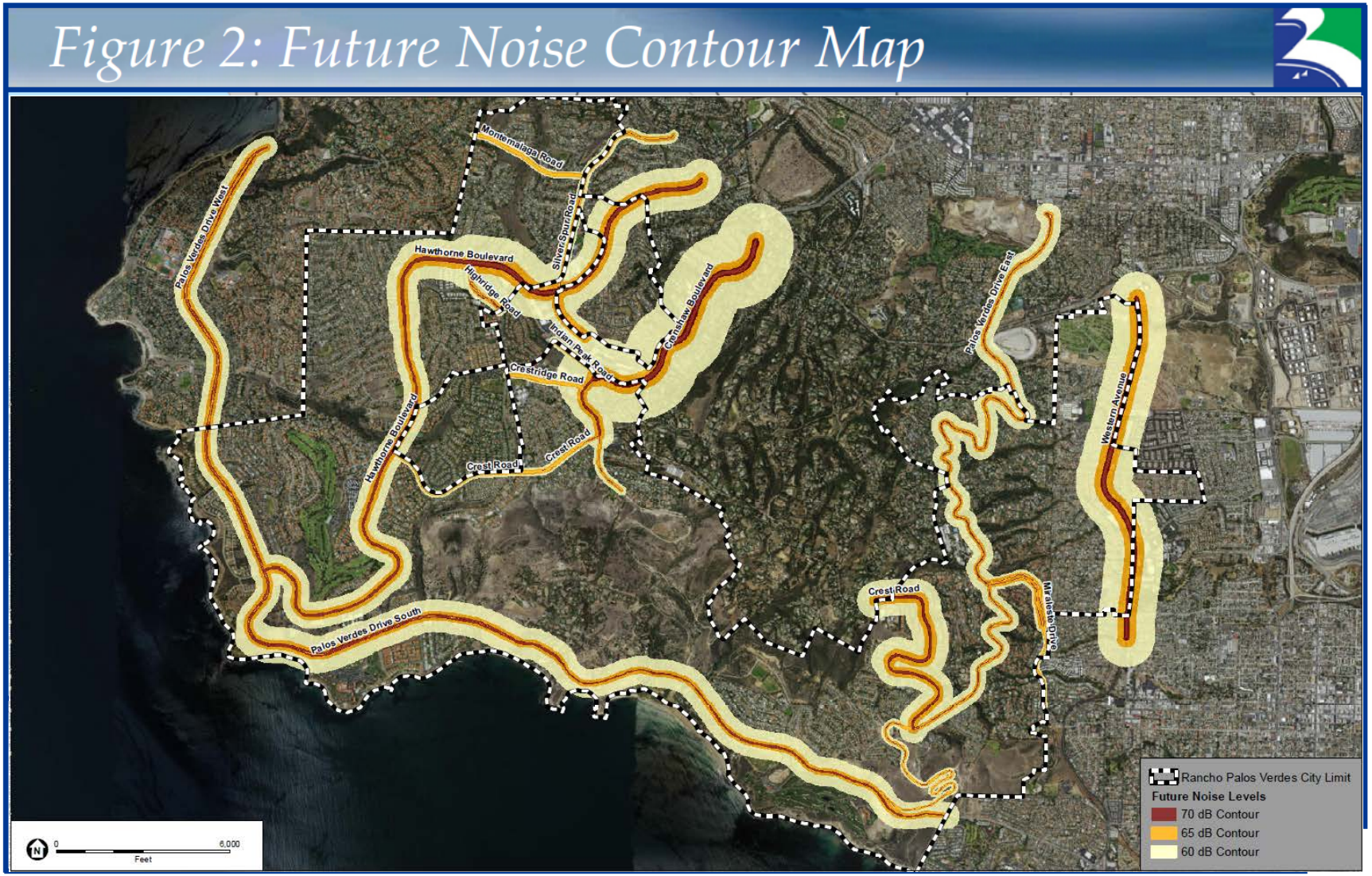
The City has no railroad lines either in or abutting the City, and there are currently no regularly scheduled flight paths or aircraft over the City from Los Angeles International, Long Beach, and Torrance airfields. Nevertheless, to ensure continued serene living quality of the City, the City has been a member of LAX's Community Noise Roundtable since 2010. The LAX Community Noise Roundtable is a forum that provides a mechanism that attempts to ensure cooperation between the airport and local impacted communities in achieving noise impact reduction to those communities. The City is also involved with issues related to helicopter routes to and from Torrance Airport. In 2011, the "South Crenshaw" helicopter route was approved by the Torrance City Council, based in part upon input from the City. This route avoids subjecting sensitive receptors—such as the Terranea Resort, Abalone Cove Shoreline Park, and residences in the Portuguese Bend community—to helicopter noise. The City plans to continue its involvement with both the LAX Community Noise Roundtable and Torrance Airport to prevent adverse noise impacts resulting from potential changes to flight times and patterns.

7 References Cited

AirNav LLC. 2015. Average Daily Operations. Accessed September 2015. http://www.airnav.com.

Environmental Science Associates (ESA). *City of Rancho Palos Verdes General Plan Update Noise and Vibration Technical Report.* November 2017.

Figure 2: Future Noise Contour Map



X SAFETY ELEMENT

Adopted April 2018

Source: Miwa, Moto. 2010. “North Star over Rancho Palos Verdes, CA.” Flickr. Accessed at https://flic.kr/p/8buWEa. June 18, 2010.

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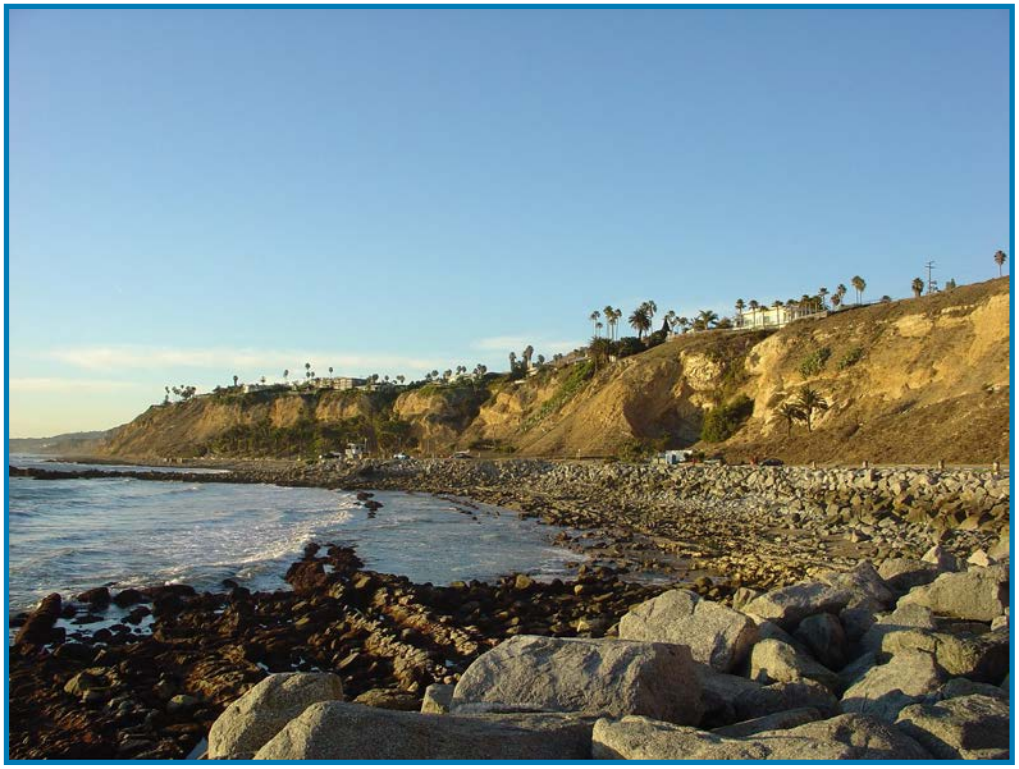
X Safety Element

The residents of the Peninsula have historically dealt with the various natural and human-induced hazards affecting the area, including earthquakes, land movements (landslide and debris flow), wildfires, and tsunamis. The increase in population on the Peninsula over the years means more people are exposed to these risks, resulting in a need to update disaster preparations, communication, and infrastructure plans.

In order to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards, the Cities of Rancho Palos Verdes and Rolling Hills Estates developed a Joint Hazards Mitigation Plan in 2004 and updated it in 2014. Hazard mitigation is defined by the Federal Emergency Management Agency (FEMA) as "any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards." The primary goal of the 2014 Joint Hazards Mitigation Plan was to create a collaborated effort among the agencies, organizations, and citizens to work toward mitigating risks from natural hazards. The mitigation plan provides a list of activities that may assist the cities in reducing risk and preventing loss from future natural hazard events. The list of activities addresses multi-hazard issues, including earthquakes, wildfires, earth movements (landslide and debris flow), and tsunamis.

Similar to the 2014 Joint Hazards Mitigation Plan, this element of the General Plan identifies hazards; assesses vulnerability; analyzes risk; and contains goals, policies, and objectives to reduce risk and prevent loss from future natural hazard events within the City of Rancho Palos Verdes (City). This Element first discusses the various hazards that may impact the City, including wildfire hazards, flood hazards, geologic hazards, and other hazards. This discussion is followed by Emergency Services available to the City in addressing these hazards, including risk assessment, leading to policies to help address these impacts.



1 Goals

1. Provide for the protection of life and property from both natural and human-made hazards within the community.
2. Provide for the protection of the public through effective law enforcement and fire protection programs and volunteer programs such as Neighborhood Watch and the Community Emergency Response Team.
3. Develop and enforce health and sanitation requirements and develop emergency communications and disaster preparedness programs to ensure the overall health and safety of all residents.
4. Protect life and property and reduce adverse economic, environmental, and social impacts resulting from any geologic activity.

2 Policies

1. Promote education and safety awareness pertaining to all hazards that affect Rancho Palos Verdes residents and adjacent communities.
2. Adopt and enforce building codes, ordinances, and regulations using best practices that include design and construction standards based upon appropriate levels of risk and hazard.
3. Encourage cooperation among adjacent communities to ensure law enforcement and fire protection mutual aid in emergency situations.
4. Cooperate with the fire protection agency and water company to ensure adequate water flow capabilities with adequate back-up throughout all areas of the City.
5. Continue to cooperate with fire protection agencies in utilizing public facilities for water and refueling location.
6. Develop and implement stringent site design and maintenance criteria for areas of high fire hazard potential in coordination with fire protection agencies.
7. Implement reasonable and consistent house numbering and street naming systems.
8. Coordinate with the Fire Department to provide adequate emergency access to all streets, including the end points of cul-de-sacs, and along the sides of structures.
9. Ensure that services are available to adequately address health and sanitation issues.
10. Work with other jurisdictions to ensure that local, county, state, and federal health, safety, and sanitation laws are enforced.
11. Ensure that adequate emergency treatment and transportation facilities are available to all areas of the City.
12. Develop and maintain relationships with various levels of health, safety, and sanitation agencies.
13. Ensure the availability of paramedic rescue and fire suppression services to all areas of the City.
14. Maintain and implement a current SEMS Plan to cope with major disasters.
15. Regulate the activities, types, kinds, and number of animals and balance the interest of animal owners and persons whose welfare is affected.

16. Ensure the protection of compatible levels of wild animal populations, which do not adversely impact humans and their domestic animals.
17. Work with adjacent jurisdictions with respect to animal regulation activities.
18. Consider alternative animal control and enforcement methods and facilitate shelter, medical treatment, and training classes where needed.
19. Avoid or minimize the risks of flooding to new development.
20. Evaluate whether new development should be located in flood hazard zones, and identify construction methods or other methods to minimize damage if new development is located in flood hazard zones.
21. Maintain the structural and operational integrity of essential public facilities during flooding.
22. Locate, when feasible, new essential public facilities outside of flood hazard zones, including hospitals and healthcare facilities, emergency shelters, fire stations, emergency command centers, and emergency communications facilities or identify construction methods or other methods to minimize damage if these facilities are located in flood hazard zones.
23. Establish cooperative working relationships among public agencies with responsibility for flood, fire, and climate change protection.

Climate Change Policies

Public Facilities and Developments

24. Continue to work with South Bay Cities Council of Governments to develop an Energy Efficient Climate Action Plan and a Climate Action Plan that would include strategies that consider the unique characteristics and conditions of the City.
25. Promote new energy efficient buildings and retrofit existing public facilities to be as energy efficient as feasible.
26. Continue to manage the City transportation fleet's fueling standards to achieve the greatest number of hybrid and alternative fuel vehicles.
27. Support development of publicly accessible alternative fuel infrastructure.
28. Encourage utility companies to provide informational literature about energy conservation for the public at City facilities.
29. Improve pedestrian, bicycle, and public transportation routes and amenities to serve the travel needs of residents and visitors. Where feasible, connect major destinations such as parks, open spaces, civic facilities, retail, and recreation areas with pedestrian, bicycle, and public transportation infrastructure; promote shared roadways; and require new development and redevelopment projects to provide pedestrian, bicycle, and public transportation amenities and streetscape improvements.
30. Continue to support the preservation of natural resources and open spaces throughout the City.

Private Developments

31. Continue to review development proposals for potential regional and local air quality impacts per the California Environmental Quality Act, and if potential impacts are identified, require mitigation to reduce the impact to a level that is less than significant, where technically and economically feasible.
32. Continue to enforce Title 24 of the California Code of Regulations[1] building construction requirements and apply standards that promote energy conservation.
33. Continue to promote and encourage participation in the City's Voluntary Green Building Construction Program and award participating developers with a streamlined entitlement process and up to 50% rebate on permitting fees.
34. Continue to implement the required components of the Congestion Management Plan (CMP) and continue to work with Los Angeles County on annual updates to the CMP.[2]

[1] Title 24 of the California Code of Regulations, also titled the Energy Efficiency Standards for Residential and Nonresidential Buildings, was created and is periodically updated by the California Building Standards Commission in response to a legislative mandate to reduce California's energy consumption.

[2] A CMP was enacted by the State Legislature to improve traffic congestion in California's urban areas. In accordance with the state statute, the Los Angeles County Metropolitan Transportation Authority adopted and updated several CMPs. Cities are required to continue adopting an annual self-certified conformance resolution for conformance with the CMP requirements.

3 Wildfire Hazards

Wildfire hazard areas are commonly identified in regions of the wildland/urban interface, presenting a substantial hazard to life and property, especially in communities built within or adjacent to hillsides and mountainous areas. Such fires can burn large areas and cause significant damage to structures, valuable watersheds, and result in an increased risk of mud flows. Ranges of the wildfire hazard are further determined by the fire ignition susceptibility resulting from natural or human conditions, as well as the difficulty of fire suppression. The wildfire hazard is also magnified by several factors related to fire suppression and control, such as the surrounding fuel load, weather, topography, and property characteristics.

While the hazards are not as great in the City of Rancho Palos Verdes as in other cities, the area does have a propensity for major fires, especially during its long, hot summers. On the other hand, several assets tend to minimize the potential number and degree of damage of these fires. The low density of the built-up areas, the quality of the fire control agencies, and high standards of fire prevention all contribute to creating a safer community.

The following subsections describe the various wildfire hazards and protection measures within the City:

- Wildland Fire;
- Interface Fire;
- Urban Fire;
- Other Factors Leading to Fires; and
- Fire Hazard Zone.

3.1 Wildland Fires

Wildland fires are uncontrolled, non-structure fires other than prescribed fires that occur in the wildland area. They are often considered beneficial to wildlands, as many plant species are dependent on the effects of fire for growth and reproduction. However, large wildfires often have detrimental atmospheric consequences.

The causes of wildland fires are numerous and include lightning, human carelessness, arson, and utility sparks either by transformer failure or wildlife shorting live lines. Nine out of ten wildfires are reportedly caused by some human interaction. Heat waves, droughts, and cyclical climate changes such as increased vegetation due to heavy rainy seasons such as with El Niño can also dramatically increase the risk and alter the behavior of wildfires.

The marine influence and the local geology on the Palos Verdes Peninsula have played significant roles in shaping the terrestrial ecology and wildfire hazards potential. Two geographical factors important in this discussion include (1) the composition of the local soils and (2) the topography of the Peninsula. The soils in the Peninsula have been derived from the parent metamorphic and sedimentary materials. Soils of this type are usually very clay-like and not particularly conducive to the establishment of well-developed plant communities.

Development in some localities has extended into canyon areas and in some cases has reduced the fire hazard by removing the vegetation. However, development has also introduced the human element into more outlying locations, sometimes upslope from the fuel, thus increasing the fire hazard.

Fire records maintained by the California Department of Forestry and Fire Protection between the years 1932 and 2018 identify the 20 largest California wildland fires that were 100 acres or larger in area. Of the 20 wildland fires, the US Geological Survey identifies 2 fires that burned more than 100 acres within the City in the past. In 2005, the San Clemente Fire burned 180 acres of the Upper Filiorum Reserve and in 2009, the Palos Verdes Fire burned approximately 234 acres of the Portuguese Bend Reserve, both of which are subareas of the Palos Verdes Nature Preserve.

Of all the fires recorded on the Peninsula, only 1 was caused by natural events such as lightning. Most fires are caused by human influences and can vary, including children playing with matches, electrical malfunctions, transformer malfunctions, furnace malfunctions, arson, downed power lines, cigarette butts, and vehicle accidents.

3.2 Interface Fires

In many communities, an increasing number of homes are being built on the urban/wildland interface, with a growing population expanding further into the hills and mountains. Rancho Palos Verdes is a hillside community containing a variety of land uses ranging from high-density apartments and condominium developments to very low-density hillside units. The increased "interface" between urban/suburban areas and the open spaces caused by expansion has produced a significant increase in threats to life and property from fires, pushing existing fire protection systems beyond their original design and capability.

The most common conditions that cause significant interface fires include hot, dry, and windy weather; the inability of fire protection forces to gain access to the burn areas, and to contain or suppress the fire; the occurrence of multiple fires that overwhelm committed resources; large fuel loads (dense vegetation); and homeowners not complying with brush clearance requirements. Additionally, human activities increase the incidence of fire ignition and potential damage. Of the local fires in Palos Verdes, 90% have resulted from human activities near the interface of wildland areas and urban locations. Once a fire has ignited, fuel topography, weather, drought, and development may influence its behavior.

3.3 Urban Fires

Urban fires usually result from sources within the structures themselves. Smoking in bed, faulty wiring, children playing with matches, and appliance malfunctions are often causes of structural fires. Additionally, cinders from wood-burning fireplaces that remain alive and travel considerable distances have also been blamed for starting fires near residential locations.

Buildings with open stairwells, substandard electrical wiring, improper storage, or faulty heating systems are considered hazardous. Upon ignition, a fire will spread rapidly through a building. A common example of a fire-hazardous building is an older, multi-story structure. However, there are no major clusters of this type of building in Rancho Palos Verdes. Single-family detached houses form the major portion of the housing stock in the area.

More lives are lost in residential fires than in any other type of fire. One particularly dangerous hazard in residential fires is the use of untreated wood shingles for roof construction. Windy conditions could spread the fire to a large

number of other houses where this type of roof is common. Another concern to firefighters has been identified as the response time to certain residential areas within the City. This is particularly true in neighborhoods with long cul-de-sacs (in excess of 700 feet) and in areas with limited ingress/egress points (Schneider, pers. comm. 1975).

Public assembly facilities are defined as those in which large numbers of people congregate in generally unfamiliar surroundings. They include schools, theaters, churches, temples, and a variety of recreational facilities. There are a number of these buildings in the City, including several schools. Gathering of large numbers of people in these buildings create conditions conducive to mass panic in a crisis, which only worsens and increases the casualties. Administering medical aid is made more difficult in these situations as well.

Potentially hazardous industrial operations encountered in the Rancho Palos Verdes area include utility lines, such as gas lines and overhead electrical power lines. While the normal construction of utility lines provides a good degree of safety, breaks in gas lines and falling power lines may cause fires.

Secondary Effects: A result of both wildfires and urban fires is the partial or total depletion of vegetation, which may result in potential erosion and/or dangerous mudflows. Furthermore, in areas with chaparral, a chemical condition known as the hydrophobic effect causes soil to become relatively impermeable to water, thereby reducing water absorption and increasing runoff. However, if a slope is burned over by fire of intense heat, the near-surface zone is purged of hydrophobic compounds. The vaporized compounds condense in a cooler zone just below the surface. Rainfall could then penetrate the surface layer and reduce its shear strength. Any excess water would travel downslope just above the impervious layer, carrying away the weakened material as a debris flow (California Geologic Survey 2007).

3.4 Other Factors Leading to Fires

Human Proximity: Human proximity tends to increase the activity of off-road vehicles, such as motorcycles, in nearby open areas. This activity is becoming a more frequent source of brush fires, as the trend accelerates toward such recreational pursuits.

Vegetation: The density and distribution of vegetation can define the overall hazard of fire and its intensity in a particular area. The vegetation of an area determines the fuel and spreading potential, while helping to identify the recurrence intervals one can anticipate between outbreaks of fire. In the Palos Verdes area, three major plant communities determine the various fuel potentials of the area: coastal sage scrub, riparian, and types of woodland–grass.

Fuel: Fuel feeds a fire and is a key factor in wildfire behavior. Diverse fuels in the landscape, such as natural vegetation, human-made structures, and combustible materials may increase the risk of fire. For example, a house surrounded by brushy growth rather than cleared space allows for greater continuity of fuel and increases the fire's ability to spread. Fuel is classified by volume ("fuel loading," or the amount of available vegetative fuel) and by type. The type of fuel, along with moisture content, can greatly influence the dynamics of wildfire. Chaparral is a primary fuel of Southern California wildfires. Chaparral communities experience long, dry summers and receive most of their annual precipitation from winter rains. Fire has been important in the life cycle of chaparral communities, which have evolved to a point it requires fire for spawn regeneration. In general, chaparral community plants have adapted to fire through fire-induced flowering, bud production and sprouting subsequent to fire, in-soil seed storage and fire-stimulated germination, and on-plant seed storage and fire-stimulated dispersal.

Weather: Weather patterns combined with certain geographic locations can create a favorable climate for wildfire activity. Areas where annual precipitation is less than 30 inches per year are extremely susceptible. High-risk areas in Southern California share a hot, dry season in late summer and early fall when high temperatures and low humidity favor fire activity. Although the Peninsula has a predominant westerly breeze flow, the bulk of the local fire outbreaks tend to accompany the "Santa Ana" winds, which are heated by compression as they flow down to Southern California from Utah, creating a particularly high risk, as they can rapidly spread what might otherwise be a small fire. Therefore, those areas that lie to the west of potential ignition points or fire sources become even more hazardous. The Santa Ana wind system occurs in the drier fall season, and for residents of Southern California, the season of the Santa Ana winds is synonymous with fire danger.

Drought: The potential effects of climate change, particularly drought, are contributing to concerns about wildfire vulnerability. The term drought is applied to a period in which an unusual scarcity of rain causes a serious hydrological imbalance. Unusually dry winters, or significantly less rainfall than normal, can lead to relatively drier conditions and leave reservoirs and water tables lower. Drought leads to problems with irrigation and may contribute to additional fires or additional difficulties in fighting fires.

Access: Access is a fire hazard factor that describes the relative difficulty of delivering both equipment and personnel to a fire. Containment being a key objective, those areas of limited accessibility have a greater potential for fire spreading than the more accessible locations.

In the Palos Verdes area, the factor controlling access is slope. The degree of slope in a burn area can determine the type of heavy equipment and strategy that can be used.

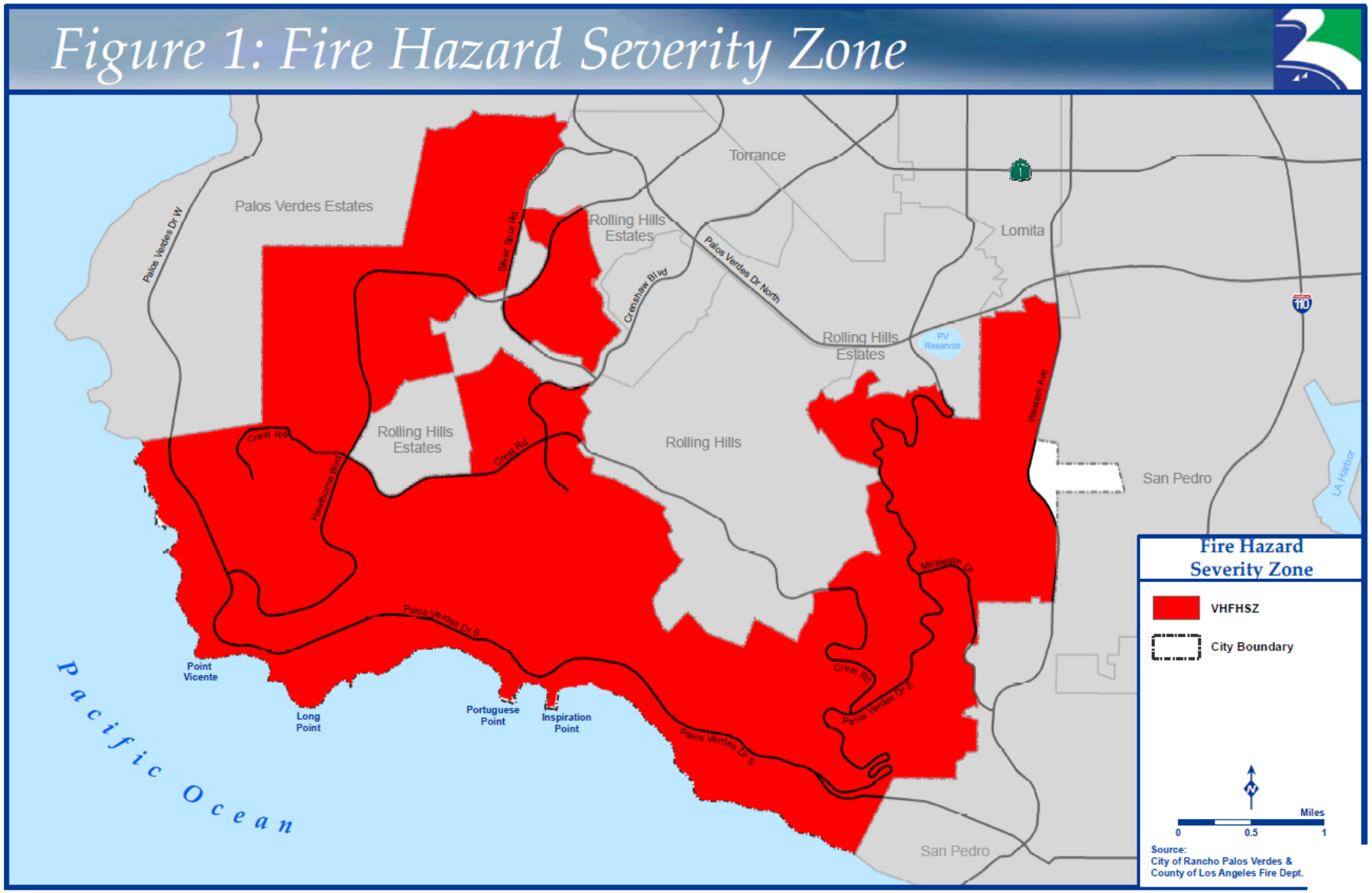
Topography: Topography influences the movement of air, thereby directing a fire course. For example, if the percentage of uphill slope doubles, the rate of spread in wildfire will likely double. Gulches and canyons can funnel air and act as chimneys, intensifying fire behavior and causing the fire to spread faster. Solar heating of dry, south-facing slopes produces up-slope drafts that can complicate fire behavior. Entire canyons have been engulfed in flames from the superheated conditions resulting from the combination of fire and wind drafts.

3.5 Fire Hazard Zone

In 2008, the California Department of Forestry and Fire Protection, together with input from the local Los Angeles County Fire Stations, updated the City's Fire Hazard Severity Zone Map (Figure 1, Fire Hazard Severity Zone), indicating that the entire City, excluding portions of the City located east of Western Avenue (approximately 98 acres involving 322 single-family and 123 multifamily units) is classified as a Very High Fire Hazard Severity Zone. Planned development within the Very High Fire Hazard Severity Zones are required to comply with the California Fire Code and obtain Fire Department approval for provision of adequate emergency access, sprinklers, distance between buildings, etc.

Pursuant to the State Government Code, properties located within a Very High Fire Hazard Severity Zone must maintain certain defensible space through specific fuel modification (brush clearing) requirements. These fuel modification requirements are enforced wholly by the Los Angeles County Fire Department. Furthermore, property owners located within a Very High Fire Hazard Severity Zone must disclose that their property is located within such a zone at the time of sale. These requirements have been in place since the original State Government Code dealing with Very High Fire Hazard Severity Zones was adopted in 1995.

Figure 1: Fire Hazard Severity Zone



4 Flood Hazard

In general, three distinct types of flood inundation hazards are known to exist: flood inundation, dam inundation, and debris flows. Flood inundation hazards are those associated with major atmospheric events that result in the inundation of developed areas, due to overflows of nearby stream-courses or inadequacies of local storm drain facilities. While none in the City, dam inundation hazards are those associated with the downstream inundation that would occur given a major structural failure in a nearby impoundment. Such failures would most likely be caused by geologic phenomena, including slope instability or seismic failure.

Another inundation hazard relative to Palos Verdes is debris flows that can occur during the rainy season and, in addition to impacting structures and roadways, can have an adverse effect on sensitive inter-tidal areas along the coastline. Flooding and debris flows can occur during storm events. These flows can occur in and below the areas denuded of vegetation and altered topsoil. The extent and amount of flows will depend on the rainfall intensity and duration of the storm event. These flows can be highly destructive and move large quantities of soil, rocks, brush, and trees into neighborhoods, causing property damage, blocking streets, and endangering properties. For areas with denuded vegetation as a result of a fire, it can take about 4 to 5 years for vegetation to significantly recover, and about 10 years to fully recover.

The location of the Peninsula helps insulate the City from most aspects of flood hazard. The City is not located near any major streamway, and large-scale inundations related to over-flow are not expected to occur. In the past, there have been only two occasions when the City declared a local flood-related emergency, both of which related to earth movement caused by excessive rain during severe weather conditions. On March 8, 1979, the City experienced earth movement resulting from heavy and unusual rains, and again on January 17, 1995 due to El Niño rainstorms that caused flooding and sliding throughout the community. In recent years, the City has taken a proactive approach in addressing flood hazards such as adopting the floodplain management ordinance in 2006. The floodplain management ordinance has enabled the City to take part in the National Flood Insurance Program that provides property owners within flood-prone areas to qualify for federally subsidized flood insurance protection and the City to receive funding for flood mitigation projects.

FEMA identifies the Lunada and Agua Amarga Canyons, Portuguese Bend and Forrestal Nature Reserves, and other public and private properties as flood zone category D (Figure 2, Potential Flood and Inundation Maps). Flood zones are geographic areas that FEMA has defined according to varying levels of flood risk. Flood zone D is defined as areas with possible but undetermined flood hazards. No flood hazard analysis has been conducted in these areas and therefore these areas are designated as undetermined risk areas.

Although the chances of a flood hazard are minimal, as identified by FEMA, a definite flooding problem does exist in the form of temporary flash floods related to heavy winter rains. Most of this flash flood activity is isolated along the canyons, the floors of which provide the runoff channels for the hilly, steep terrain. The amount of runoff during a storm is increased by the high runoff characteristic of the local soils. Most flash flood conditions in Palos Verdes are short-lived in nature, due to the limited size of the available watershed, and the damage resulting from flash floods is more erosive than inundative in

nature. However, substantial damage can occur if developments encroach into the canyon bottoms or where roadways are too close to canyons, as with San Ramon Canyon.

Much of the area in flood zone D is designated as Hazard Area or Open Space Preserve in the Land Use Element. Therefore, the development potential within flood zone D is generally limited. However, a few vacant residential lots remain that may be developed in the future. Prior to development, these lots will be subject to the City's development guidelines; geotechnical review; and/or compliance with current California Building Codes related to anchoring, building materials, construction methods and practices to minimize, resist, and prevent flood damage.

US Army Corps of Engineers: Under Flood Control and Coastal Emergency Act, the US Army Corps of Engineers (USACE) provides disaster preparedness and response services and advanced planning measures designed to reduce the amount of damage caused by an impending disaster. The Los Angeles District, which the City is part of, is one of four District offices in the South Pacific Division that includes 222,000 square miles area, including 420 miles of coastline, 14 harbors, and the highest, lowest, and hottest spots in the contiguous 48 states. When disasters occur, it is not just a local USACE district or office that responds. Personnel and other resources are mobilized across the country to carry out response missions.

4.1 Water Storage Facility Failure

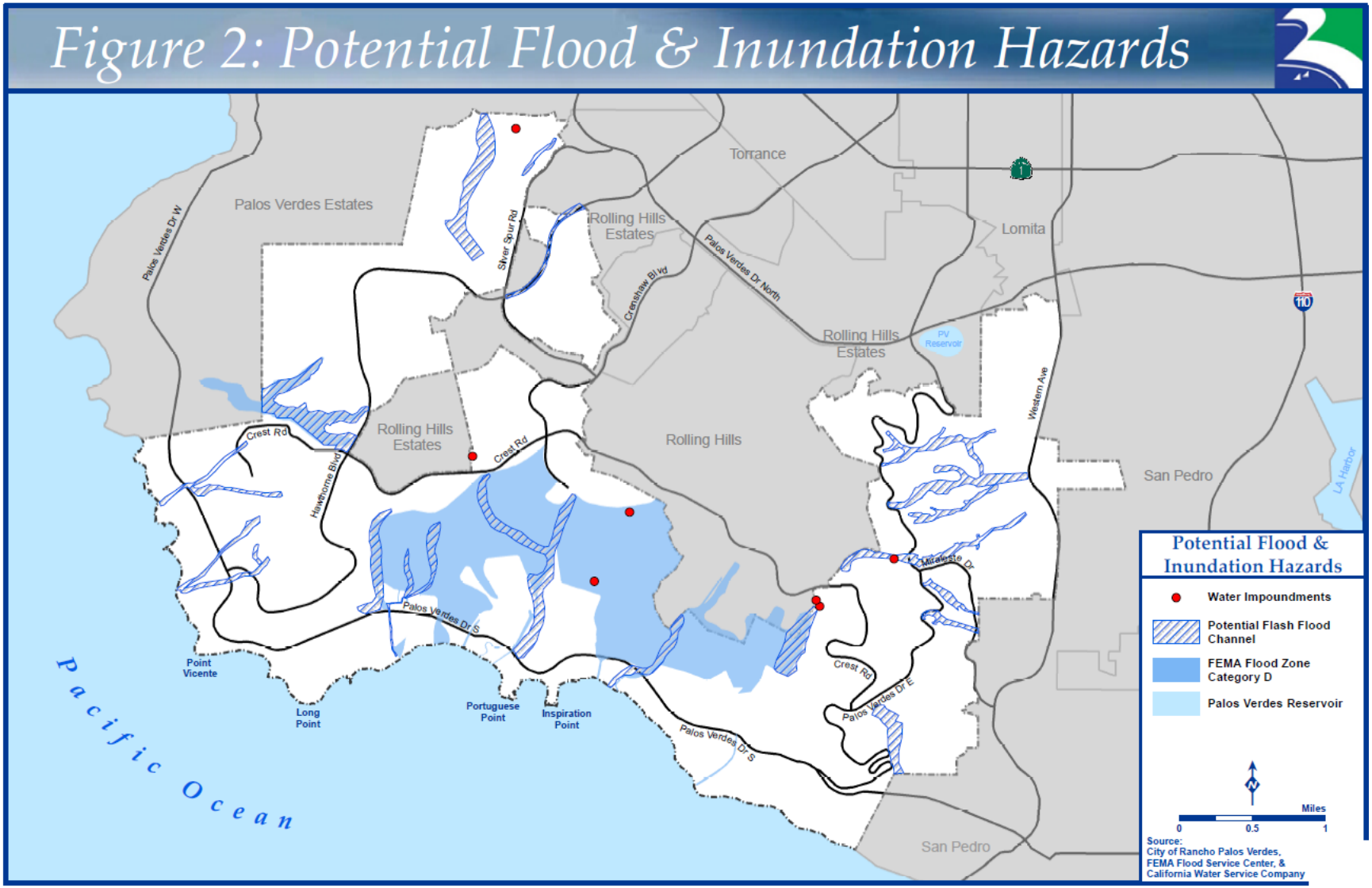
Palos Verdes Reservoir is the largest water impoundment owned by the Metropolitan Water District on the Peninsula, located near Palos Verdes Drive East in the City of Rolling Hills Estates. Palos Verdes Reservoir is an earth-fill type facility that has a surface area of 27 acres and a maximum storage capacity of 1,100 acre-feet. This compacted-fill dam was constructed in 1939 to the engineering specifications of the period. The relative effects of earthquake shaking on the reservoir have not been determined.

There are 12 other water impoundments located throughout the Peninsula (City of Rancho Palos Verdes, Rolling Hills, and Rolling Hills Estates), as shown on Figure 2, Potential Flood and Inundation Hazards (California Water Service Company 2004). These facilities are either aboveground or belowground water tanks of lesser capacity than the Palos Verdes Reservoir. Although such facilities are smaller in capacity than Palos Verdes Reservoir, they could present locally hazardous inundation situations if they were to fail.

Each of the water storage facilities may be subject to severe ground shaking, given a major seismic event on the San Andreas, Newport-Inglewood, or Palos Verdes Faults. The ability of the water storage facilities to withstand the anticipated ground shaking is not known. Other hazardous geologic phenomena, particularly landslides, are most likely to be the cause of the structural failures of water impoundments. Fortunately, none of the existing active reservoirs are located within the City-designated landslide areas.

In general, the direct threat to public safety resulting from a water storage facility failure will not be great, with the possible exception of Palos Verdes Reservoir. However, other results indirectly related to a water storage failure could be quite severe, including the shortage of water for both domestic and fire prevention uses. Shortages of that nature could be extremely critical in a real disaster situation. Especially, in consideration of both domestic water and firefighting needs during particular seasons and times of day when demand on the water system is at its peak. Acknowledging this potential, the California Water Service Company has an emergency contingency plan that includes damage assessment, water retention, transporting water, transporting generators, and mutual aid. Currently, the California Water Service

Figure 2: Potential Flood & Inundation Hazards



Company uses an electronic telemetric method to monitor the capacity, pressure, and the distribution system of various reservoirs. Should there be any damage to the piping system, the water company staff can easily detect the source of the problem. Depending on the damage, the first priority of the water company is to isolate main leaks and retain water in the reservoirs to prevent any landsliding or flooding that may occur. In situations facing water shortage, the water company activates their emergency contingency center and works with the local emergency regional center, Los Angeles County Office of General Management and/or Southern California Region Emergency Centers, based on the significance of the situation for the delivery of bottled water. In cases of power outage in the two lift stations that pump water to the Peninsula, the Water Service Company will transport large generators to restore power.

5 Geologic Hazards

The Palos Verdes Peninsula is composed of a sequence of sedimentary and metamorphic rock that has been folded and uplifted along the Palos Verdes Fault on the north and an unnamed fault in the offshore area to the south (See Conservation and Open Space Element for a geologic profile of Palos Verdes Peninsula.) The folding and up-lifting of the Peninsula has produced an anticlinal structure in which the sedimentary rocks are inclined generally to the north on the northerly flanks of the Palos Verdes Hills and inclined to the south on the southerly side. This particular structural relationship is one of the major factors responsible for the large-scale landslides present on the Peninsula.

The Palos Verdes Peninsula bedrock is composed of a metamorphic core blanketed by sequences of younger sedimentary rock. Five geologic formations are present on the Peninsula, including the Catalina Schist, Monterey Formation, San Pedro Formation, intrusive volcanic rocks, and marine terrace deposits. The Palos Verdes Peninsula is tectonically uplifted and folded as a result of the Palos Verdes Fault. The complex folding generally represents a northwest–southeast trending double-plunging anticline. The sedimentary rocks are inclined generally to the north on the northerly flanks of the Palos Verdes Hills and inclined to the south on the southerly side. The 13 staircase marine terraces surrounding the Palos Verdes Peninsula are one of the most complete sequences of emergent marine terraces in Southern California.

Geologic hazards include seismic hazards, active and potentially active faults, landslides (including debris and mud flows), liquefaction, tsunamis, seiches, settlement and subsidence, expansive soils, and coastal bluff retreat. These geologic hazards are detailed in the following sections.

5.1 Seismic Hazards

The City of Rancho Palos Verdes is located in a seismically active area and near several of the many active and potentially active faults in Southern California (see exhibit below). This section analyzes the earthquakes that should be expected in the future and the effects that will be experienced with the area.

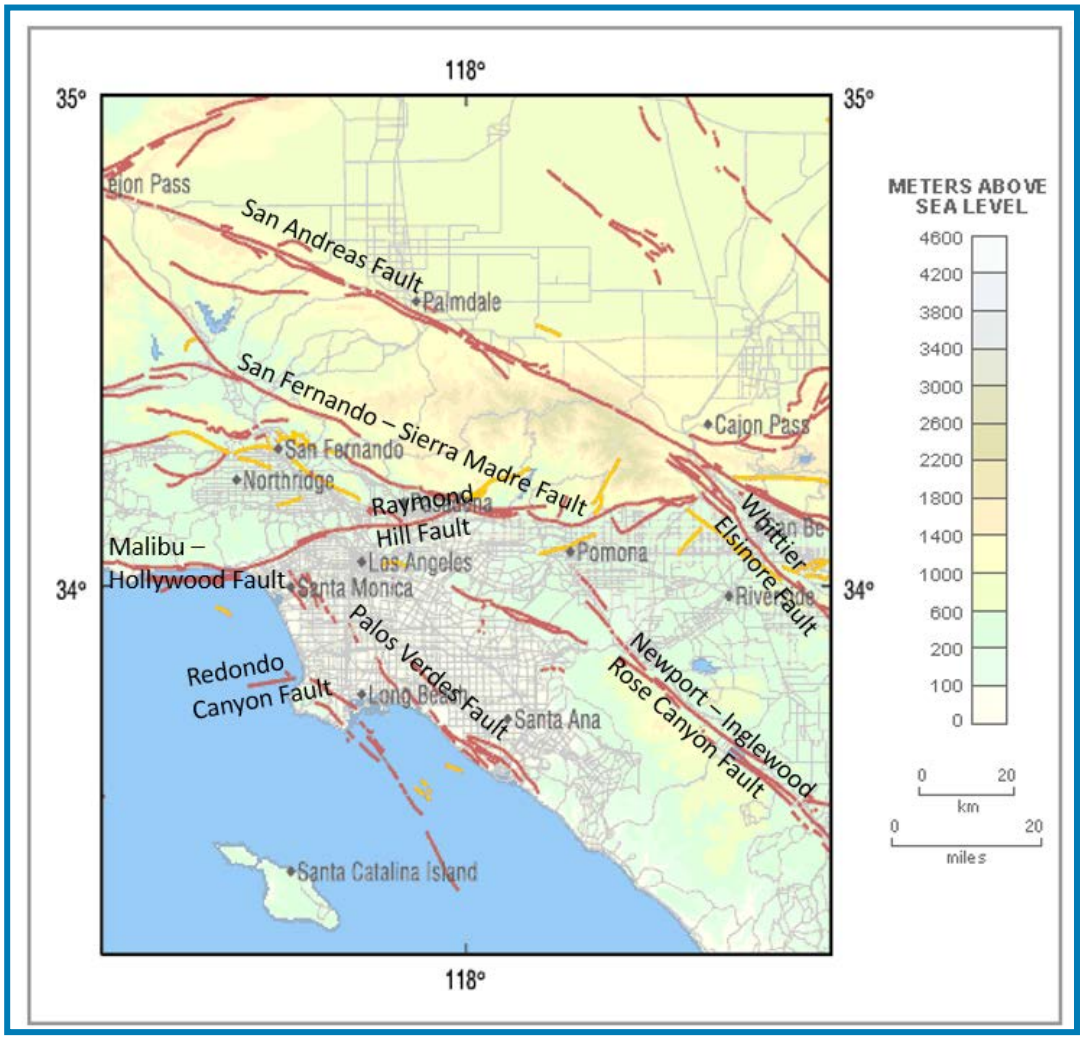
A fault is defined as a fracture in the crust of the Earth along which rocks on one side have moved relative to those on the other side. Most faults are the result of repeated displacements over a long period of time. Active and potentially active faults within Southern California are those capable of producing seismic shaking that may cause damage to structures. An active fault is defined by the State of California as a well-defined fault that has exhibited surface displacement during the Holocene Epoch (to about 11,000 years ago) and a potentially active fault is defined as having a history of movement within the Pleistocene Epoch (between 11,000 to 1.6 million years ago).

Two faults are present on the Peninsula: the Palos Verdes and Cabrillo Faults. The active Palos Verdes Fault trends northwest–southeast and marks the eastern termination of the Palos Verdes Hills. The potentially active Cabrillo fault also trends northwest–southeast and extends from Cabrillo Beach to near the center of the Peninsula. The

Palos Verdes Fault is considered a source of significant earthquake hazard and the Cabrillo Fault is a potentially moderate earthquake hazard for reasons discussed in detail below.

The seismic hazards to the City are not limited to the faults located in the Peninsula. The active Newport–Inglewood Fault and the Puente Hills Blind Thrust are located east of the Palos Verdes Peninsula within the Central Plain of the Los Angeles Basin. The Newport–Inglewood Fault marks the boundary between the Southwestern and Central Blocks and the Puente Hills/Whittier Fault marks the boundary between the Central and Northeastern Blocks. Earthquakes generated on these faults pose a significant earthquake hazard to the Palos Verdes Peninsula.

The active San Andreas Fault marks the boundary between the North American and Pacific Tectonic Plates. The San Andreas is the most active fault system in California and is considered a primary source of significant earthquake hazards in Southern California. However, the effects on the Palos Verdes Peninsula are only considered moderate due to the distance from the San Andreas Fault. Additional secondary impacts to the Palos Verdes Peninsula will be felt due to the damage that may be suffered by other areas and damage to lifeline and infrastructure in Southern California.



For the purposes of defining the problem, the principal active and potentially active faults in the region and their earthquake-generating capabilities are listed in Table 1. The latter is expressed as the magnitude of the largest earthquake that can reasonably be expected, and also as the level of shaking (ground acceleration) that could result within the City. In addition, the estimated slip rate, recurrence interval, and most recent rupture are included in the table.

Three items in the table are of particular interest. First, earthquakes generated by the Newport–Inglewood Fault will result in high ground accelerations due to the proximity of the fault to the City. Second, an earthquake on the San Andreas Fault is important because it has a high probability of occurrence (as of 2018, the San Andreas is "overdue" for an occurrence). The 2008 magnitude 7.8 Shakeout Scenario indicates that shaking from this earthquake is expected to last between 45 and 60 seconds, but the ground accelerations in the area will not be unusually high (less than half that of the estimated acceleration anticipated for an earthquake on the Newport–Inglewood Fault). This is mainly because the nearest point on the fault is over 50 miles to the northeast.

Third, the Palos Verdes Fault, although not zoned as active by the California Geological Survey, is now generally considered as having Holocene activity along the southern offshore section. It is the source for the largest ground accelerations shown in Table 1. However, maximum magnitude and recurrence interval is generally poorly understood.

TABLE 1
FAULTS IN THE REGION

Fault	Approximate Distance (Miles)	Estimated Maximum Earthquake Event		
		Maximum Earthquake Event Magnitude (Mw)	Peak Site Acceleration (g)	Estimated Site Intensity Modified Mercalli Scale
Palos Verdes	1–4	7.3	0.691	XI
Newport-Inglewood	10	7.1	0.337	IX
Puente Hills Blind Thrust	19	7.1	0.264	IX
Santa Monica	22	6.6	0.181	VIII
Malibu Coast	23	6.7	0.185	VIII
San Joaquin Hills	24	6.6	0.173	VIII
Upper Elysian Park Blind Thrust	24	6.4	0.154	VIII
Hollywood	25	6.4	0.151	VIII
Whittier	26	6.8	0.149	VIII
Newport-Inglewood (offshore)	26	7.1	0.170	VIII
Raymond Hill	28	6.5	0.145	VIII
Verdugo	30	6.9	0.171	VIII
Northridge	30	7.0	0.179	VIII
San Andreas	57	8.0	0.152	VIII

Notes:

The following is an abbreviated version of the 12 levels of Modified Mercalli intensity scale.

I. Not felt except by a very few under favorable conditions.

II. Felt only by a few persons at rest, especially on upper floors of buildings.

III. Felt quite noticeably by persons indoors, especially on upper floors of buildings. Many people do not recognize as an earthquake. Standing motor cars may rock slightly. Vibrations similar to the passing of a truck. Duration estimated.

IV. Felt indoors by many, outdoors by few during the day. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.

V. Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.

VI. Felt by all, many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.

VII. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.

VIII. Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.

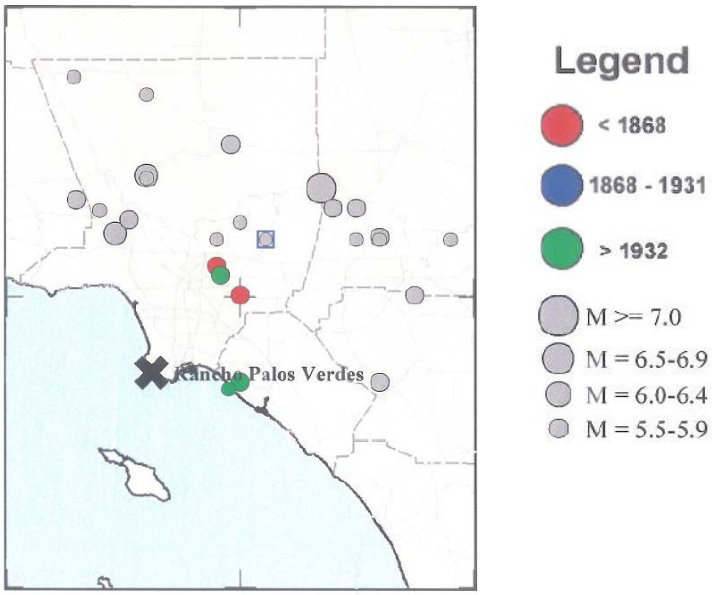
IX. Damage considerable in specially designed structures; well=designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.

X. Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations. Rails bent.

XI. Few, if any (masonry) structures remain standing. Bridges destroyed. Rails bent greatly.

XII. Damage total. Lines of sight and level are distorted. Objects thrown into the air.

Significant earthquakes can and probably will occur on other faults. However, available evidence indicates that their effects in the Palos Verdes Peninsula will be significantly less than the effects of the Newport-Inglewood, Palos Verdes, or San Andreas Faults. Known active or potentially active faults that could be the site of ground rupture resulting from movement on the fault are limited to the Palos Verdes Fault zone, which traverses the extreme northeastern corner of the Palos Verdes Peninsula. Evidence bearing on the activity of this fault is discussed in detail in a following section. No other potentially active faults are known within the Palos Verdes Peninsula. There are no significant trends of earthquake epicenters or groundwater conditions indicating a buried active fault within the City. The exhibit on the next page presents a plot of all recorded earthquake epicenters in the area from 1932 through 2008.



Note: Earthquakes more than 50 kilometers from selected location are shown in gray.

5.2 Active and Potentially Active Faults

The following describes known faults and their impacts in the Palos Verdes Peninsula: Palos Verdes Fault, Newport-Inglewood Fault, Puente Hills Blind Thrust, San Andreas Fault, and Cabrillo Fault.

Palos Verdes Fault: The Palos Verdes Fault is within a mile of the Palos Verdes Peninsula and poses the most significant earthquake hazard to the City due to its proximity. Although Holocene activity has been demonstrated in the southern offshore segment of the fault, the recurrence interval and magnitude of the most recent displacement is still not well characterized and as such the California Geological Survey considers it a "Potentially Active" fault. The fault strikes northwest–southeast, dips steeply to the southwest, and is a reverse fault with a minor right-lateral strike slip component. Compression translated along the fault produces the uplift and folding of Palos Verdes Hills and marks the boundary between the Palos Verdes Hills and the rest of the Southwestern Block of the Los Angeles Basin. This fault is considered an active "B" type fault with slip rates of approximately 1 to 5 millimeters per year (mm/yr) (USGS 1999) and a maximum credible earthquake magnitude of 7.3 (Petersen et al. 1996).

The effect a maximum credible earthquake from the Palos Verdes Fault would have to Southern California is considerable. This potential scenario is estimated to cause losses of $30 billion in building damage, 80 to 1,050 deaths, and 2,400 to 19,000 injuries (OES 2007).

Newport–Inglewood Fault: The Newport–Inglewood Fault is 7 to 10 miles from the Palos Verdes Peninsula and poses a significant earthquake hazard to the City. The vertical fault strikes northwest–southeast and is a right-lateral strike slip fault with a minor reverse component. Compression translated along the fault produces the Newport–Inglewood uplift from Beverly Hills to the San Joaquin Hills. The fault separates the Southwestern Block from the Central Plain of the Los Angeles Basin. This fault is considered an active "A" type fault with slip rates of approximately 1.0 to 1.5 mm/yr and a maximum credible earthquake magnitude of 7.1 (Petersen et al. 2008).

The effect a maximum credible earthquake on the Newport–Inglewood Fault would have to Southern California is significant. This potential scenario is estimated to cause losses of $49 billion in building damage, 150 to 1,900 deaths, and 5,200 to 33,000 injuries (OES 2007).

The earthquakes that have had a significant effect on the Palos Verdes Peninsula, in historic times, have originated principally as the result of movement on segments of the nearby Newport-Inglewood Fault zone. The most notable are the Long Beach earthquake (March 10, 1933, with a magnitude of 6.4), the Signal Hill earthquake (October 2, 1933, with a magnitude of 5.4), the Gardena earthquake (October 21, 1941, with a magnitude of 5.0), and the Torrance-Gardena earthquake (November 14, 1941, with a magnitude of 5.5). The epicenters of these earthquakes, as well as others along or in the vicinity of the Newport-Inglewood Fault, are shown on the exhibit above. Records of the smaller earthquakes (generally less than magnitude 3.9) are not available for years prior to 1963, so the number of smaller quakes shown is considerably less than that which would be expected had they been recorded for the full period from 1932 to 2006.

The relative intensity of ground shaking in the vicinity of the Palos Verdes Peninsula during each of the four notable earthquakes described above is estimated to have been between IV and VI on the Modified Mercalli Scale (Neamann 1935, 1943). The levels of intensities were deduced from the accounts of witnesses and by the severity of damage to different types of construction.

Puente Hills Blind Thrust: The Puente Hills Blind Thrust fault is farther than 15 miles from Palos Verdes Peninsula and poses a moderate earthquake hazard to the City. The fault strikes northwest–southeast and dips approximately 25 degrees to the southwest (Petersen et al. 2008). Compression translated along the fault produces the uplift and folding of Puente Hills and cuts the Central Plains of the Los Angeles Basin. This fault is considered an active "B" type fault with slip rates of approximately 0.7 mm/yr and a maximum accredited earthquake magnitude of 7.1 (Petersen et al. 2008).

The effect a maximum credible earthquake on the Puente Hills Blind Thrust would have to Southern California is considerable. This potential scenario is estimated to cause losses of $69 billion in building damage, 40 to 700 deaths, and 1,700 to 11,000 injuries (OES 2007).

San Andreas Fault: The San Andreas Fault is the greatest earthquake hazard in Southern California. The fault is located more than 50 miles from the Palos Verdes Peninsula and poses a moderate earthquake hazard to the City. The vertical, right-lateral strike slip fault strikes northwest–southeast. The San Andreas fault cuts through most of California and marks the boundary between the North American Plate to the northeast, and the Pacific Plate to the southwest. This fault is considered an active "A" type fault with slip rates of approximately 23 to 37 mm/yr and a maximum credible earthquake magnitude of 7.8 (Petersen et al. 2008).

The effect a maximum credible earthquake on the San Andreas Fault would have to Southern California is great. This potential scenario would cause losses estimated at $150 billion in building damage, 60 to 900 deaths, and 2,200 to 15,000 injuries (OES 2007). However, the effect on City residents and infrastructure would be less due to the distance from the Palos Verdes Peninsula. The effect on the City due to the damage that may be suffered by other areas and damage to lifeline and infrastructure in Southern California may be substantial. For example, disruption to the movement of water, petroleum products, telecommunications, and general transportation may have a dramatic effect on the peninsula in the short term.

The San Andreas Fault has generated two great earthquakes in recorded history: the 1856 Fort Tejon earthquake (magnitude 7.5–8.5), and the 1906 San Francisco earthquake (magnitude 8.3). Ground-shaking intensities in the vicinity of this study were not recorded for the 1856 event, but reached a level of III–IV on the Mercalli Scale for the 1906 earthquake (Lawson et al. 1908).

Cabrillo Fault: The Cabrillo Fault, which bisects a portion of the Palos Verdes Hills, is considered potentially active and poses a potentially significant earthquake hazard to the City. The normal fault strikes northwest–southeast and dips northeast. Tension translated along the fault drops the northeast side relative to the southwest side. This fault is considered a potentially active type fault with undetermined slip rates and a maximum probable earthquake magnitude of 6.8 (SCEDC 2015). The effect a maximum accredited earthquake on the Cabrillo Fault would have to Southern California has not been evaluated (OES 2007).

5.3 Landslides

Landslides represent only one step in the continuous, natural erosion process. They demonstrate in a dramatic way the tendency of natural processes to seek a condition of equilibrium, and various erosion processes act to gradually reduce them to a base level. Landslides are an important agent in this cycle. Several types of landslides commonly encountered are described below (USGS 2004).

Translational or Block Slides: These slides are the largest, most impressive type of landslide. They involve a single coherent mass that translationally moves down-slope with little rotation or backward tilting. The basal failure plane (rupture surface) is controlled by planar zones of weakness, such as bedding, foliation, jointing or a formation contact, or fault. These failures typically occur in layered rocks of sedimentary or metamorphic origin where lateral support is removed by erosion or grading. The Portuguese Bend Landslide is a complex version of a translational landslide. The Portuguese Bend Landslide has been conductive to ground failure for approximately 250,000 years and has been officially mapped as a landslide complex before the 1950s. While the history of landslides dates back, the current slippage began in 1956, coincident with the construction of the Crenshaw Boulevard extension, south of Crest Road, along the top of the ancient landslide complex. Another possible contributing cause of the sliding was the construction of hundreds of homes on and above the unstable rock and soil in the early 1950s prior to the slide.

Rotational Slide: Rotational failures are common in massive, unstructured material with relatively little resistance to shearing. These materials include thick sections of clayey soils and poorly compacted artificial fills. The surface of rupture is curved concavely upward, and the movement of the mass is partly rotational. Small arcuate failures, called slumps, are a type of rotational slide common along steep-banked streams and canyons in Rancho Palos Verdes, where a stream has cut through an existing soil zone.

Rock Falls: This phenomenon is an abrupt movement of rock and boulders that have detached from steep slopes or cliffs. Rock falls may be influenced by the height of the slope, size of rock, and slope geometry. Rock falls are prevalent where natural slope gradients exceed 50%, and where natural weathering produces angular fragments of material with little soil cover. An initial separation occurs along fractures, joints, or bedding and is highly influenced by mechanical weathering and interstitial water. Interstitial water is defined as water occupying interstices or pore volumes in rocks. The debris typically free-falls, bounces, and rolls down slope and may impact areas tens to hundreds of feet from the bottom of the slope. Rock falls are typical in the Forrestal Canyon area and along many of the sea bluffs of the City.

Topples: Similar to rock falls, they represent forward rotation of rock or boulders that are separated by gravity or the buildup of water pore pressure in cracks from the surrounding rock materials.

Debris Flows: Debris flows, also known as "mudflows," are potentially serious hazards to life and property in the hillside areas of the Palos Verdes Peninsula. Rainfall, steep slopes, and loose soil are the primary controlling conditions that generate debris flows. Debris flows are more likely to occur during rainy seasons after wildfires. Vegetation naturally binds the topsoil and absorbs precipitation. The removal of vegetation by fire lowers the stability of exposed topsoil and lessens the water-holding capability of the watershed. Following a wildfire, sediment yields and peak discharges of watersheds can increase up to 35-fold, and potentially inundate drainage systems. Debris flows typically start within swales or small, steep drainages or as small failures on the sides of steep slopes, usually greater than 15

degrees. The flows typically originate in loose soils that become saturated due to the introduction of water. The saturated soil liquefies into slurry of loose soil, rock, organic matter, air, and water. These flows may coalesce into larger canyons or stream channels intensifying the flow and increasing the volume of material. Debris flows can travel faster than about 10 miles per hour (mph) or approximately 25 yards in about 5 seconds. Speeds in excess of 20 mph are not uncommon, and speeds in excess of 100 mph, although rare, do occur locally (California Geologic Survey 2007). In general, hillsides become saturated and susceptible to debris flows after heavy seasonal rainfall (10 inches of seasonal), or during intense rainfall events (approximately 2 inches within a 6-hour period). Large mudflows have the energy to uproot trees, move large boulders, severely erode canyon walls, and deposit large volumes of material. Because of the speed with which they move, mudflows can be quite destructive and pose a threat to life and property, especially along the bottom and at the mouths of canyons. Silt and debris can also impact sensitive coastal inter-tidal zones.

Human activity can impact the occurrence of debris flows as a result of improper drainage and maintenance. Introduction of excess water into soils from a broken water pipe or improper functioning drainage can create a saturated soil condition. Altered and excavated slope areas, such as road cuts, are more prone to debris flows than natural slopes if not properly maintained. To mitigate potential debris flows, care should be taken that all runoff is properly channeled to engineered drainage systems.

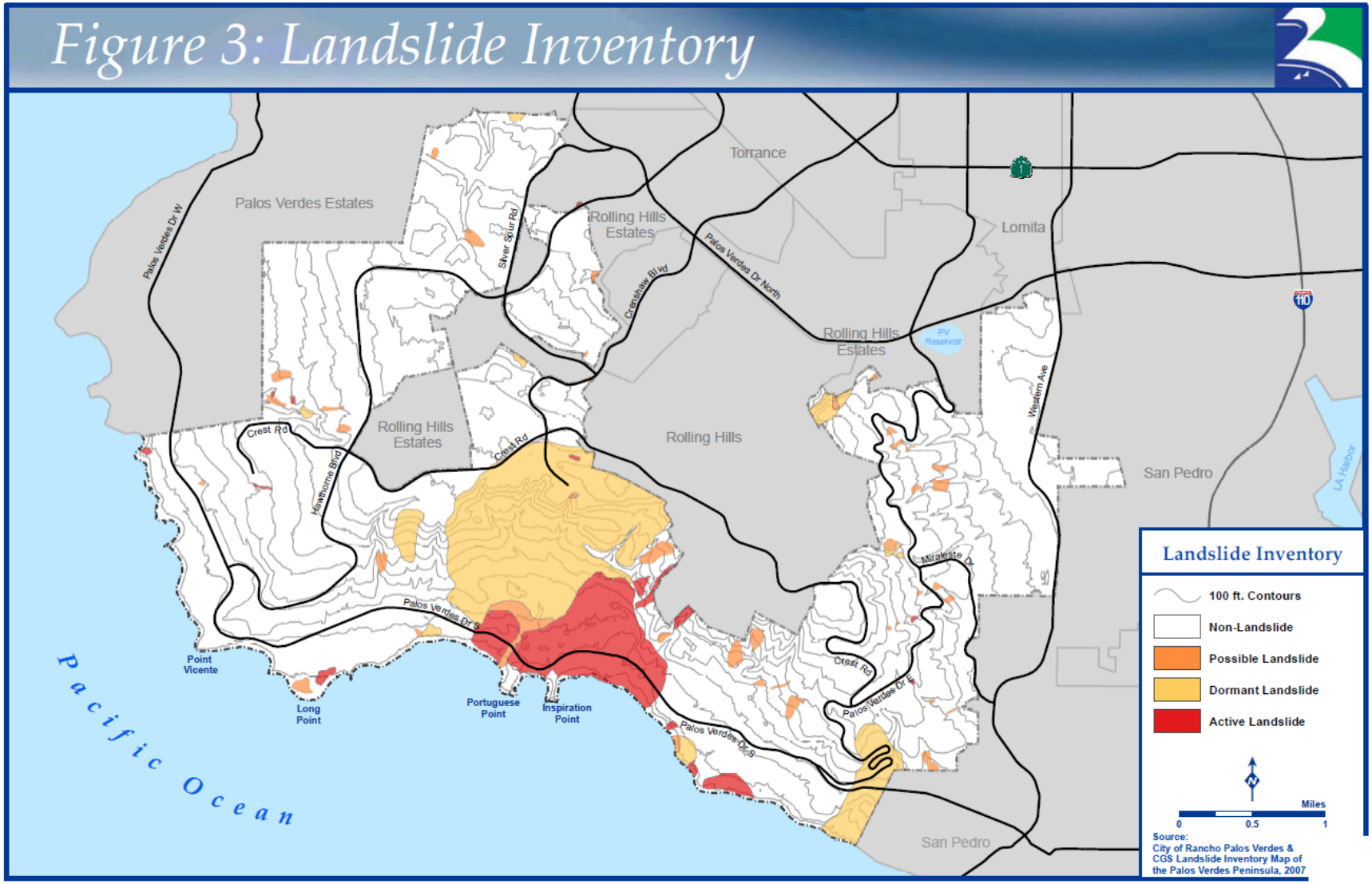
Landslides are basically controlled by four factors: the rock type, the fabric or structure of the rock, the amount of available water, and the topographic conditions. The geologic formation or rock type is a reasonably good indicator of the strength of the rock and its resistance to failure. The geologic structure or the orientation of potential failure planes is important in determining the size and type of failure. The amount of available water greatly influences the strength of a potential failure surface. It can add to the weight of the unstable mass, lower the co-efficient of friction, and increase pore pressure, all of which contributes to land movement. Topographic slope gradient is also a contributing factor in controlling the force that causes failure. The relative importance of these four factors varies from place to place, but rock type, geologic structure, and available water are probably the most important. Some degree of slope is necessary to initiate failure, but if the other factors are present, failure can occur on slopes with a gradient of less than 5%.

Landslides in the City can be grouped into two major landslide systems that represent complex groups of smaller coalescing landslides: the Portuguese Bend and the South Shores. Smaller, isolated landslides are scattered throughout the City, outside the two major systems (Figure 3, Landslide Inventory Map).

The Portuguese Bend is the most studied and publicized landslide in the area, and perhaps in the Los Angeles Basin. The Portuguese landslide has been mapped as a large ancient complex that extends from close to the top of the ridge of the city to the ocean. The most recent movement began in 1956, apparently as the result of grading operations, and involved movement in about one-third of the system. The recently active portion is shown on Figure 19. This area includes the Abalone Cove and the Portuguese Bend Landslides.

The upper limit of the landslide has been under debate for many years. The Landslide Inventory Map (Figure 3) places the ancient landslide scarp at the Valley View Graben adjacent to Crest Road. The Valley View Graben is a narrow valley interpreted as the remnant of the original pull-away at the top of the slide mass. Previous maps by Dibblee (1999) and others place the top of the landslide much further down slope from the Valley View Graben.

Figure 3: Landslide Inventory



In the lower portion of the landslide, Palos Verdes Drive South transverses the landslide along with water and sewer lines. The roadway and pipelines are under constant scrutiny to determine areas in need of repair. The roadway is modified as necessary by minor grading and pavement repair. The pipelines have all been placed aboveground so that easy observation and maintenance can be performed. The risk to the roadway and pipelines is significant should portions of the Portuguese Bend landslide accelerate.

No historic movement has been recorded within the main mass of the South Shores landslide system. The last movement of the main landslide has been determined to be approximately ±16,200 years ago. This system is apparently at equilibrium for the present, but renewed activity may occur if existing conditions are modified. Along the eastern flank of the landslide, erosion and subsequent down cutting within San Ramon Canyon has triggered a new landslide, now known as the Tarapaca landslide that drops into the canyon from the east. The Tarapaca landslide threatens many of the over-steepened slopes in the canyon as well as road stability along the switchbacks of Palos Verdes Drive East. As discussed in Chapter 4, Circulation Element, the City is undertaking a drainage project to help protect Palos Verdes Drive East.

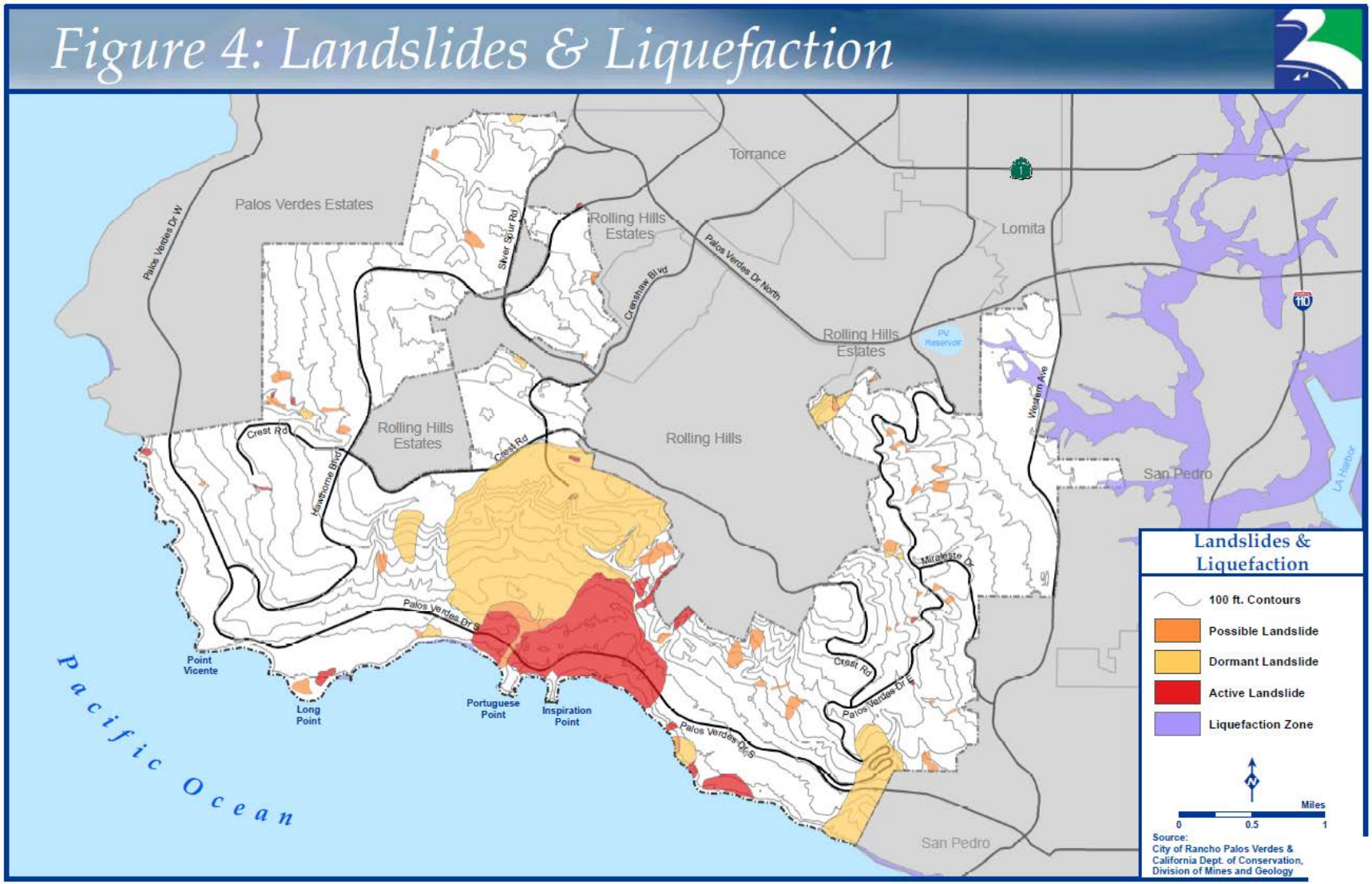
The Silver Spur Graben, located northwest of the Valley View Graben and partially within Rolling Hills Estates and Rancho Palos Verdes, was postulated by Envicom (1975) as being part of a much larger landslide complex they called the Silver Spur System. Ehlert (2000) reviewed the evidence to date and postulated that the graben might be associated with a tectonic (fault) origin rather than a landslide origin. He suggested that the area, although a graben, would need further work to determine its origin. He states that the age of the graben formation is on the order of a maximum of one million years old and may be several hundred thousand years old. The Landslide Inventory Map (Figure 3) does not include the Silver Spur Graben as a known landslide or landslide complex.

5.4 Liquefaction

Liquefaction occurs when earthquake waves cause water pressure to increase in the sediment and the sand grains to lose contact with each other, leading the sediment to lose strength and behave like a liquid. The soil can lose its ability to support structures, flow down even very gentle slopes, and erupt to the ground surface to form sand boils. Many of these phenomena are accompanied by settlement of the ground surface—usually in uneven patterns that damage buildings, roads, and pipelines. For liquefaction to occur, three factors must be present: loose granular sediments, saturation of the sediment by groundwater, and strong ground shaking. If the liquefying layer is near the surface, the effects are like that of quicksand for any structure located on it. If the liquefying occurs below a competent layer, translation, rotation, or liquefaction may occur.

The potential for liquefaction in Rancho Palos Verdes is very low since the local soil deposits are relatively thin and cohesive and groundwater is usually at depth. Liquefaction is not considered to be a significant hazard in the City. The mapped potential liquefaction zones on the Palos Verdes Peninsula are located in the drainage area east of the Palos Verdes Reservoir, along the shores of Royal Palm Beach Park and along the shoreline adjacent to some of the beach areas, as shown in Figure 4, Landslides and Liquefaction (California Division of Mines and Geology 1999).

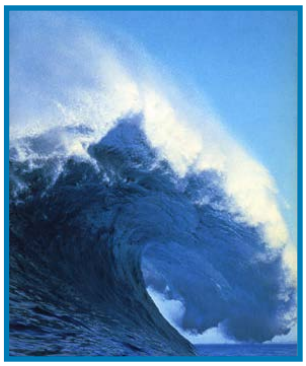
Figure 4: Landslides & Liquefaction



Nearby effects of liquefaction were noted in the San Pedro area following the 1933 Long Beach earthquake (California Division of Mines and Geology 1998). During the 1994 Northridge earthquake, significant damage was reported in the Los Angeles–Long Beach Harbor areas, including lateral spreading, settlement, and sand boils that suggested liquefaction occurred (California Division of Mines and Geology 1998).

5.5 Tsunamis

Tsunamis are sea waves generated by earthquakes, landslides, or volcanic eruptions. It has also been postulated that large meteor impacts hitting the ocean have caused very large sea waves. The destructive power of tsunamis is due to the fact that they travel at velocities approaching 500 mph. While they are generally imperceptible on the open sea, as they approach land and as the ocean shallows, these waves slow down, making them grow in height (amplitude) and thus impact inland areas greater than normal wave action. Tsunamis have been recorded that crested to heights of more than 100 feet before slamming into shore. These great heights are rare and depend on several factors, such as offshore topography, tide phase, and coastline orientation and configuration. Hazardous tsunamis may occur along the coastline of Rancho Palos Verdes as the result of submarine faulting or landslide.



Faulting at great distance is the most common source of tsunamis along the California coast. Typical source areas are the great submarine trenches off Chile and Alaska. The latter was the source area for the tsunami that struck Crescent City in 1964 with 13-foot waves, claiming 11 lives and causing over 11 million dollars in damage. The Seismic Sea-Wave Warning System administered by the U.S. Coast and Geodetic Survey detects incoming tsunamis and supplies the endangered localities with the expected arrival times of the waves. The warning times vary with distance from the source, but for most tsunamis approaching the coast, several hours are available to evacuate the citizens and to make emergency preparations. The largest recorded tsunami heights in California were in Venice and Santa Monica in 1930 and were about 6.1 meters, or 20 feet, in height (California Geologic Survey 2015).

Recent studies have indicated the potential for large-scale landslides and slumping off the Palos Verdes Peninsula coast capable of producing tsunamis. Modeling indicates that tsunamis on the order of 3 to 6 meters (10 to 20 feet) high with velocities of up 10 meters (33 feet) per second could occur. Due to the height of the bluffs within City boundaries, the impact from these potential tsunamis would be limited (ASCE 2005.).

5.6 Seiches

Seiches are long-period water-level oscillations within closed or open bodies of water, such as a lake or harbor basins that can be created by seismic waves or landslides. Seiches are not considered a significant hazard in Rancho Palos Verdes.

5.7 Settlement or Subsidence

Settlement may occur in unconsolidated and unsaturated soils as the result of a more efficient rearrangement of the individual soil particles. This arrangement is typically due to additional overburden pressures from foundation loads or grading, or due to earthquake shaking. Settlements of sufficient magnitude to cause structural damage are normally associated with rapidly deposited alluvial materials, secondary settlement within subsurface peat deposits,

improperly founded or poorly compacted fills, or highly fractured landslide deposits. Regional or local groundwater withdrawal from the Los Angeles Basin could cause subsidence within adjacent cities.

5.8 Expansive Soils

Expansive soils contain sensitive clay minerals that are capable of absorbing water and increasing in volume. The more water they absorb, the more their volume increases. Sensitive clay minerals will also shrink when they dry out and remove support from structures and buildings and result in subsidence and/or desiccation cracks at the ground surface. The shrink and swell cycle of highly sensitive clay minerals in expansive soils can exert enough force on footings or foundations to cause damage to structures and buildings.

Expansive soils tend to have a greater effect near the surface since expansion pressures are counteracted by soil overburden pressures at depth. Cracked foundations, floors, and basement walls are typical types of damage done by expansive soils. Expansive soils can cause post-construction damage to building foundations or interior slabs, or exterior hardscape, such as patio slabs, garden walls, driveways, and sidewalks, as well as structure framing and plaster walls.

Soils of the Rancho Palos Verdes area are typically various combinations of Diablo and Altamont soils (USDA 1969), which produce dark grey, neutral clay. All of these combinations have a high shrink-swell potential. While these soils are highly expansive, they should not be a factor in precluding development. Modern soil engineering procedures, coupled with present-day foundation designs, can effectively and inexpensively mitigate the effects of most expansive soils.

5.9 Coastal Cliff Retreat

The Palos Verdes Peninsula coastal cliffs are exposed to wave energy and subject to erosion and cliff retreat. Cliff retreat is the landward migration of the cliff face as a result of erosion processes, including ocean, wind, and gravity. This chronic coastal evolution plagues the City's infrastructure and threatens the communities that are situated above and adjacent to these cliffs. Cliff retreat rates from the Point Vicente area north are approximately 0 to 0.77 meters (2.5 feet) per year, and has locally retreated more than 50 meters (180 feet) within a 65-year period (Hapke and Reid 2007). Cliff retreat rates in the Point Fermin area are estimated at between 0 to 0.95 meters (3 feet) per year, and has locally retreated more than 60 meters (197 feet) in 65 years (Hapke and Reid 2007). Along the Portuguese Landslide Complex, shoreline erosion removes stabilizing support.

6 Climate Change

Global climate change refers to changes in average climatic conditions on Earth as a whole, including changes in temperature, wind patterns, precipitation and storms. Historical records indicate that global climate changes have occurred in the past due to natural phenomena; however current data increasingly indicate that the current global conditions differ from past climate changes in rate and magnitude. Global climate change attributable to anthropogenic (human) Greenhouse Gas (GHG) emissions is currently one of the most important and widely debated scientific, economic and political issues in the United States and the world.

6.1 GHG Emissions

GHGs are those compounds in the Earth's atmosphere which play a critical role in determining temperature near the Earth's surface. More specifically, these gases allow high-frequency shortwave solar radiation to enter the Earth's atmosphere, but retain some of the low frequency infrared energy that should radiate back from the Earth towards space, resulting in a warming of the atmosphere. The extent to which increased concentrations of GHGs have caused or will cause climate change and the appropriate actions to limit and/or respond to climate change are the subject of significant and rapidly evolving regulatory efforts at the federal and state levels of government.

As a member of the South Bay Cities Council of Governments (SBCCOG), the City collaborated with the SBCCOG on the development of the Emission Reduction Action Plan (ERAP). The City has conducted two inventories of community-wide greenhouse gas emissions, one for the baseline year of 2005 (future emissions reductions will be measured aainst this year) and another for 2007. Additionally, the SBCCOG calculated inventories for 2010 and 2012 (South Bay Cities Council of Governments 2011). Table 2 is a summary of the City's emissions from each sector for the years 2005 and 2012 and the percent change from the same period. As shown in Table 2, the City's community and municipal GHG emissions decreased 8 percent from 2005 to 2012, falling from 289,289 Metric Ton(MT)CO_2e in 2005 to 266,176 MTCO_2e in 2012.

TABLE 2
GHG EMISSION BY SECTOR (2005-2012) (MTCO_2e)

Sector	2005	2012	Percent Change (2005 to 2012)
On-road Transportation	150,564	136,175	-9.6%
Residential Energy	88,941	86,129	-3.2%
Commercial/Industrial Energy	20,377	25,304	24.2%
Water	18,156	11,653	-8%
Solid Waste	8,674	4,158	-52.1
Off-road Sources	157	340	116.7%
Wastewater	156	117	-25%
Municipal Emissions	2,264	2,291	1.2%
Total	289,289	266,176	-8%

The City's Community emissions were categorized in seven sectors: Commercial/Industrial Energy, Residential Energy, On-road Transportation, Solid Waste, Water, Wastewater, and Off-road Sources. The Municipal emissions were added as one sector.

- Commercial/Industrial Energy includes emissions from electricity and natural gas consumption in nonresidential buildings and facilities (including outdoor lighting) in the City.
- Residential Energy includes emissions from electricity and natural gas consumption in residential buildings in the City.
- On-road Transportation includes emissions from vehicles traveling (wholly or partially) within the City.
- Solid Waste includes emissions from waste that is generated in the community and sent to landfills.
- Water includes emissions from the electricity used to source, treat, and deliver imported water in the community that is not accounted for in the community utility data.
- Wastewater includes emissions from treating wastewater generated in the community.
- Off-road Sources include emissions from operating equipment for construction, commercial, light industrial and agricultural activities; lawn and garden equipment; and recreational vehicles such as all-terrain vehicles.

As shown in Table 2, the transportation sector was the largest contributor to emissions in both 2005 (53%) and 2012 (52%) by producing 150,564 $MTCO_2e$ and 136,175 $MTCO_2e$, respectively. This change represents almost a 10% decrease in emissions over the seven-year time period. Residential energy is the second-largest contributor to emissions, representing 31% in 2005 and 33% in 2012. Residential energy emissions decreased by about 3% from 2005 to 2012, from 88,941 $MTCO_2e$ to 86,129 $MTCO_2e$. Commercial energy consumption represented 7% of emissions in 2005 and 10% in 2012, and its total emissions increased by about 24%, from 20,377 $MTCO_2e$ to 25,304 $MTCO_2e$ over the time period. Water comprised 6% of the total, 18,156 $MTCO_2e$, in 2005, but was reduced to 4% of the total, 11,653 $MTCO_2e$, in 2012. Solid waste, wastewater, and off-road sources made up the remaining emissions in each year. Solid waste and wastewater emissions declined from 2005 to 2012; however, off-road sources increased 117%, from 157 to 340 $MTCO_2e$, in the same period. Off-road Sources comprise a very small percentage of overall emissions, but are variable primarily due to construction-related emissions, which are based on the level of development estimated in the City each year. Municipal emissions increased slightly from 2,264 $MTCO_2e$ to 2,291 $MTCO_2e$, a 1.2% increase.

6.2 Effects of GHG Emissions

The scientific community's understanding of the fundamental processes responsible for global climate change has improved over the past decade, and its predictive capabilities are advancing. However, there remain significant scientific uncertainties in, for example, predictions of local effects of climate change, occurrence, frequency, and magnitude of extreme weather events, effects of aerosols, changes in clouds, shifts in the intensity and distribution of precipitation, and changes in oceanic circulation. Due to the complexity of the Earth's climate system and inability to accurately model all climate parameters, the uncertainty surrounding climate change may never be completely eliminated. Nonetheless, the potential impacts in California due to global climate change may include: loss in snow pack; sea level rise; more extreme heat days per year; more high ozone days; more large forest fires; more drought years; increased erosion of California's coastlines and sea water intrusion into the Sacramento and San Joaquin Deltas and associated levee systems; and increased pest infestation. Below is a summary of some of the potential effects, reported by an array of studies that

could be experienced in California as a result of global warming and climate change (California Environmental Protection Agency 2006).

Air Quality: Higher temperatures, conducive to air pollution formation, could worsen air quality in California. Climate change may increase the concentration of ground-level ozone, but the magnitude of the effect, and therefore, its indirect effects, are uncertain. If higher temperatures are accompanied by drier conditions, the potential for large wildfires could increase, which, in turn, would further worsen air quality. However, if higher temperatures are accompanied by wetter, rather than drier conditions, the rains would tend to temporarily clear the air of particulate pollution and reduce the incidence of large wildfires, thus ameliorating the pollution associated with wildfires. Additionally, severe heat accompanied by drier conditions and poor air quality could increase the number of heat-related deaths, illnesses, and asthma attacks throughout the State (California Energy Commission 2006). According to the Cal-Adapt website, which provides projections on climate change scenarios and impacts, the City could result in an average increase in temperature of approximately 5% to 9% (about 3.1 to 5.5°F) by 2070-2090, compared to the baseline 1961-1990 period (California Energy Commission 2017).

Water Supply: Uncertainty remains with respect to the overall impact of global climate change on future water supplies in California. The California Department of Water Resources report on climate change concludes that "climate change will likely have a significant effect on California's future water resources…[and] future water demand." It also reports that "much uncertainty about future water demand [remains], especially [for] those aspects of future demand that will be directly affected by climate change and warming. While climate change is expected to continue through at least the end of this century, the magnitude and, in some cases, the nature of future changes is uncertain." It also reports that the relationship between climate change and its potential effect on water demand is not well understood, but "[i]t is unlikely that this level of uncertainty will diminish significantly in the foreseeable future." Still, changes in water supply are expected to occur, and many regional studies have shown that large changes in the reliability of water yields from reservoirs could result from only small changes in inflows (California Department of Water Resources 2006).

Hydrology and Sea Level Rise: As discussed above, climate changes could potentially affect: the amount of snowfall, rainfall and snow pack; the intensity and frequency of storms; flood hydrographs (flash floods, rain or snow events, coincidental high tide and high runoff events); sea level rise and coastal flooding; coastal erosion; and the potential for salt water intrusion. Sea level rise can be a product of global warming through two main processes: expansion of seawater as the oceans warm, and melting of ice over land. A rise in sea levels could result in coastal flooding and erosion and could jeopardize California's water supply. Increased storm intensity and frequency could affect the ability of flood-control facilities, including levees, to handle storm events.

Agriculture: California has a $30 billion agricultural industry that produces half the country's fruits and vegetables. Higher CO_2 levels can stimulate plant production and increase plant water-use efficiency. However, if temperatures rise and drier conditions prevail, water demand could increase; crop-yield could be threatened by a less reliable water supply; and greater ozone pollution could render plants more susceptible to pest and disease outbreaks. In addition, temperature increases could change the time of year certain crops, such as wine grapes, bloom or ripen, and thus affect their quality (California Climate Change Center 2006).

Ecosystems and Wildlife: Increases in global temperatures and the potential resulting changes in weather patterns could have ecological effects on a global and local scale. Increasing concentrations of GHGs are likely to accelerate the rate of climate change. Scientists expect that the average global surface temperature could rise by 2-11.5°F (1.1-6.4°C) by 2100, with significant regional variation (National Research Council 2010). Soil moisture is likely to decline in many

regions, and intense rainstorms are likely to become more frequent. Sea level could rise as much as two feet along most of the U.S. coast. Rising temperatures could have four major impacts on plants and animals: (1) timing of ecological events; (2) geographic range; (3) species' composition within communities; and (4) ecosystem processes such as carbon cycling and storage (Parmesan & Galbraith 2004).

6.3 GHG Mitigation

The Business-as-Usual forecasts estimate future emissions consumption patterns and emission factors with the anticipated growth in the City. Anticipated growth is estimated using data from regional planning scenarios developed by Southern California Association of Governments, the City, and other relevant sources. The most relevant growth factors are used to project emissions by sector. Compound annual growth rates were developed using the growth projections from 2012 to 2020 and from 2021 to 2035. The City's community and municipal Business-As-Usual emissions in 2020 are estimated to be 262,363 $MTCO_2e$, or approximately a 9.5% decrease from the 2005 baseline emissions of 289,289 $MTCO_2e$. By 2035, emissions are estimated to decrease by approximately 9.4% from the baseline level to 262,083 $MTCO_2e$. The City's greenhouse gas inventory is summarized in Table 3, Citywide Greenhouse Gas Inventory ($MTCO_2e$), below.

TABLE 3
CITYWIDE GREENHOUSE GAS INVENTORY ($MTCO_2e$)

Category	2005 Baseline	BAU 2020	2035	Adjusted BAU 2020	Adjusted 2035
Municipal Emissions	2,291	2,291	2,291	2,177	2,177
Community Emissions	287,025	260,072	259,792	229,481	190,653
Total Citywide Emissions	*289,289*	*262,363*	*262,083*	*231,658*	*192,830*
Reduction from 2005 Baseline	—	-9.5%	-9.4%	-20%	-33%

Numerous State measures, have been approved and/or adopted that will reduce GHG emissions in the City, once implemented. These measures do not require additional City action, but are accounted for in the City's emissions forecasts to provide a more accurate picture of future emissions and the level of action needed to reduce emissions to levels consistent with State recommendations. This forecast is called the Adjusted Business-As-Usual forecast.

Under the Adjusted Business-As-Usual scenario, City emissions were estimated to be 231,658 $MTCO_2e$ in 2020 and 192,830 $MTCO_2e$ in 2035. These emissions levels are 20% lower in 2020 than 2005 levels and 33% lower than 2005 levels by 2035. In 2020, the City is expected to meet the State-aligned reduction target through existing efforts and legislation. In 2035, the City would need to reduce 44,270 $MTCO_2e$ emissions below the 2035 Adjusted Business-As-Usual scenario to meet the State-aligned target.

Therefore, the City has started implementing new reduction measures and/or augmenting existing efforts as outlined in the City's Emissions Reduction Action Plan (ERAP) to meet the State-aligned target. Ongoing implementation of reduction measures provides additional reductions that will further help mitigate climate change and provide additional coverage if State measures do not achieve their anticipated reductions. The ERAP measures primarily focus on ways to reduce energy as energy usage accounted for 42% of all City GHG emissions in 2012. Additionally, residents emit more

GHGs from natural gas consumption than electricity consumption and residential and commercial/industrial energy use is increasing, with the exception of Residential natural gas use. Therefore, as outlined in the ERAP, the City plans on focusing on increasing energy efficiency and reducing GHG emissions from energy to meet attainment goals.

The City is implementing energy efficiency strategies, as outlined in the ERAP, to increase energy efficiency in both existing and new residential and commercial development, increase energy efficiency through water efficiency, and decrease energy demand through reducing the urban heat island effect. The City, through its partnership with the SBCCOG, will obtain and distribute educational content, energy audit services, and assistance identifying potential funding sources to help implement strategies. These City actions, combined with state measures, will lead to a 24% reduction from 2005 levels by 2020 and 54% reduction from 2005 levels by 2035 (Atkins 2015).

6.4 Climate Change Adaptations

The various implications of climate change are identified throughout this element, along with the Joint Hazards Mitigation Plan, with feasible methods to avoid or minimize the associated risks. In addition, a number of goals, policies, and implementation actions in the General Plan address sustainability and the reduction of the carbon footprint of the City. Specifically, the City will continue active participation in cooperative regional efforts to reduce pollutant emissions, as well as focus more attention on improvements at the local level. Implementation of these goals, policies, and programs would reduce impacts related to climate change associated with the General Plan which were incorporated in the following elements.

- Conservation and Open Space: Climate change policies for public/private facilities and development that recognize the sensitivity of the natural environment, as well as conservation policies specific to protecting and enhancing the natural communities
- Land Use: Residential and institutional land use policies that consider future growth, capacity limitations, and environmental factors of the city and Peninsula
- Circulation: Policies across transportation, infrastructure, resources, disposal/recovery, flood control/storm drain systems that provide guidance on plans and programs that would foster environmental conservation and promote hazard mitigation measures,
- Fiscal: Policies related to reducing the cost of operations through energy efficient methods, equipment, and infrastructure

6.5 Vulnerabilities in the City

Changes in weather and climatic conditions affect biological systems, ecosystems, and infrastructure. Anticipated vulnerabilities include an increased rate of fires, loss of natural resource, decreased water supply, and deteriorating public health.

Rising Sea Levels: Sea levels are projected to rise approximately 40 to 55 inches by year 2100. Most of the properties in the coastal zone are over 100' above sea level. Although flooding may not be of a high risk in the City, the rising sea levels may permanently damage beaches, tide pools, and increase the erosion rate of the cliffs that may lead to instability of developed properties along the coast.

Temperature Variability: Increased average temperature and extreme weather will lead to longer heat waves, reduced air quality, and changes in vegetation patters. There may be an increased risk in wildfires as a result of dry heat, drought, and increased evapotranspiration rates. Water supply may decrease, resulting from the impacts of drought, due to reductions in surface water and ground water. Residents may experience more heat-related illnesses, especially the elderly and children.

7 Other Hazards

7.1 Falling from Coastal Bluffs

The coastal bluffs that rise from the ocean are indeed an impressive and beautiful geologic phenomenon. The bluffs and associated seascape draw people from all over Southern California. This attraction causes visitors and residents alike to wander too close to the point of danger and fall, causing injury, and, in some cases, death. Weathering and other factors often leave the geologic structure weak and subject to breakage by the person who comes too close. Also, people have been known to fall due to stumbling while walking parallel to the bluff. In addition, people are often hurt while trying to descend or ascend the cliffs. This usually occurs when the person is "blazing" an unauthorized trail of his or her own instead of using an established trail access point. To prevent injuries or death, the City requires visitors use designated trails, avoid bluffs after dark, and wear appropriate shoes. In many areas, the City posts signage to warn visitors of the dangers near a cliff edge and to stay on authorized trails.

7.2 Wild and Domestic Animals

The historic development of the Peninsula has slowly eliminated several species of wildlife, such as the deer and eagle. However, many of the more adaptable species have remained. At the present time, wildlife populations consist of skunks, rabbits, small rodents, a variety of birds, reptiles, coyotes, and fox (see Conservation and Open Space ElementBiotic Resources). Peninsula wildlife does not pose a major health or safety problem to area residents; however, mixing wild animals, domestic animals, and humans create potential incidents of snake bites, rabies, etc.

Along with the usual domestic dogs and cats, the nature of development on the Peninsula has and will continue to allow for the keeping of certain large domestic animals, such as horses, in some areas. While no major safety or health concerns currently exist, occasionally isolated cases are reported. These cases most generally require preventative measures rather than specific health or medical measures.

8 Emergency Services

This section deals with various programs and services designed to avoid hazards, help during hazardous conditions, and/or provide assistance after a hazardous condition has occurred.

8.1 Emergency Medical Aid and Rescue

The City subcontracts ambulance service from a private company regulated by the Los Angeles County Fire Department. The ambulance vehicles are based in three separate fire stations (Station Nos. 53, 83, and 106) and an Ambulance Station (Red Cross Station No. 7) within the City of Rancho Palos Verdes.

Aside from the subcontracted ambulance service, a paramedic rescue squad (Los Angeles County Fire Department) serves the contracted areas on the Palos Verdes Peninsula. The City is served by one Paramedic Rescue Squad at Fire Station 106 on Indian Peak Road. The paramedic rescue program provides 24-hour service, ranging from aiding heart attack victims to assisting victims who may have fallen from one of the coastal bluffs, to aiding persons stuck in an elevator.

An additional form of rescue operation is provided for water-oriented activities. The Los Angeles County lifeguards are responsible for lifesaving operations at County beaches. Rescue operations for boats in distress off the Rancho Palos Verdes coast are currently provided by Los Angeles County, Los Angeles City, and the U.S. Coast Guard. Although each has its own jurisdiction, in an emergency, jurisdiction is rarely considered, but rather who can get there first. In particular, a base of the U.S. Coast Guard, which is a unique branch of the military responsible for saving lives and protecting the environment among other related duties, occupies the grounds of the Point Vicente Lighthouse within the City. In the past, the Coast Guard monitored international distress frequencies with a radio station and radio navigation beacon added to the lighthouse in 1934 until the task was transferred to another station in 1980. At present, the former radio center serves as the Coast Guard Auxiliary, composed of local civilians, who track distress calls from boaters, perform search and rescue duties in local waters, and maintain radio communication networks in Southern California (Palos Verdes on the Net).

8.2 Healthcare

The Palos Verdes Peninsula has the following acute care ("short-term") hospitals in Torrance and San Pedro, located approximately 15 minutes away (see Table 4, Area Hospitals).

TABLE 4
AREA HOSPITALS

Hospital	Location
Del Amo Hospital	Torrance
Harbor - UCLA Medical Center	Torrance
Providence Little Company of Mary Medical Center	Torrance
Providence Little Company of Mary Medical Center	San Pedro
Torrance Memorial Medical Center	Torrance

The Los Angeles County Department of Health Services (LACDHS) created a map in 2004, illustrating designated medically underserved areas and populations. The existing nearby hospitals are adequately meeting the needs of the City since the LAC DHS 2004 map excludes the City of Rancho Palos Verdes from areas that are designated medically underserved.

Basic health services, such as communicable disease control, public health administration, and enforcement of refuse collection ordinances, nursing, clinical services, and related activities are provided at no cost to the City by the LAC DHS.

8.3 Flood Control

The City of Rancho Palos Verdes is within the Los Angeles Flood Control District. The Flood Control District encompasses more than 3,000 square miles, 85 cities, and approximately 2.1 million land parcels. It includes the vast majority of drainage infrastructure within incorporated and unincorporated areas in every watershed.

The Flood Control District was established to provide flood protection, water conservation, recreation, and aesthetic enhancement within its boundaries and is the responsibility of the County of Los Angeles Department of Public Works. The Watershed Management Division is the planning and policy arm of the Flood Control District. The Public Works Flood Maintenance and Water Resources Divisions, respectively, oversee its maintenance and operational efforts.

The County Public Works Flood Maintenance and Water Resources Divisions are responsible for the operation and maintenance of County-owned storm drains and catch basins within the City. The County Department of Public Works monitors and prepares flooding and mudflow forecast prior to and during significant storms for impacts to the County-owned storm drains. The storm drains are generally inspected in a 5-year cycle, while catch basins are maintained more frequently.

While the County-owned storm drains are maintained by the County Public Works Flood Maintenance and Water Resources Divisions, the City-owned storm drains are the responsibility of the City's Public Works Department. The City Public Works Department is responsible for the operation and maintenance, including the cleaning of all City-owned storm drain catch basins at least twice per year and on a complaint basis.

In order to fund the operation and maintenance of City-owned storm drain systems, the City Council determined that a dedicated funding source was needed. Accordingly, in 2005, property owners approved the Storm Drain User Fee, which provides funding for the City's storm drain improvement and maintenance program. The Storm Drain User Fee is dedicated for the repair, reconstruction, and maintenance of City-owned storm drain systems throughout the City and for the installation of filtration devices to reduce polluted runoff and protect coastal water quality. Property owners pay the Storm Drain User Fee for parcels that use the City's storm drain system.

On November 6, 2007, the voters approved Measure C, an amendment to the user fee ordinance to include a voter enacted Oversight Committee and a 10-year sunset of the user fee. When the user fee rate was established by the property owners in 2005, the total user fees to be collected over 30 years was estimated to be about $50 million to pay for known construction projects, storm drain lining, maintenance, staffing, and engineering. The Storm Drain User Fee ended in 2016.

8.4 Police Protection

The City is part of a joint-contract with Los Angeles County Sheriff's Department for police protection. The Lomita Station opened in 1975 and provides police protection to the Peninsula Region, which is identified as the Cities of Rancho Palos Verdes, Rolling Hills Estates, and Rolling Hills.

The Sheriff's Department has three response categories: Emergency, Priority, and Routine for each city within the Peninsula Region. Table 5 provides annual response time for the City compared to the Sheriff's Department's targeted response time.

TABLE 5
PALOS VERDES RESPONSE TIMES

Area Response Time	Rancho Palos Verdes (minutes)	Los Angeles Sheriff's Department Target (minutes)
Emergency	5.5	7
Priority	9.7	20
Routine	23.7	60

Source: Los Angeles County Sheriff's Department 2014.

During emergency situations, back-up assistance can be provided by additional Sheriff's units normally assigned to nearby contract cities (Rolling Hills Estates, Rolling Hills, Lomita) and unincorporated areas of the County.

The Sheriff's Department provides assistance and information to the Rancho Palos Verdes Neighborhood Watch, which provides additional crime prevention and emergency preparedness resources for local homeowners participating in the program.

8.5 Fire Protection

Currently, the County of Los Angeles provides fire protection to the City through the operation of the fire stations in Table 6.

TABLE 6
CITY FIRE STATIONS

Fire Station No. 53	
Address	6124 Palos Verdes Drive South, Rancho Palos Verdes
Equipment	1 Fire Engine, 3 Personnel
Fire Station No. 56	
Address	12 Crest Road West, Rolling Hills
Equipment	1 Fire Engine, 1 Patrol Unit, 4 Personnel
Fire Station No. 83	
Address	83 Miraleste Plaza, Rancho Palos Verdes
Equipment	2 Fire Engines (active & reserve), 1 Patrol, 4 Personnel

TABLE 6
CITY FIRE STATIONS

Fire Station No. 106	
Address	413 Indian Peak Road, Rolling Hills Estates
Equipment	1 Fire Engine, 1 Truck, 1 Paramedic Rescue Squad, 1 Battalion Chief, 1 Patrol, 1 Reserve Wagon, 1 Utility Vehicle, 12 Personnel

The helicopter has also proven to be a very effective tool in fighting brush fires. The occasional brush fire in Rancho Palos Verdes frequently requires helicopter assistance, which has the capability of responding to a call within 20 minutes. Based in Pacoima, the Air Operations Section has a fleet of aircraft consisting of eight helicopters, with the newest models equipped with a 1,000-gallon water tank that uses a "constant flow" delivery system. Los Angeles County has designated the helicopter pads at the Nike Site (53 Alpha) and the Palos Verdes Coastguard Station (53 Charlie) to be used for water refueling.

Fire hazards can be minimized in two basic ways. The first method involves the reduction of fire starts. Preventative fire control emphasizes safety in the design, maintenance, and use of structures. Proper safety measures can effectively reduce the possibility of fire. The California Fire Code requires 20' to 26' minimum road widths, depending on the design, for adequate emergency vehicle access and a 3' to 5' minimum clearance around and between structures for adequate emergency personnel access around properties.

The second method of hazards reduction emphasizes the effective response aspect of fire control. Effective response can be assisted by providing necessary access and adequate amounts and pressures of water. The 2015 International Fire Code provides guidelines and standards for fire protection in urban settings and is enforced by the Local Fire Departments to reduce fire deaths, injury, and property loss.

8.6 Disaster Preparedness and Response

The Cities of Rancho Palos Verdes and Rolling Hills Estates developed a Joint Hazards Mitigation Plan in 2004. Based on the recently adopted 2010 Multi-Hazard Mitigation Plan for the State of California, the Joint Hazards Mitigation Plan was updated in 2014. Hazard mitigation is different from other disaster management functions as its purpose is to articulate measures that make development and the natural environment safer and more disaster-resilient. Mitigation generally describes a long-term prevention method involving alteration of physical environments, significantly reducing risks and vulnerability to hazards by altering the built environment so that life and property losses can be avoided or reduced. Mitigation measures also make it easier and less expensive to respond to and recover from disasters. Disaster preparedness is different from hazard mitigation in that it focuses on activities designed to make a person, place, organization, or community more prepared to take appropriate action in a disaster with emergency response, equipment, food, shelter, and medicine. Disaster preparedness is

important because when time constraints or resources may delay or prevent certain long-term mitigation measures, emergency preparedness are short-term actions that can make it possible to respond and recover from disasters despite losses that may be unavoidable.

The City of Rancho Palos Verdes has been a member of the South Bay Office of Disaster Management's Area G since 1974. Area G covers all 14 cities in the South Bay and provides services to the City for disaster planning and training, as well as representation and liaison services to the Los Angeles County Operational Area, the Governor's Office of Emergency Services, and FEMA. The City has a joint powers agreement with the South Bay Office of Disaster Management for services. The Area G Coordinator is the on-call local expert who provides information and assistance to the City during an emergency or disaster.

The City has an Emergency Operations Plan that is based on Incident Command System principles and concepts within the Standardized Emergency Management System (SEMS). The SEMS and the National Incident Management System (NIMS) are compatible approaches, and the City recognizes these policies and uses the SEMS/NIMS as a basis for the Incident Command System structure. The SEMS/NIMS create a standard incident management system that is scalable and modular, and can be used in incidents of any size/complexity. These functional areas include command, operations, planning, logistics, and finance/administration. The SEMS/NIMS incorporate such principles as Unified Command and Area Command, ensuring further coordination for incidents involving multiple jurisdictions or agencies at any level of government.

Preparedness activities are necessary to the extent that mitigation measures have not, or cannot completely, prevent disaster. In the preparedness phase, governments, organizations, and individuals develop plans to save lives and minimize disaster damage. These activities serve to develop the response capabilities needed in the event of an emergency. The Emergency Operations Plan identifies many of the preparedness efforts that the City has undertaken or plans to undertake, such as preparedness plans, emergency exercises/training, emergency communication systems, evacuation plans/training, resource inventories, emergency personnel/contact lists, mutual aid agreements, public education/information, and improving evacuation routes (Figure 5, Disaster Routes).

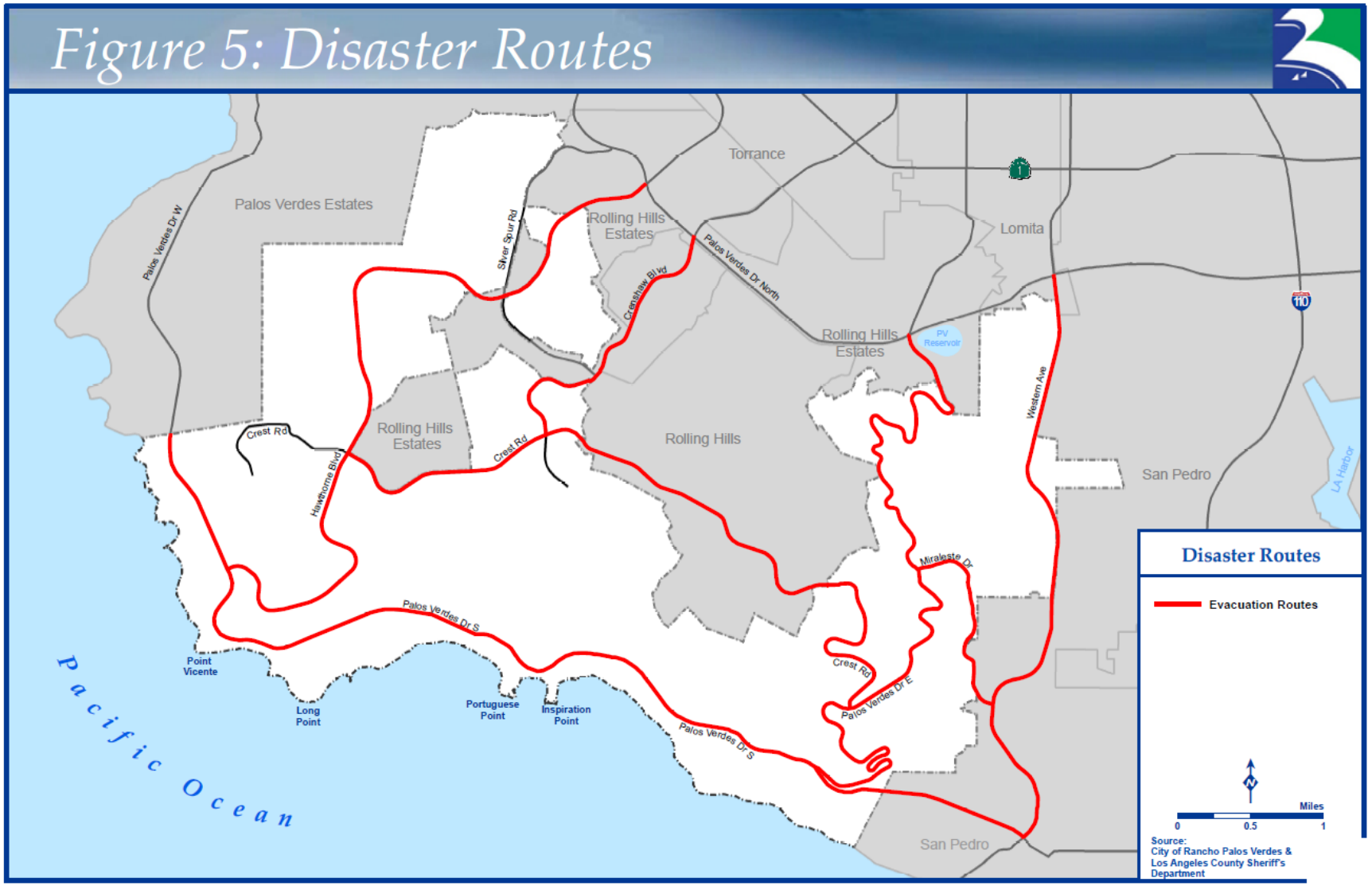
The Emergency Operations Plan also details response activities the City will follow pending the occurrence of an actual disaster or emergency. These activities help to reduce casualties and damage, and speed recovery. Response activities could include public warning, notification of public authorities, evacuation, rescue, assistance, activation of the Emergency Operations Center, declarations of disaster, search and rescue, and other similar operations addressed in the updated Emergency Operations Plan.

8.7 Emergency Communications

In times of emergency, a dependable and flexible communications system is essential. The telephone is the fastest and most reliable form of communication available. The "911 Telephone System" provides a single emergency telephone number (911), which, when called, will be routed to the correct agency (e.g., fire, police, etc.). In 2007, an Emergency Communications Center was constructed at the City Hall complex to support the City's normal emergency communication systems. When activated due to the loss of the normal communication methods, the Emergency Communications Center provides emergency communications by utilizing amateur radio operators.

The amateur radio operators that would staff the Emergency Communications Center during times of emergency are part of the Los Angeles Disaster Communications Service (DCS). DCS is administered by the Sheriff's Department Emergency Operations Bureau. DCS is an element of the federal government's Radio Amateur Civil Emergency Service (RACES), which was established under the Federal Communications Commission Rules.

Figure 5: Disaster Routes



Regulations as part of the amateur radio service. RACES supports emergency management entities throughout the United States. During major incidents, DCS amateur radio operators coordinate, transmit, and receive command and liaison traffic for the County, City, Sheriff's Department, and Fire Department, as well as other disaster relief agencies.

In 2005, the City established the Peninsula Volunteer Alert Network with the goal of providing emergency communications at the neighborhood level. The Volunteer Network operators communicate to and from the City through the Emergency Communications Center. When completely staffed, there will be a Volunteer Network operator in each neighborhood supporting members of the Community Emergency Response Team (CERT) and Neighborhood Watch block captains.

9 Other Safety Services

9.1 Animal Control

Currently, the Los Angeles County Department of Animal Care and Control is contracted to enforce the provisions of the City's Animal Control Ordinance (Chapter 6.04), as well as to provide other animal-related functions. The animal control program consists of the following major operations:

- Enforcement:
  - Respond to allegations of code violations, such as leash law violations, the feeding of prohibited wildlife, etc.
  - Canvass for expired animal licenses, as needed or requested.
  - Investigate allegations of animal cruelty.
  - License and inspect animal-related businesses, as needed or requested.
  - Dog barking complaints
- Field Services and Outreach:
  - Renew animal licenses.
  - Provide low-cost vaccination clinics, as needed or requested.
  - Respond to service calls, such as stray and dead animal pickup.
  - Return identifiable animals to owners in field, when possible.
  - Provide educational materials and programs upon request, when available.
- Shelter Services:
  - Provide impounded animals with appropriate care, including food, shelter, and medical treatment.
  - Impound animals for at least the state-mandated holding period.
  - Vaccinate impounded animals, when necessary.
  - Provide adoption and fostering opportunities, when possible.
  - Post the photographs of impounded animals on the County's website to help owners find their lost pets.
  - Provide low-cost spay/neutering and free microchipping of all adopted animals.

In cases of natural disasters, such as fire and earthquakes, the Lomita Sheriff's Department implements an emergency evacuation plan to relocate animals to safety. The Lomita Sheriff's Department sponsors the Palos Verdes Peninsula Equine Rescue Team, which is a group of volunteers that is trained to conduct emergency rescue, evacuation, and sheltering services for horse and other large domestic animals during local emergencies, such as brush fires and inclement weather. According to the Los Angeles County Department of Animal Care and Control, the Carson shelter is designated as an emergency shelter for animals evacuated during disastrous events on the Peninsula. Additionally, the City has a Memorandum of Understanding with the Area G Veterinary Disaster Team, a California nonprofit corporation that assists in providing temporary housing for animals and emergency veterinary medical care by setting up a temporary triage animal center. The Veterinary Disaster Team also assists in supplying lost and found animal information services to the public.

9.2 Air Pollution Control

South Coast Air Quality Management District (AQMD) is the air pollution control agency for all of Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino Counties, the smoggiest region of the United States. Rancho Palos Verdes is part of the Western Region of AQMD's four-county jurisdiction. AQMD is responsible for controlling emissions primarily from stationary sources of air pollution, including anything from large power plants and refineries to the corner gas station.

AQMD develops and adopts an Air Quality Management Plan, which serves as the blueprint to bring areas into compliance with federal and state clean air standards. Permits are issued to many businesses and industries to ensure compliance with air quality rules. AQMD staff conducts periodic inspections and continuously monitor air quality from different locations throughout the four-county area. This allows AQMD to notify the public whenever air quality is unhealthy.

9.3 Codes and Ordinances

There are numerous codes and ordinances that set safety standards, specifications, and regulations. Although the City has developed certain safety regulations, contracts and service agreements with the County currently set most safety standards. The Building Code, Zoning Ordinance, and Subdivision Ordinance are enforced by the City's Community Development Department, while the Fire Code is enforced by the Los Angeles County Fire Department.

While the various codes and ordinances cannot be expected to be perfect for all situations, they should: "(1) reflect the concept of risk and uncertainty; (2) be dynamic in allowing for amendment resulting from new knowledge and improved understanding; (3) be rationally interrelated and tied to a plan which considers probable forms of natural disasters among its elements; (4) be based on a logic which the legislator, administrator, and citizen can fully comprehend; thus, allowing for effective participation in the decision-making process" (Petak et al 1973., p. 145).

One of the most significant and important documents relating to safety are the building codes. The City's Building and Safety Division uses the most up-to-date codes to implement and enforce construction standards. In addition to these codes, the Building and Safety Division coordinates with the City's geotechnical consultants on the review of geology and soils reports for various construction projects, primarily due to the area's physical characteristics, such as slope, soils, and geologic structure. Specifically, the primary purpose of the California Building, Plumbing, Mechanical, and Electrical Codes are to protect the public health, safety, and welfare by setting minimum construction and building standards that minimize hazard impacts.

The City adopted its original Development Code, Zoning, and Subdivision Ordinances in December 1975. As with most other codes and ordinances, the zoning ordinance is principally designed to protect the public health, safety, and general welfare. Within the numerous zoning districts (based on land use), regulations generally specify: the use or function of a structure; the density of population; the lot coverage (e.g., structure and open space); structure height, soil stability investigation; and the minimum setbacks of a structure. Over time, new and amended code sections have been added for a more effective implementation of the City's goals and objectives.

10 Hazard Potential and Risk

Analysis of the hazards inventory indicate that, while all hazards are of concern, geologic hazards (earthquakes and landslides, primarily), fire, and flood are potentially the most destructive in terms of life and property. Of these three, earthquakes and associated secondary effects are capable of the most widespread damage. Fire and floods are generally confined to isolated areas. This is due to the diverse topography and the ability of humans to prevent and/or deal with flooding and fires. This section discusses earthquakes and associated hazards in terms of potential destruction and risks.

The census indicates that fewer than 220 residential structures were constructed on the Peninsula prior to 1933. A majority of these older structures appear to be within the Palos Verdes Estates and Miraleste areas. In a larger earthquake, it is assumed that the major structural damage might result in buildings constructed before 1933, when building code requirements for seismic resistance were adopted. Furthermore, due to vintage and construction techniques, it is expected that the most vital public buildings (administrative, fire, police) will withstand major quakes and recover quickly enough to function as emergency operation assistance centers.

Estimates of infrastructure damage due to a major earthquake will vary from negligible to widespread. In the event of a significant earthquake, major supply lines (water, gas) may be subject to serious damage. Within Rancho Palos Verdes, the major concern lies with vital services located on landslide areas. An earthquake could trigger landslides, which could result in severe damage to the roadway, water, communications, and power networks. Furthermore, based on the condition of some of the water storage facilities and pipelines in the City, their ability to withstand a major earthquake is unclear.

The level of risk associated with each event caused by a fault is indicated by the recurrence interval in much the same manner as the risk from other natural hazards. For example, it is common practice to design flood-prevention works to accommodate the flows from a 100-year storm. Where a higher level of protection is desired, as, for example, along the Santa Ana River in Orange County, the design levels are increased to accommodate the flows from storms occurring at roughly 300-500 year intervals.

The risk of earthquake should be considered in a similar manner. Design for the 100-year event is considered minimum; where a higher level of protection is desired, such as for hospitals, design levels should be increased to protect against earthquakes with longer recurrence intervals. The levels in Table 7 are recommended for earthquakes expected from the Newport-Inglewood Fault zone.

TABLE 7
RISK OF EARTHQUAKE

Use	Recurrence Interval	Expected Magnitude
Limited occupancy (warehouses, automated manufacturing facilities, etc.)	100 years	5.2
Normal occupancy (residences, stores, etc.)	150 years	5.6
Critical facilities (hospitals, fire and police stations, schools, critical utilities, etc.)	300 years	6.5

The risk of an earthquake from the San Andreas Fault is a special case. As discussed in the previous section, a major or "great" earthquake is considered imminent. As a result, it is recommended that tall structures, except possibly limited occupancy, be designed for an earthquake of magnitude 8.5 on the San Andreas Fault (Envicom).

11 Impacts

The intent of this element is to identify potential hazards and hazard areas, and to provide policies and recommendations by which to increase safety and reduce hazards. Although the principal impact of this section is, for the most part, expected to be beneficial to both humans and natural systems, some adverse economic conditions may arise.

The financial impact will probably be the City's greatest concern. The development of future safety programs and the possible expansion of existing programs may or may not require some public financing. If required, the initial costs of such programs, however, are expected to be largely offset by federal, state, and county assistance programs, and through the ultimate reduction of damage caused by hazards.

Costs to individuals may also increase in the form of construction costs, due to future building standards, and in the form of hazard prevention costs due to landscaping and services; however, these too are expected to be offset in the long term by reduction of damage and/or loss of possessions and individuals.

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XI VISUAL RESOURCES ELEMENT

Source: Hsu, Ming-yen. 2009. "Point Vicente Lighthouse, Palos Verdes," Flickr. Accessed at https://flic.kr/p/6TMTgU August 7, 2009.

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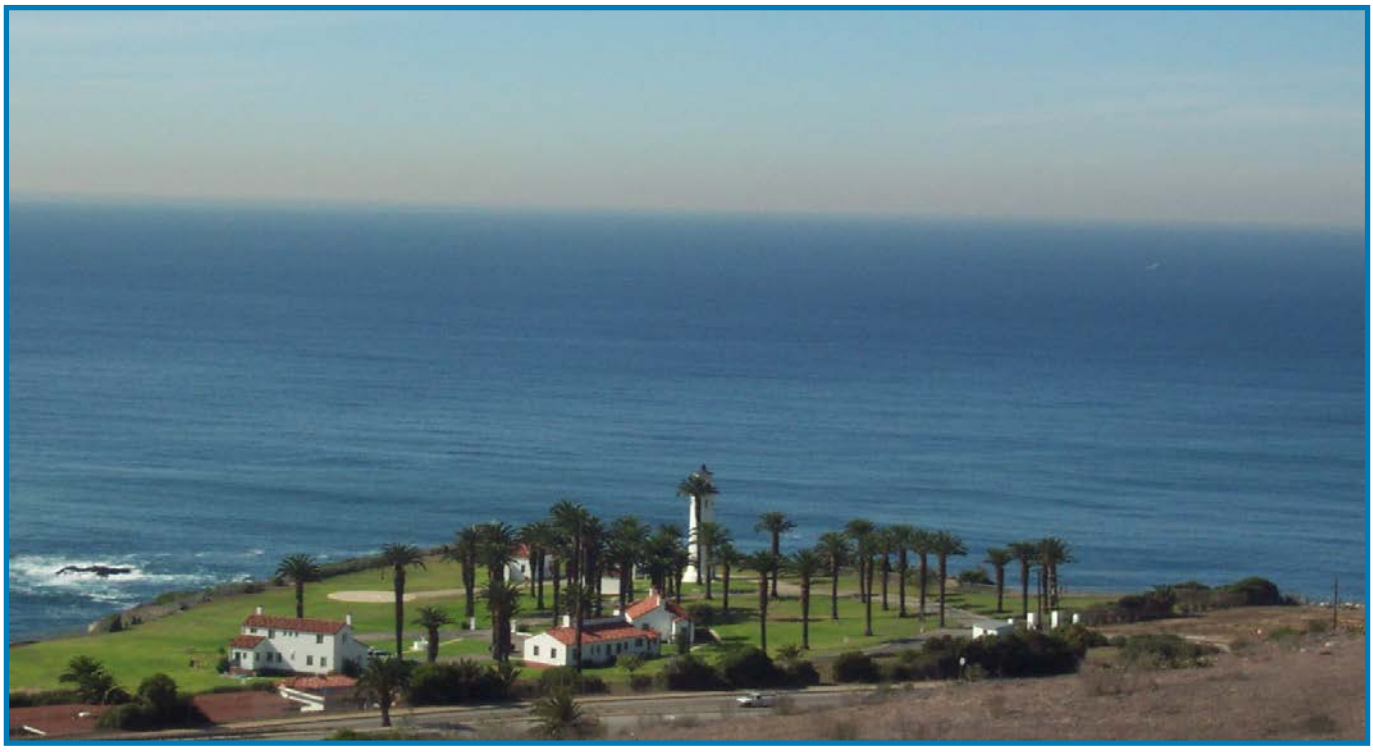
XI Visual Resources Element

The Peninsula is graced with views and vistas of the surrounding Los Angeles basin and coastal region. Because of its unique geographic form and coastal resources, these views and vistas are a significant resource to residents and the many visitors, as they provide a rare means of experiencing the beauty of the Peninsula and the Los Angeles region. Views of the ocean, islands, distant mountains, and urban lights are not only important from public spaces, such as arterials, trails, parks, and open spaces, but also from private property. Additionally, views of open space areas, such as canyons, pastoral environment, ridges, and bluffs, are vital from both public and private spaces, as these areas contribute to the unique character of the City.

City residents have long identified the preservation of views and the harmonious development of its neighborhoods among their top priorities for the City. When the City first incorporated it was at risk of losing views and the unique visual character of the City due to unmanaged development and vegetation growth.

Upon incorporation, the City developed policies in its General Plan to preserve visual resources. Later, the City adopted and implemented various Ordinances and Guidelines to protect visual resources as seem from both private and public property. The purpose of the Visual Resources Element is to provide continued guidance through establishment of goals and policies to ensure the continued preservation, restoration, and enhancement of significant visual resources within the City.



1 Goal

1. Preserve views and vistas for the public benefit and, where appropriate, the City should strive to enhance and restore these resources and the visual character of the City, and provide and maintain access for the benefit and enjoyment of the public.

The Visual Resources Element begins by introducing the three main types of visual resources: views, vistas, and urban design. Following is a discussion of the specific visual resources within and outside of the City. The next section provides a framework for how visual resources are viewed from "viewing stations," which include viewing sites, viewing points, and visual corridors. The next section focuses on areas within the City that should have views preserved or restored, including undeveloped areas. The chapter concludes with a discussion of the various implementation tools, including Visual Resource Policies that the City has used and will continue to use to preserve, restore, and enhance visual resources.

The associated visual resources, viewing stations, and areas to be preserved, restored, or enhanced are denoted on the accompanying map (Figure 1), which provides a graphic understanding of the descriptions provided.

2 Policies

1. Develop controls to preserve existing significant visual aspects from future disruption or degradation.
2. Enhance views and vistas where appropriate through various visual accents.
3. Preserve and enhance existing positive visual elements and restore those that have been lost.
4. Consider the visual character of neighborhoods consistent with the General Plan and Neighborhood Compatibility Guidelines.
5. Develop and post signs regarding vista points to provide safe off-road areas to enjoy views.
6. Develop and maintain, in conjunction with appropriate agencies, public access to paths and trails for the enjoyment of views.
7. For developments that are proposed within areas that impact the visual character of a corridor, require developers to incorporated treatments into their projects that enhance a corridor's imagery.
8. Require developments that will impact corridor-related views to mitigate their impacts.
9. Develop a program for the restoration of existing areas that negatively impact view corridors.
10. Require residents and developers to mitigate light pollution associated with developments.
11. Maintain strict sign standards to ensure that signs are harmonious with the buildings, neighborhood, and other signs in the area.
12. Work with adjoining jurisdictions to preserve and restore the view corridors from major thoroughfares, taking into account traffic safety.

3 Types of Visual Resources

Visual resources (see Figure 1) are divided into three categories: views, vistas, and urban design. This section describes the types of views, vistas, and urban design to be preserved, restored, and enhanced within the City.

3.1 Views

A view is a scene or panorama observed from a given vantage point. Views represent a panoramic visual aspect that extends to the horizon of a distant focal point (Catalina Island, rather than the lighthouse), and has an unlimited arc and depth. These views can be either continuous (as views from along a public corridor) or localized (as viewed from a specific site).

3.2 Vistas

A vista is a confined view that is usually directed toward a dominant element or landmark (e.g. lighthouse). A vista, unlike a view, may be created by features that visually frame the vista. Each vista has, in simplest terms, a viewing station, an object or objects to be seen, and intermediate features that frame the vista. If one or more of the elements already exist and are allowed to remain, then the others must be designed in harmony.

3.3 Urban Design

Urban design recognizes that the visual form of the City's neighborhoods and commercial areas can also provide a pleasing visual palette to residents and visitors. With urban design, the City is concerned with ensuring that the development of each parcel or additions to existing structures occurs in a manner that is harmonious with the land and also maintains an architectural aesthetic and character representative of the neighborhood and the City.

Properly planned and designed street landscape also adds to a neighborhood's aesthetics and character. Since incorporation, the City's street tree and landscape management practice has largely been one that involves the uniform installation of landscape along street frontages and medians. In recognition that streetscape is a more significant component of urban design, a broader vision to the City's management of street landscape is necessary to add and preserve this visual accent to neighborhood aesthetics and character.

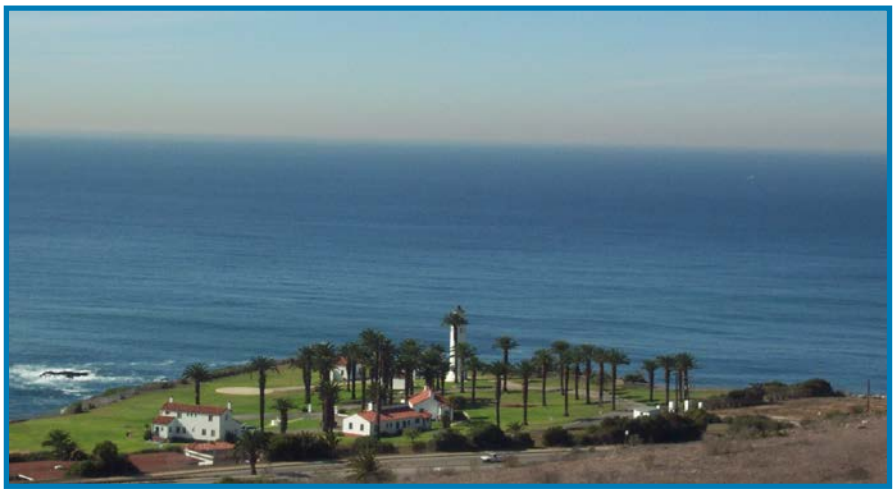
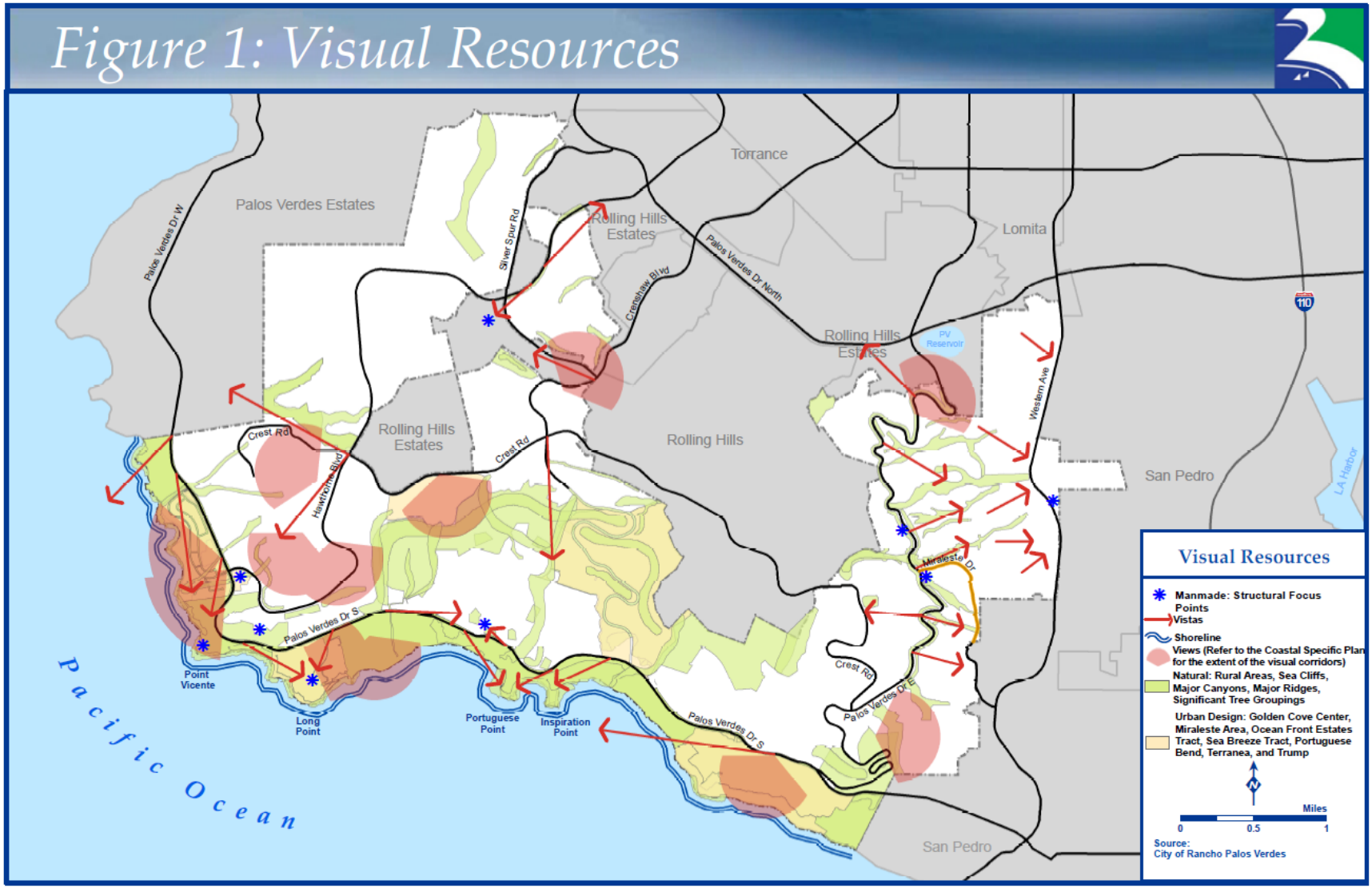


Figure 1: Visual Resources



4 Visual Resources

The following are visual resources within and surrounding the City. They fall within three general categories: natural, built, and urban design.

4.1 Natural Visual Resources

Natural visual resources include the following:

Natural Areas: Natural features that provide viewers with a feeling for the rural atmosphere of the City. The best examples are the Palos Verdes Nature Preserve, major canyon systems, and open spaces adjacent to view corridors.

Shoreline: The irregular shoreline configuration is a prominent feature along the Peninsula, including Portuguese Point, Inspiration Point, Long Point, and Point Vicente. Distant shorelines can also be enjoyed from multiple locations throughout the Peninsula that are visually accessible to the public.

Sea Cliff: The Peninsula shoreline is characterized by vertical cliffs forming rocky, narrow beaches and coves. Sea cliffs are observed from the Palos Verdes Nature Preserve and other open space areas that are located close to the sea cliff, locations at higher hillside elevations, and positions offshore. Offshore observation locations offer the maximum viewing orientation of the total sea cliff landscape.

Major Canyons: These represent the location of additional vegetation, shadows, and other visual focal elements in the dominant topography of the City.

Major Ridges: Ridges complement the canyon element of the topography, with the major ridge systems, spines, and spurs representing outstanding visual features of the Peninsula area.

Significant Tree Groupings (mass, linear): Because of the random presence of tree groupings within the City, significant masses or lines of trees represent a natural focal point of interest, and set a theme for some areas. Examples include tree groupings found in the Portuguese Bend area and along Palos Verdes Drive East.

Night Sky: The semi-rural residential development and large areas of open space provide a low level of background lighting and associated glare that can obstruct views of the night sky. As a result, the City has some of the best night sky views within the greater Los Angeles basin. The southerly portion of the City, sheltered by the light glare of the Los Angeles basin, offers the best night sky viewing.

4.2 Built Visual Resources

Built visual resources tend to be major architectural elements that focus a viewer's attention along major corridors and on major public lands. Examples of noteworthy focal points include Wayfarers Chapel, Point Vicente Lighthouse, and the Vincent Thomas Bridge. This category also includes views of the surrounding cityscape and urban lights at night.

4.3 Urban Design Visual Resources

Visual resources are not only views of scenic areas, but also include the style and character of structures, landscaping, and signage (residential and non-residential) through urban design. Since incorporation, the City has developed different policies to manage growth and to enhance and protect the visual character of its neighborhoods. The City has review guidelines for new construction and additions to existing structures to enhance urban design. Such design standards and guidelines are used to review residential development; they are discussed in Section 7, Implementation Tools. A good example of a commercial urban design focal point is the Golden Cove Shopping Center. Some of the more visible residential urban design examples include the Enclave at Oceanfront Estates, Seabreeze and Tramonto Residential Tracts, Portuguese Bend, Terranea's casitas and villas, and the Trump National Residential Tracts. Additionally, within some neighborhoods are public and private landscaping design characteristics worth noting: the ecologically based streetscapes of Oceanfront Estates, the mature trees of Miraleste, and the semi-rural streetscapes of the Portuguese Bend neighborhood.

5 Viewing Stations

Viewing stations (see Figure 2) are places where people can enjoy the visual resources of the City. They include both public and private spaces. Viewing stations are described in three categories: viewing points, viewing sites, and view corridors.

5.1 Viewing Points

Viewing points are locations at private residences and roadway turnouts along vehicular corridors that afford viewing of visual resources. Significant turnout improvements along Palos Verdes Drive South and West, have been made since the City's incorporation, and include turnouts at the Terranea Resort, Abalone Cove, along Hawthorne Boulevard, and at Trump National Golf Club.

5.2 Viewing Sites

Viewing sites are larger areas that, due to their physical locations on the Peninsula, provide a significant viewing vantage. Since the City's incorporation, several viewing sites have been established, including Del Cerro Park, Hesse Park, Lower and Upper Point Vicente, Oceanfront Estates public trails, the Palos Verdes Nature Preserve, Trump National's public trails, Founder's Park, and Terranea's public trails.

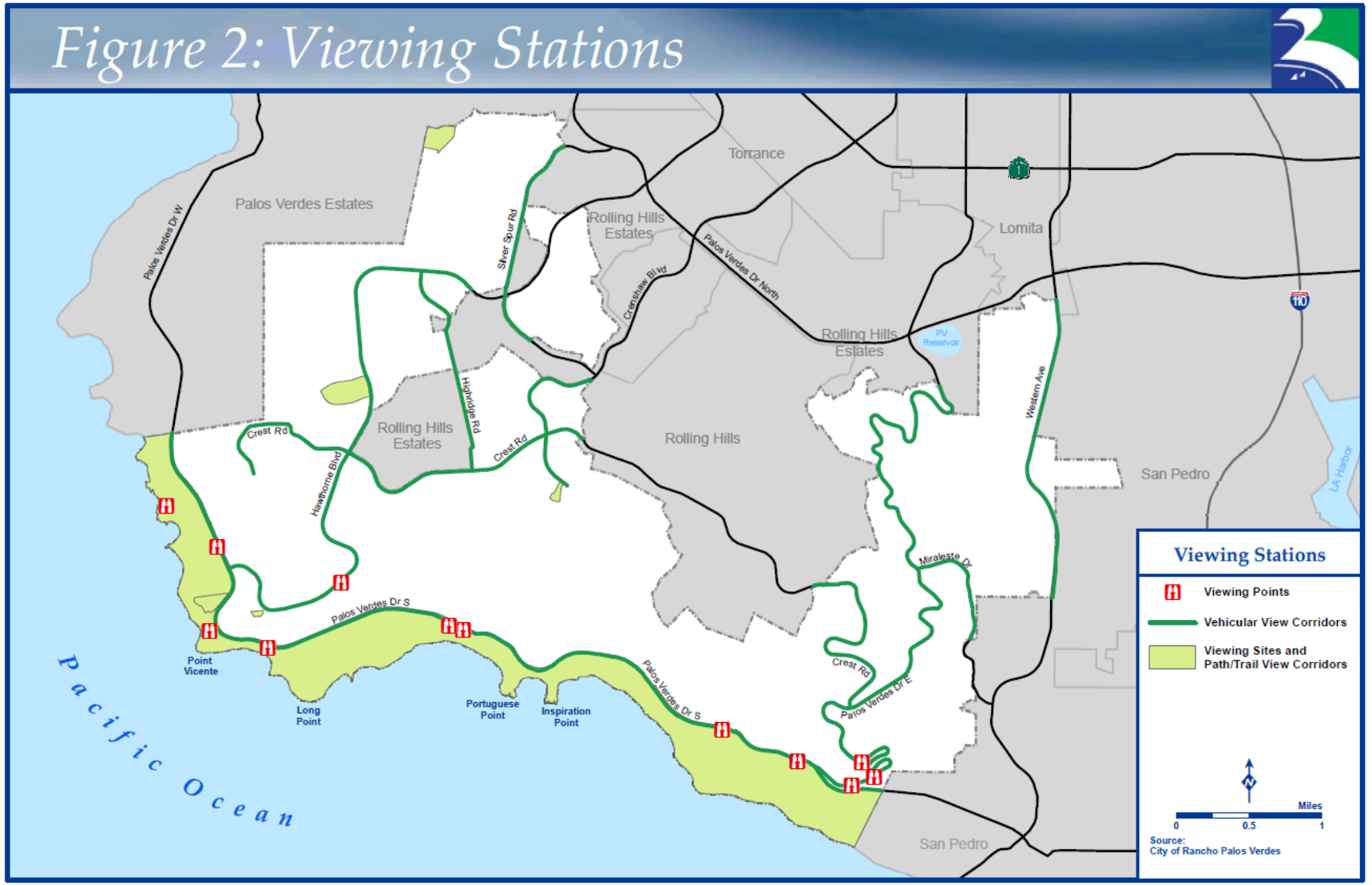
5.3 View Corridors

View corridors are major circulation roads and trail networks within the City that afford views of visual resources. It is along these routes that the majority of residents and nonresidents view the City.

Vehicular Corridors: Vehicular view corridors should take into account two elements: the visual quality of a corridor and safety problems associated with visual distractions. The interruption created by vehicles slowing for view enjoyment introduces potential hazards and reflects possible lack of adequate vista points for enjoying a specific vista. As indicated in the accompanying Visual Resources Map (Figure 14), the primary vehicular corridors are along Palos Drive West, East, and South. Other vehicular corridors are along Western Avenue, Hawthorne and Crenshaw Boulevards, Crest and Highridge Roads, and Miraleste Drive.

Path and Trail Corridors: Major paths and trails in the City primarily run along borders of significant natural features (ridge route coastal bluff). Therefore, visual impacts from existing/proposed developments along these routes occur mainly on one side, with some occurrences on both sides. This condition, where development exists or is proposed on one side or both sides of paths or trails, generates concern over how developments appear from path and trail networks. In the past, tract developments on the Peninsula have been concerned with street-side appearance. Incorporation of path and trail routes introduces a need for visual appearance considerations to occur on both street and path or trail frontages. Areas where both sides are fronted by development appear more structured in their visual treatment and could provide transitional areas prior to paths or trails entering into areas with large, open vistas.

Figure 2: Viewing Stations



6 Preservation and Enhancement of Visual Resources

6.1 Natural Areas to be Preserved

Most large areas of natural land are protected from development by the Coastal Specific Plan and the City's Palos Verdes Nature Preserve, but some areas of natural land, especially the City's right-of-way along Palos Verdes Drive West, East, amd South, are vulnerable to alteration due to view clearance needs, roadway improvements, and/or trail enhancements (see Figure 3).

6.2 Developed Areas to be Preserved

Developed areas of particular visual interest are mainly located along Palos Verdes Drive South. From this corridor, specific developed areas should be preserved: Point Vicente Lighthouse, Terranea Resort, Trump National Golf Course, and Wayfarers Chapel. Other notable developed areas that are to be preserved are Green Hills Cemetery along Western Avenue and the median landscape along Miraleste Drive.

6.3 Developed Areas to be Restored

Since the adoption of the initial General Plan in 1975, certain corridors (e.g., Crest Road between Hawthorne Boulevard and Crenshaw Boulevard) have been restored to enhance and preserve views and vistas. Roadway and median improvements along Palos Verdes Drive South and West have also been completed. However, due to past grading and Los Angeles County's Street Design Standards, which caused visually negative site and road patterns to impact major view corridors, there still exists a need to restore certain view corridor segments. Two corridors in need of major restoration are Western Avenue and Hawthorne Boulevard. More specifically, the Western Avenue corridor needs additional median and roadway enhancements and Hawthorne Boulevard needs median and parkway enhancements to preserve the aesthetic value of the roadway and its views and vistas.

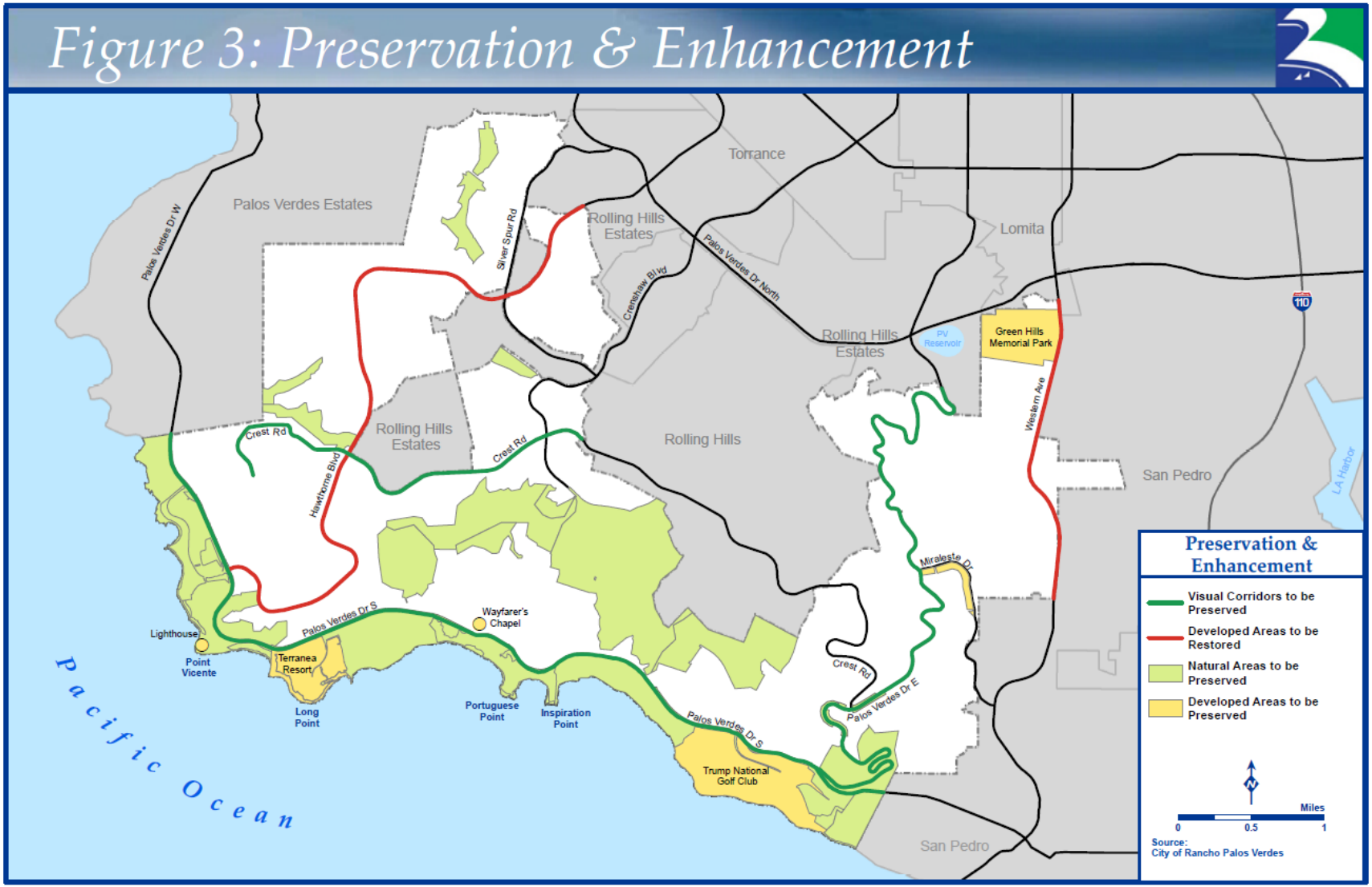
6.4 Visual Corridors to be Preserved

The concern over these areas is how a proposed development will visually impact a corridor. The chances for blocking, altering, and degrading existing significant views and vistas within the City could be at the mercy of potential developments. Since the time of the City's incorporation, large underdeveloped areas adjacent to Crest Road and Palos Verdes Drive South/West have been developed with residential tracts that are designed to protect views and vistas. There is also a continuing need to manage foliage bordering visual corridors to keep it from obstructing views. Smaller, contiguous and non-contiguous underdeveloped parcels still exist throughout the City and should be designed to consider impacts to visual resources.

6.5 Night Sky to be Preserved

A nighttime sky in which stars are readily visible is a valuable scenic/visual resource. In urban areas, views of the nighttime sky can be diminished by light pollution. Light pollution refers to excessive use of artificial light. Excessive light can be visually disruptive to humans and nocturnal animals, and is also indicative of a high level of energy consumption. Examples of light sources that commonly cause light pollution are residential outdoor lights, streetlights, parking lot lights, and field lighting. Projects should be designed to mitigate light pollution.

Figure 3: Preservation & Enhancement



7 Implementation Tools

Since the City's incorporation, the City Council has adopted various documents to assist the public in proposing and reviewing developments in accordance with the General Plan and Municipal Code. This section describes the different ordinances, documents, and methods by which the City manages and preserves views, vistas, and urban design within the City. The following are implementation tools that work toward achieving the preservation and enhancement of visual resources. All of these documents are available for viewing at the City's Community Development Department.

7.1 View Restoration and Preservation Ordinance and Guidelines

In November 1989, City voters passed an initiative to protect views by establishing height restrictions for residential structures and foliage. This view ordinance was codified into the City's Municipal Code. Subsequently, guidelines and review procedures were adopted by the City Council to implement the ordinance and codes related to building structure heights and view impairment caused by foliage. These guidelines are known as the Height Variation Guidelines and the View Restoration and Preservation Guidelines and Procedures.

To be consistent with the intent to protect views and vistas, the City Council also adopted a policy to protect views impaired by foliage located on City-owned property including City street foliage. View restoration requests involving City-owned trees are processed by the City pursuant to the City's Municipal Code.

7.2 Guidelines and Procedures for Neighborhood Compatibility

The General Plan contains policies on many aspects of residential development, including neighborhood compatibility. Neighborhood compatibility is an urban design concept that attempts to balance new residential development with the preservation of the rural and semi-rural character of the City. To this end, in 2003, the City adopted neighborhood compatibility guidelines for property development in the City as a means to further the objectives of the General Plan to preserve and enhance the character of established neighborhoods. The City Council-adopted Neighborhood Compatibility Handbook consists of suggested guidelines meant to assist residents and developers in the preparation and design of residential projects through project scale, architecture, and setbacks within the context of the immediate neighborhood within the same zoning district.

7.3 Coastal Specific Plan

A Coastal Specific Plan was prepared in 1978 to further study and assess resources along the City's coastline. One of the goals of the Coastal Specific Plan is to provide additional guidance beyond the General Plan and further define policy for visual resources and development along the coastline. Accordingly, the Coastal Specific Plan further defines the General Plan's concepts of visual corridors and viewing focal points as they pertain to the City's coastline. The Coastal Specific Plan also contains community design guidelines to ensure that public and private development conforms to the principles set forth in the General Plan.

7.4 Western Avenue Specific Plans

The intent and purpose of the Western Avenue Specific Plans are to establish a guide for the comprehensive redevelopment or renovation of the existing commercial development located along Western Avenue. The Specific Plans include design and regulatory standards that are tailored to the unique features and characteristics of the area. In addition, the Specific Plans are designed to protect adjacent residential properties from the impacts of commercial development and to encourage revitalization. The plans identify themes that are designed to create an identity and distinguish the area from neighboring Los Angeles. The plans integrate the unique aspects of the Eastview area into the overall character of the City, assist in preserving views, and improve the urban design for this area.