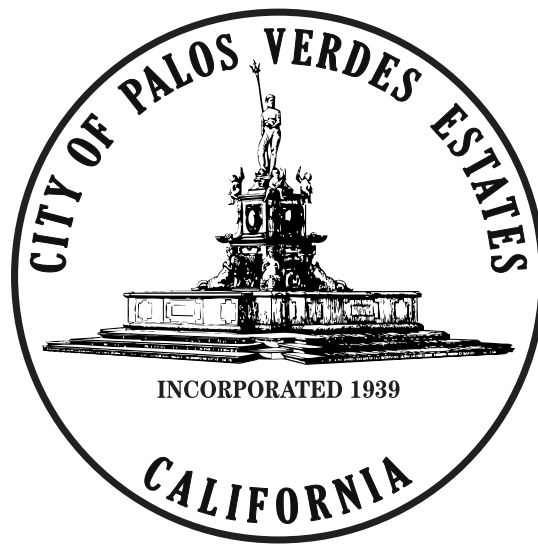


**CITY OF PALOS VERDES ESTATES  
LOCAL HAZARD  
MITIGATION PLAN**





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## **EXECUTIVE SUMMARY**

Across the United States, natural disasters have led to increased levels of injury, property damage, interruption of business and government services, and even death. The impact of disasters on families and individuals can be immense, and damages to businesses can result in economic consequences. The time, money, and effort to respond to and recover from these disasters, divert public resources and attention from other important programs and problems.

In 2000, Congress passed the Disaster Mitigation Act (Public Law 106-390) to reinforce the importance of mitigation Planning and to emphasize Planning for disasters before they occur. As such, local communities must have an approved mitigation Plan in place prior to receiving both pre-disaster mitigation and post-disaster funds. These Plans must demonstrate that proposed mitigation measures are based on a sound Planning process that accounts for the risks to and the capabilities of the individual communities.

Applying this knowledge, the City of Palos Verdes Estates, California has prepared a Local Hazard Mitigation Plan that will guide the City toward greater disaster resilience in full accord with the character and needs of the community, and Federal requirements. The potential hazards identified and assessed in this version of the Local Hazard Mitigation Plan include Earthquakes, Windstorms, Earth Movements, Drought, Rising Sea Levels, Wildland Fires, and Floods. Mitigation actions found in Section 8 include a range of specific actions and projects that reduce the effects of each hazard, with particular emphasis on protecting new and existing buildings and infrastructure.

This Local Hazard Mitigation Plan has been prepared to meet the Federal Emergency Management Agency's requirements of the Disaster Mitigation Act 2000 and the Interim Final Rule, thus making it eligible for funding and technical assistance from State and Federal hazard mitigation programs. Following each major disaster declaration, the City is required to review and update the mitigation strategy. Additionally, in compliance with Federal Emergency Management Agency regulations, this Local Hazard Mitigation Plan must be reviewed, revised if appropriate, and resubmitted for approval within the next five years so that the City continues to be eligible for various hazard mitigation grant-funding sources.

### **2007 Local Hazard Mitigation Plan**

The 2007 Local Hazard Mitigation Plan brought into focus the need for additional training in response capability, enhanced preparation and Planning, addressing mitigation measures, development of a recovery Plan, and citywide staff training. For example, the City has provided CERT training for staff and commenced staff training of Emergency Operations, Annual Exercises and Emergency Operations Center specific training. These efforts are led by the Police Department.



## ACRONYMS

<b>CERT</b>	Community Emergency Response Team
<b>CFR</b>	Code of Federal Regulations
<b>City</b>	City of Palos Verdes Estates
<b>DDP</b>	Disaster District Program
<b>DMA 2000</b>	Disaster Mitigation Act of 2000
<b>DMAC</b>	Disaster Management Area Coordinator
<b>EPA</b>	United States Environmental Protection Agency
<b>FEMA</b>	Federal Emergency Management Agency
<b>GIS</b>	Geographic Information System
<b>HMAC</b>	Hazard Mitigation Advisory Committee
<b>HMGP</b>	Hazard Mitigation Grant Program
<b>LHMP</b>	Local Hazard Mitigation Plan
<b>NFIP</b>	National Flood Insurance Program
<b>OES</b>	Governor's Office of Emergency Services
<b>PDM</b>	Pre-Disaster Mitigation
<b>PEPT</b>	Peninsula Emergency Preparedness Taskforce
<b>HMPT</b>	Hazard Mitigation Planning Team
<b>SFHA</b>	Special Flood Hazard Area
<b>Stafford Act</b>	Robert T. Stafford Disaster Relief and Emergency Assistance Act
<b>State</b>	State of California
<b>UBC</b>	Uniform Building Code
<b>USC</b>	United States Code
<b>USGS</b>	United States Geological Survey

## **SECTION 1: OFFICIAL RECORD OF ADOPTION**

This section provides an overview of the Disaster Mitigation Act of 2000 (DMA 2000; Public Law 106-390), the adoption of this Local Hazard Mitigation Plan (LHMP) by the local governing body, and supporting documentation for the adoption.

### **1.1 DISASTER MITIGATION ACT OF 2000**

The DMA 2000 was passed by Congress to emphasize the need for mitigation Planning to reduce vulnerability to natural hazards. The DMA 2000 amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act; 42 United States Code [USC] 5121 et seq.) by repealing the act's previous Mitigation Planning section 409 and replacing it with a new Mitigation Planning section 322.

To implement the DMA 2000 Planning requirements, the Federal Emergency Management Agency (FEMA) published an Interim Final Rule in the Federal Register on October 21, 2007 (FEMA 2002a). This rule, 44 Code of Federal Regulations [CFR] Part 201, established the mitigation Planning requirements for states, tribes, and local communities. The Planning requirements are described in Section 2 and identified in their appropriate sections throughout the Plan. In addition, a crosswalk documenting compliance with 44 CFR is included as Appendix D: Review Tool.

### **1.2 ADOPTION BY LOCAL GOVERNING BODY AND SUPPORTING LOCAL DOCUMENTATION**

The requirements for the adoption of an LHMP by the local governing body, as stipulated in the DMA 2000 and its implementing regulations, are described below:

**DMA 2000 Requirements: Prerequisites**

**Adoption by the Local Governing Body**

Requirement §201.6(c)(5): [The local hazard mitigation Plan shall include] documentation that the Plan has been formally adopted by the governing body of the jurisdiction requesting approval of the Plan (e.g., City Council, County Commissioner, Tribal Council).

Source: FEMA, October 2011

The City of Palos Verdes Estates LHMP meets the requirements of Section 409 of the Stafford Act and Section 322 of the DMA 2000. This includes meeting the requirement that the LHMP be adopted by the City of Palos Verdes Estates.

This LHMP has been prepared by the City's Hazard Mitigation Advisory Committee (HMAC) and adopted by the City Council via resolution, which is presented in Appendix A: Adoption Resolution.

## **SECTION 2: BACKGROUND**

This section provides an overview of the City's LHMP, including a review of the background, authority, and purpose of the LHMP and a description of the Plan.

### **2.1 PURPOSE AND AUTHORITY**

The DMA 2000, also referred to as the 2000 Stafford Act amendments, was approved by Congress on October 10, 2000. The President signed the bill into law on October 30, 2000, creating Public Law 106-390. The purposes of the DMA 2000 is to amend the Stafford Act, establish a national program for pre-disaster mitigation, and streamline administration of disaster relief.

The City of Palos Verdes Estates LHMP meets the requirements of the DMA 2000, which calls for all communities to prepare hazard mitigation Plans. By preparing this LHMP, the City is eligible to receive Federal mitigation funding after disasters and to apply for mitigation grants before disasters strike. More importantly, this LHMP starts an ongoing process to evaluate the different types of hazards endangering the City, and to engage the City and the community in dialogue to identify the steps that are most important in reducing these risks. This constant focus on Planning anticipating and preparing for disasters will ensure the City, including its residents, property, infrastructure, and environment, much safer and resilient. Anticipating and preparing for disasters will ensure the City, its residents, properties, infrastructure, and environment are safer and resilient.

The local hazard mitigation Planning requirements encourage local residents, businesses, the non-profit sector, and agencies at all levels to participate in the mitigation Planning and implementation process. This broad participation enables the development of mitigation actions that are supported by these various stakeholders and reflect the needs of the entire community.

States are required to coordinate with local governments in forming hazard mitigation strategies and combined , these strategies form the basis for the State Mitigation Plan. The information contained in the LHMP helps states identify technical assistance needs and prioritize project funding. Furthermore, as communities prepare their Plans, states can continually improve the level of detail and comprehensiveness of statewide risk assessments.

For FEMA's Pre-Disaster Mitigation (PDM) grant program and Hazard Mitigation Grant Program (HMGP), a local jurisdiction must have an approved LHMP to be eligible for PDM and HMGP funding for presidentially declared disasters after November 1, 2004. Plans approved at any time after November 1, 2004, will allow communities to be eligible to receive PDM and HMGP project grants.

Adoption by the local governing body demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in the LHMP. Adoption legitimizes the LHMP and authorizes responsible agencies to execute their responsibilities. Following adoption by the City Council, the Plan was reviewed by the Governor's Office of Emergency Services (OES) and approved by FEMA. The resolution adopting this LHMP is included in Appendix A: Adoption Resolution.



## 2.2 PLAN DESCRIPTION

The remainder of this LHMP consists of the following sections:

### **Section 3 Community Description**

This section provides a general history and background of the community, historical trends for population, demographics, and economic conditions that have shaped the area. Trends in land use and development are also discussed.

### **Section 4 Planning Process**

The section identifies HMAC members, Consultant, and key stakeholders within the community and surrounding region. In addition, this section documents public outreach activities and the review and incorporation of relevant Plans, reports, and other appropriate information.

### **Section 5 Risk Assessment**

The section describes the process through which the HMAC identified and compiled relevant data on all potential natural hazards that threaten the City and the immediate surrounding area. Information collected includes historical data on natural hazard events that have occurred in and around the City and how these events impacted residents and their property.

The descriptions of natural hazards that could affect the City are based on historical occurrences and best available data from agencies such as local history FEMA, United States Geological Survey (USGS), California Geologic Survey, and the National Weather Service. Detailed hazard profiles include information on the frequency, magnitude, location, and impact of each hazard as well as probabilities for future hazard events.

### **Section 6 Vulnerability Assessment**

Identifies potentially vulnerable assets such as people, housing units, critical facilities, infrastructure, and commercial facilities. The data was compiled by assessing the potential impacts from each hazard using Geographic Information Systems (GIS). The resulting information identifies the full range of hazards that the City could face and potential social impacts, damages, and economic losses.

### **Section 7 Capability Assessment**

Although not required by the DMA 2000, Section 7 provides an overview of the City's resources in the following areas for addressing hazard mitigation activities:

**Legal and Regulatory:** Existing ordinances, Plans, and codes that affect the physical or built environment in a community

**Administrative and Technical:** The staff, personnel, and department resources available to expedite the actions identified in the mitigation strategy

**Fiscal:** The financial resources to implement the mitigation strategy

### **Section 8 Mitigation Strategy**

This section describes the process in which the HMAC developed a list of mitigation goals, objectives, and actions based upon the findings of the risk assessment and the capability assessment. Based upon these goals and objectives, the HMAC, supported by the Consultant, reviewed and

prioritized a comprehensive range of appropriate mitigation actions to address the risks facing the community. Such measures include preventive actions, property protection techniques, natural resource protection strategies, structural projects, emergency services, and public information and awareness activities.

### **Section 9 Plan Maintenance**

The Plan Maintenance section describes the HMAC's formal Plan maintenance process to ensure that the LHMP remains an active and applicable document. The process includes monitoring, evaluating, and updating the LHMP; implementation through existing Planning mechanisms; and continued public involvement.

### **Section 10 References**

This section contains reference materials used to prepare this LHMP.

### **Appendices**

The appendices include the Adoption Resolution, HMAC meetings materials and minutes, public involvement process, and the required Review Tool for compliance with the DMA 2000.

Appendix A: City of Palos Verdes Estates Resolution

Appendix B: Planning Team Meetings Documentation

Appendix C: Public Meetings and Notifications Documentation

Appendix D: FEMA Review Tool

## SECTION 3: COMMUNITY DESCRIPTION

This section describes the history, location, and geography of the City of Palos Verdes Estates as well as its government, demographic information, and current land use and development trends.

### 3.1 HISTORY, LOCATION, AND GEOGRAPHY

Palos Verdes Estates is a city in Los Angeles County, California, situated on the Palos Verdes Peninsula. The City was incorporated December 20, 1939.

The Palos Verdes Peninsula, which became known as Rancho de los Palos Verdes, was part of a land grant deeded to Don Delores Sepulveda in 1822, in return for his support of the Mexican Revolution. In 1882, the land was deeded to Jotham Bixby who brought farming to the Peninsula. The Bixby family in turn, sold the land to New York City Financier Frank A. Vanderlip, Sr. in 1913. Vanderlip, then President of National City Bank in New York, covered every mile of his new acquisition on horseback and formed his vision of a magnificent community by the sea. To achieve these goals, Vanderlip called in the most talented experts and professionals of his day.

Deed restrictions were imposed on the land in 1923, when Bank of America, as trustee for Vanderlip's Palos Verdes Project, drafted a trust indenture and outlined provisions for development of the new community. The restrictions included specific items to "preserve the fine views of ocean, mountains and park," and "increase with the years the wonderful natural beauty of the property". The document established set-back requirements, prohibited billboards, and imposed a system of architectural review on builders administered by the Palos Verdes Homes Association and the Palos Verdes Art Jury.

Vanderlip's Plans were slowed by World War I, but subdivision of the land and construction of the first Spanish style homes, in what is today known as Palos Verdes Estates, began in the early 1920's.

The new community was laid out and landscaped by the famous Olmsted Brothers, sons of Frederick Law Olmsted, Sr., who designed Central Park in New York City. Gently winding roadways, green hillsides, paths, stands of eucalyptus, pepper, and coral trees were established, and a full 28% of the land area was dedicated to be permanent open space. This early Planning and dedication of parklands gives the City its unique rural character and has resulted in its international reputation for scenic beauty.

Palos Verdes Estates first functioned as an unincorporated community and the Homes Association was liable for taxes on all parkland. After the economic crash in 1929, the association owed parkland taxes to Los Angeles County and area residents were afraid that the parklands might be sold for payment. City incorporation was voted in 1939 and the parklands were deeded to the new City in 1940 by the Homes Association.

Palos Verdes Estates lies on the western side of the Palos Verdes Hills from the coastal bluffs up to western crest of the hills. The Palos Verdes Hills constitute an isolated land peninsula projecting into the ocean at the southwest border of the Los Angeles Basin. In general, the peninsula resembles the islands off the coast of Southern California. Northwest of the Palos Verdes Hills, a belt of irregular dune-sand topography extends inland from the coast and overlaps the lowland and

northwest border of the hills.

The Palos Verdes Hills represent a miniature Coast Range mountainous area of low altitude. They have a maximum northwest-southeast length of about 9.5 miles and a width of four to five miles. The crest and greater part of the upper slopes of the hills form a rolling land, characterized by smoothly rounded hills and wide, gently sloping valleys. The lower slopes are marked by a series of coastal terraces, with canyons, some deep, advancing inland across the terraces. The west and south coasts are bordered by a sea cliff that has in general a height of 100 to 150, but up to 300 feet in Palos Verdes Estates. At Bluff Cove and Malaga Cove, the cliffs are 300 and 200 feet high, respectively.

Map 3-1: City of Palos Verdes Estates



### 3.2 DEMOGRAPHICS

The 2010 United States Census reported that Palos Verdes Estates had a population of 13,438. The population density was 2,814.8 people per square mile (1,086.8/km<sup>2</sup>). The racial makeup of Palos Verdes Estates was 10,346 (77.0%) White (73.4% Non-Hispanic White), 161 (1.2%) African American, 21 (0.2%) Native American, 2,322 (17.3%) Asian, 8 (0.1%) Pacific Islander, 94 (0.7%) from other races, and 486 (3.6%) from two or more races. Hispanic or Latino of any race was 631 persons (4.7%).

The Census reported that 13,421 people (99.9% of the population) lived in households, 17 (0.1%) lived in non-institutionalized group quarters, and 0 (0%) were institutionalized. There were 5,066 households, out of which 1,686 (33.3%) had children under the age of 18 living in them, 3,649 (72.0%) were opposite-sex married couples living together, 296 (5.8%) had a female householder with no husband present, 138 (2.7%) had a male householder with no wife present. There were 91 (1.8%) unmarried opposite-sex partnerships, and 26 (0.5%) same-sex married couples or partnerships. 848 households (16.7%) were made up of individuals and 534 (10.5%) had someone living alone who was 65 years of age or older. The average household size was 2.65. There were 4,083 families (80.6% of all households) ; the average family size was 2.97.

The population was spread out with 3,113 people (23.2%) under the age of 18, 588 people (4.4%) aged 18 to 24, 1,787 people (13.3%) aged 25 to 44, 4,702 people (35.0%) aged 45 to 64, and 3,248 people (24.2%) who were 65 years of age or older. The median age was 49.9 years. For every 100 females, there were 95.2 males. For every 100 females age 18 and over, there were 93 males.

There were 5,283 housing units at an average density of 1,106.6 per square mile (427.3/km<sup>2</sup>), of which 4,496 (88.7%) were owner-occupied, and 570 (11.3%) were occupied by renters. The homeowner vacancy rate was 0.7%; the rental vacancy rate was 5.6%. 11,958 people (89.0% of the population) lived in owner-occupied housing units and 1,463 people (10.9%) lived in rental housing units.

According to the 2010-2014 U.S. Census, the median income for a household in Palos Verdes Estates was \$171,328. The per capita income for the City was \$87,408.

Table 3-1: Historical Population

Census Year	Population
2008	13,465
2009	13,546
2010	13,438
2011	13,449
2012	13,539
2013	13,623
2014	13,680
2015	13,438
2016	13,438 (estimate)

It should be noted that Palos Verdes Estates is a residentially built out city. That is, there is no space

for new residential construction. As such, the population year over year varies 1 or 2% annually.

### 3.3 GOVERNMENT

Palos Verdes Estates, which was incorporated in 1939, is a General Law City operating within rules established by the California Legislature. The organizational structure of the local government is of the City Council–City Manager form. The City Manager, hired by the City Council, is responsible for Planning, organizing, and directing all administrative activities such as enforcing municipal laws, directing the daily operations of the City, and preparing and observing the municipal budget. The City Council is composed of five City Council members elected at large by the citizens of Palos Verdes Estates, with one member elected by the City Council to serve as Mayor. The City Council acts upon all legislative matters concerning Palos Verdes Estates, approving and adopting all ordinances, resolutions, contracts, and other matters requiring overall policy decisions and leadership. Additional information regarding City-owned buildings and facilities, urban services, infrastructure, and general building stock is provided in Section 6.

### 3.4 LAND USE AND DEVELOPMENT TRENDS

#### Description of Vulnerability: Land Use and Development Trends

Requirement §201.6(c)(2)(ii)(C): [The Plan should describe vulnerability in terms of “providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions”]

Source: FEMA, March 2013

## GENERAL PLAN

### Introduction

The City of Palos Verdes Estates represents one of the few cities in the Los Angeles area that was totally Planned from its inception. The beauty of the natural setting of the City has been maintained even while experiencing the rapid growth common to all areas of Southern California since World War II. This City is a good example of the benefits of Planning and the necessary firm commitment of the residents and public officials to adhere to the Plan.

California Planning Law states that the General Plan shall be comprehensive, long term, and general. These provisions are certainly accomplished by the Master Plan developed in 1924, zoning regulations originally adopted by the City in 1948, subsequent revisions to zoning standards, and the City’s Neighborhood Compatibility Ordinance, which have satisfactorily served as a guide to quality development to the present day.

This General Plan is a commitment to the foresight, interest, and effort of the founders and early residents of the City, and a reaffirmation of this vision for the present and the future. This Plan provides a sound program for the future by establishing guidelines for those areas that are necessary to provide the quality of life desired in an increasingly complex society.

### History

Recorded history of the Palos Verdes Peninsula began more than 400 years ago when Spanish explorer, Cabrillo, claimed the land for the Crown of Spain. From the time the land was settled, the green hills supported the huge cattle herds of the Dominguez and Sepulveda Ranchos. Title disputes between the factions were finally settled in the early 1800's by the grant to the Sepulveda family of 30,000 acres comprising Rancho Los Palos Verdes.

The Peninsula entered the 20th century with the purchase of 16,000 acres by Mr. Frank Vanderlip in 1913. An ambitious estate development in the Portuguese Bend area was brought to an abrupt halt by the advent of World War I.

A real estate firm, headed by Mr. E.G. Lewis purchased 3,200 acres of the Vanderlip Ranch in 1921. The "Palos Verdes Project" was initially established to provide Planning and development for the entire Peninsula. The first development increment included the communities of Palos Verdes Estates and Miraleste.

Deed restrictions were established for each parcel of land to ensure conformity of use to the Master Plan and to provide features, which guaranteed quality development. The Palos Verdes Homes Association was instituted to administer the Master Plan, protective restrictions, and maintenance of streets and public areas.

Palos Verdes Estates was the first increment of the "Project" consisting of over 3,000 acres of the initial purchase. The community was fortunately well established before the Depression forced the abandonment of the Master Plan and development of the rest of the Peninsula. The City was incorporated on December 20, 1939 to take over the normal governmental functions. The Homes Association's Board of Directors and Art Jury have continued to provide guidance to the development of the community through administration of the protective restrictions.

### **Settings**

The City of Palos Verdes Estates is within the Los Angeles, Long Beach metropolitan area, approximately 30 miles southwest of downtown Los Angeles. The City is a coastal community advantageously sited on the beautiful rugged shoreline of the Palos Verdes Peninsula. Elevations range from sea level to 217 feet above sea level.

### **Planning Area**

The City of Palos Verdes was developed as a prime residential community out of the mainstream of the metropolitan core, but readily accessible to the advantages of the diversified goods and services it has to offer. The Peninsula has access to rail, freeway, highway, and air facilities, which provide access to the major business, industrial and recreational areas available to Southern California.

A prime characteristic of the Planning Area is the rugged terrain, which has generally limited development to residential use. This pattern is still predominant, although a major change within the pattern is the constant pressure for higher density residential development that will directly affect the City by increasing population and resultant problems.

### **Considerations Basic to the General Plan**

Palos Verdes Estates is an established low density residential City within the Peninsula Planning



Area. Basic Planning considerations for the needs of the people must be considered within the framework of the part of the City plays in the Planning Area and the Los Angeles Region. Employment opportunities for the great majority of Peninsula residents will continue to be outside the Planning Area in the neighboring industrial-commercial center. The City will continue to fulfill its role in the area as a low-density residential, bedroom community.

The changing character and increasing number of residents in the City, while committed to maintaining the quality of past development, may require new streets in undeveloped areas and minor modifications of streets in developed areas. It may also require additions to or changes in recreational facilities and in City services. The projected saturation population within the existing City boundaries is 18,600. Development of properties within the City is governed by deed restrictions on every parcel. Consideration of these restrictions must be recognized in the General Plan.

These basic considerations are reflected in the General Plan to give proper direction to the development of the City, provide for the basic needs of the community, and to retain those elements that will ensure the quality of the community for future residents.

#### Objectives and Goals

The objectives and goals which serve to define the direction of specific elements of the General Plan of the City of Palos Verdes Estates are as follows:

**Residential Community.** To maintain a low density, predominately single-family, residential pattern of land use that will provide basic needs for housing, recreation, education, and services.

**Economic Needs.** To draw on the facilities in the Peninsula and Los Angeles region to fulfill the needs for employment, industry, and major commercial enterprise.

**Quality Development.** To foster those practices, which encourage high quality development and prevent deterioration of established residential areas.

**Traffic Network.** To develop a traffic network within the area for the convenient and safe access of pedestrians and vehicles, while not sacrificing the quality and appearance of the community to the needs of any mode of transportation.

**Community Appearance.** To emphasize the natural beauty of hills, canyons, and seashore and reduce the impact intrusion of man-made things on the natural landscape.

**Regional Needs.** To provide for that need in the Los Angeles Region for the segment of the economy which requires low-density, high quality residential use.

**Planning Area Influence.** To promote those factors which influence development of the Planning Area for the qualitative benefit of people/residents.

**Community Facilities.** To be aware of the changing needs of education, recreation, safety, and services and take appropriate action for timely development of these facilities.

**Open Space.** To continue the pattern of open-space and parkland reservations in new developments.

The establishment of the above goals serves to define the object of the General Plan - to provide

pleasant surroundings, for living, working, and playing to promote the health, safety, and well-being of the residents.

Objectives and goals as any other segment of the Plan are subject to change. All statements in the Plan are subject to change. All statements in the Plan should be reviewed periodically to ensure that they are compatible with changing conditions and concepts.

#### Commercial/Industrial Areas Today

Approximately 8.5 acres of land is zoned for commercial use at Lunada Bay and Malaga Cove. Mixed-use development is permitted in these areas, and could accommodate affordable housing. There is a height limit of 35 feet and two stories (which does not include parking garages), lot coverage, setbacks, parking, landscaping, etc. Development “default density” is 20 units/acre. Three sites at Lunada Bay could accommodate 50 multi-family units, while the five sites at Malaga Cove could accommodate 117 units, assuming a density of 20 units/acre. Several of the parcels are developed with single-story buildings, and therefore are significantly underutilized. There are no industrial areas in the City.

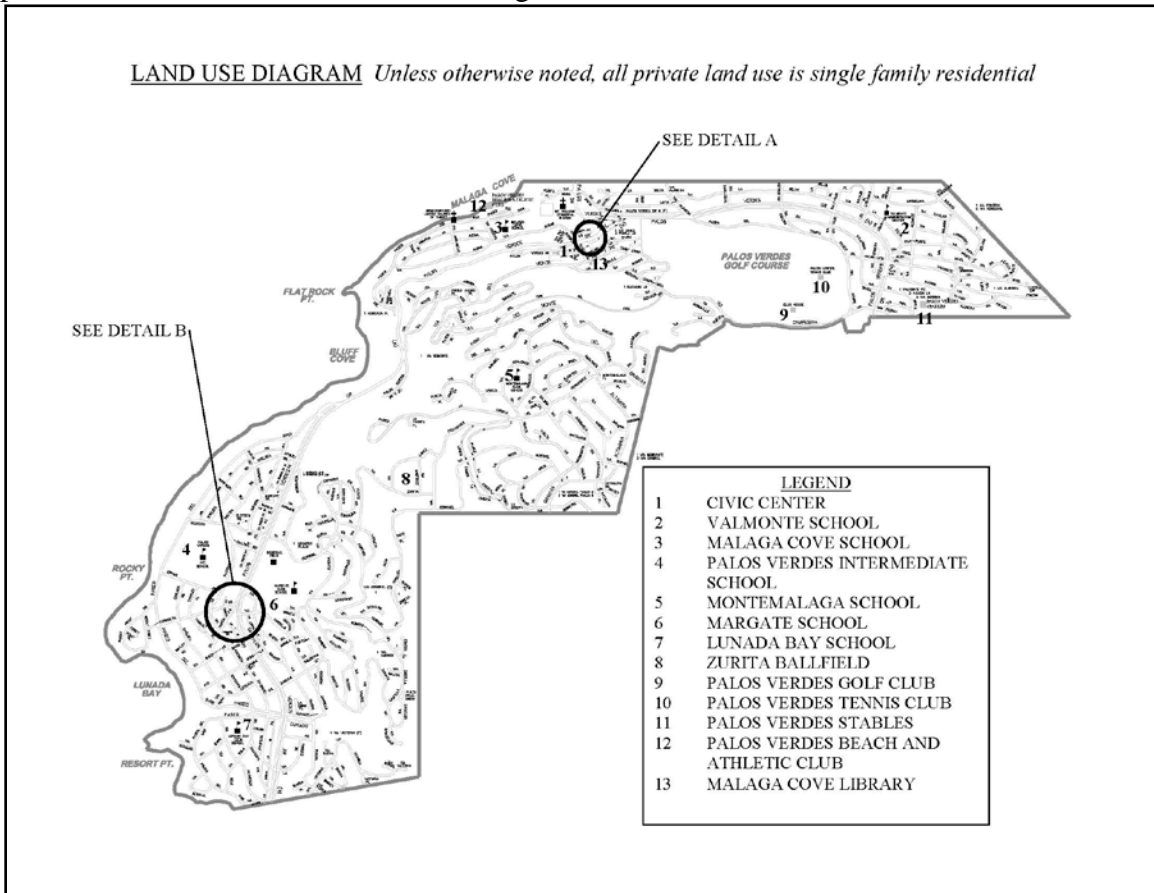
#### Residential Status Today

The City is fully developed with only a minimal number of vacant single-family lots available for development. Today’s development activity consists of remodeling and additions to existing homes.

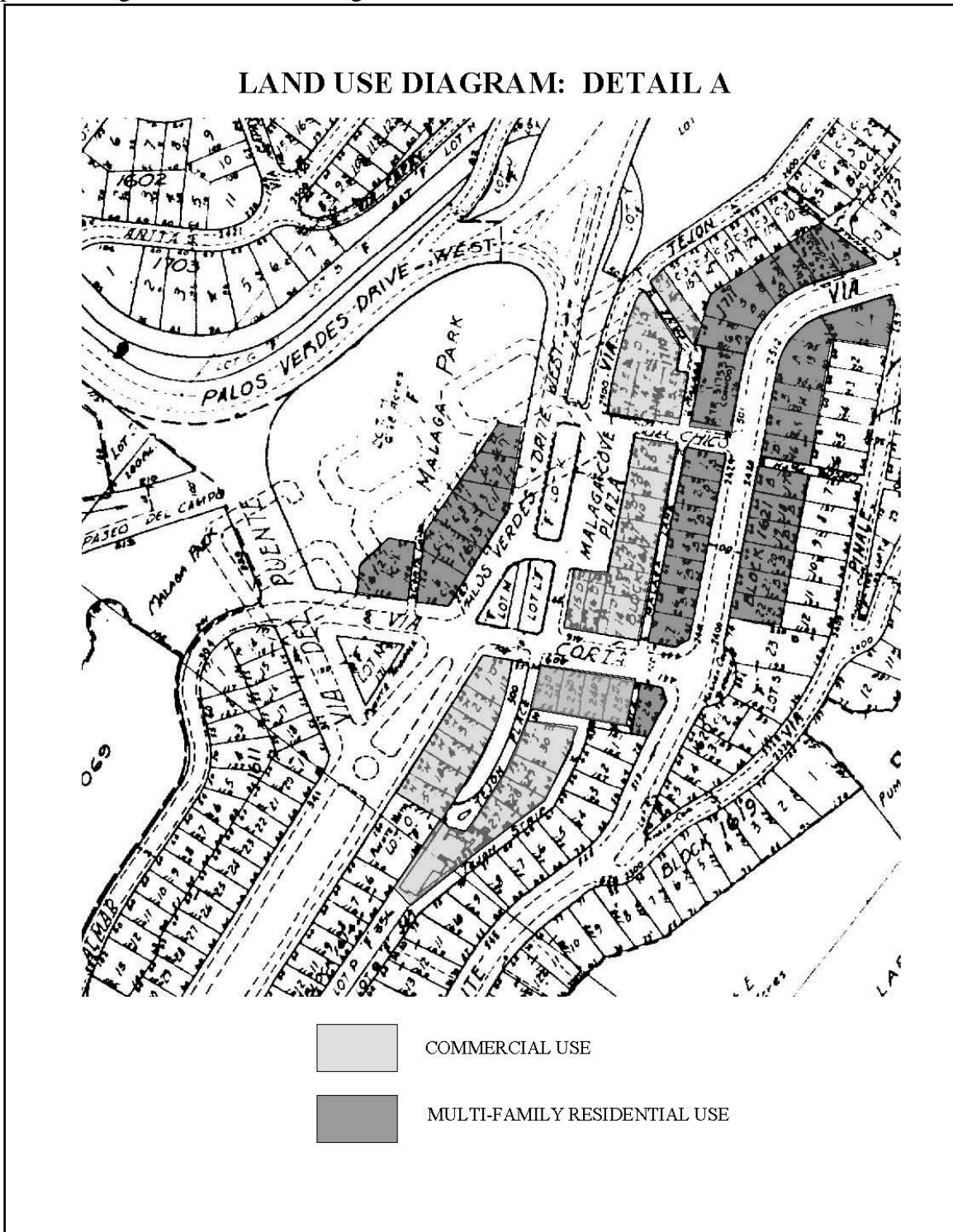
#### Residential/Commercial/Industrial Trends

The City is fully developed with only a minimal number of vacant single-family lots available for development. Today’s development activity consists of remodeling and additions to existing homes.

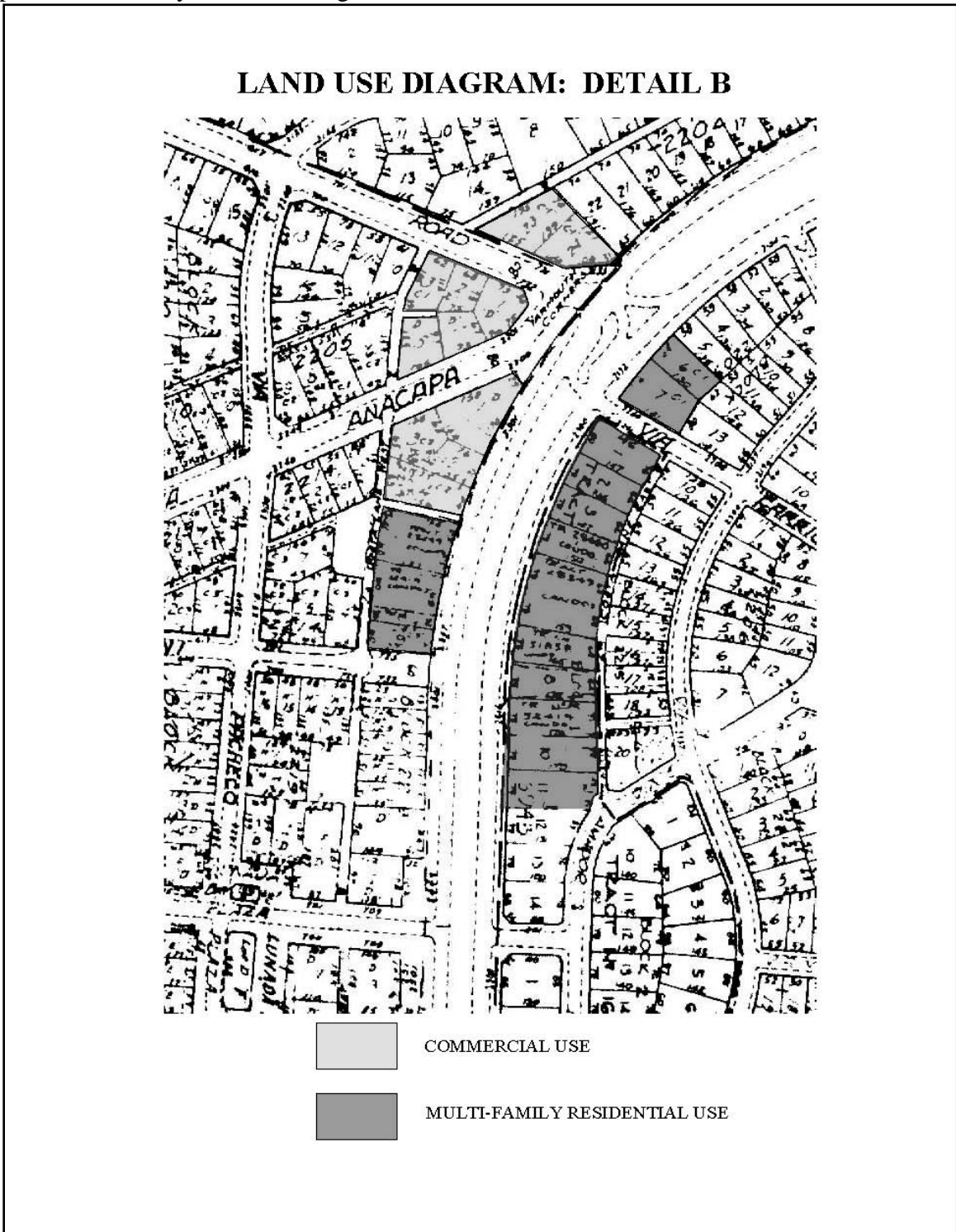
Map 3-2: Palos Verdes Estates Land Use Diagram



Map 3-3: Malaga Cove Land Use Diagram



Map 3-4: Lunada Bay Land Use Diagram



## SECTION 4: PLANNING PROCESS

### 4.1 PLANNING PROCESS

This section provides an overview of the Planning process, identifies Planning Team members and key stakeholders, documents public outreach efforts, and summarizes the review and incorporation of existing Plans, studies, and reports used in the development of this LHMP. Additional information regarding the Planning Team and public outreach efforts is provided in Appendices B and C.

The requirements for the Planning process, as stipulated in the DMA 2000 and its implementing regulations, are described below:

#### **DMA 2000 Requirements: Planning Process**

##### **Planning Process**

§201.6(b): An open public involvement process is essential to the development of an effective Plan.

##### **Documentation of the Planning Process**

Requirement §201.6(b): In order to develop a more comprehensive approach to reducing the effects of natural disasters, the Planning process **shall** include:

- Requirement §201.6(b)(1): An opportunity for the public to comment on the Plan during the drafting stage and prior to Plan approval;
- Requirement §201.6(b)(2): An opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia and other private and nonprofit interests to be involved in the Planning process; and
- Requirement §201.6(b)(3): Review and incorporation, if appropriate, of existing Plans, studies, reports, and technical information.

Requirement §201.6(c)(1): [The Plan shall document] the Planning process used to develop the Plan, including how it was prepared, who was involved in the process, and how the public was involved.

Source: FEMA, October 2011.

### 4.2 OVERVIEW OF THE PLANNING PROCESS

The City hired the Consultant to assist with the development of this LHMP. The first step in the Planning process was to establish a Hazard Mitigation Advisory Committee (HMAC) composed of existing City departments. Marcelle Herrera of the Palos Verdes Estates Police Department, Community Relations Officer/Emergency Services Coordinator, served as the primary point of contact for the City and the public.

Once the Planning Team was formed, the following four-step Planning process took place during the 7-month period from July 2016 to January 2017.

**Organize resources:** The Hazard Mitigation Advisory Committee identified resources, including City staff, agencies, and local community members, which could provide technical expertise and historical information needed in the development of the LHMP.

**Assessment risks:** The Hazard Mitigation Advisory Committee identified the hazards specific to the City, and the Consultant developed the risk assessment for the identified hazards. The HMAC reviewed the risk assessment, including the vulnerability analysis, prior to and during the

development of the mitigation strategy.

**Access capabilities:** The Consultant and the HMAc reviewed current administrative and technical, legal and regulatory, and fiscal capabilities to determine whether existing provisions and requirements adequately address relevant hazards.

**Develop a mitigation strategy:** After reviewing the current risks posed by each hazard, the HMAc worked with the Consultant to develop a comprehensive range of potential mitigation goals, objectives, and actions. Subsequently, the HMAc identified and prioritized the actions to be implemented.

**Monitor progress:** The HMAc developed an implementation process to ensure the success of an ongoing program to minimize hazard impacts to the community.

### **4.3. 2007 CITY OF PALOS VERDES ESTATES LOCAL HAZARD MITIGATION PLAN PROCESS**

The HMAc, Consultant, and Marcelle Herrera, Emergency Services Coordinator, reviewed and analyzed the status of the Goals, Objectives and Potential Actions of the 2007 Local Hazard Mitigation Plan, during the HMAc Meeting of Tuesday, September 27, 2016 (appendix B). The results of the analysis were used to determine and prioritize the 2017 Plan Mitigation Goals, Objectives and Potential Action.

At the same HMAc Meeting, Marcelle Herrera shared hazard mitigation priorities of the City of Palos Verdes Estates. The hazard mitigation priorities remained relatively unchanged from the previous Plan.

### **4.4. FORMATION OF THE HAZARD MITIGATION ADVISORY COMMITTEE**

As previously noted, the Planning process began in July 2016. Marcelle Herrera formed the advisory body, known as the HMAc, utilizing staff from relevant City agencies. The HMAc members are listed in Table 4-1. The HMAc meetings are described below. Meeting handouts are provided in Appendix B.

Table 4-1 City of Palos Verdes Estates Hazard Mitigation Hazard Mitigation Advisory Committee

<b>Name</b>	<b>Department</b>
Anton Dahlerbruch	City Manager’s Office
Marcelle Herrera	Police/Emergency Manager
Ken Rukavina	Public Works
Sheri Repp-Loadsman	Planning & Building and Safety
John Downs	Finance
Laura Walters	Los Angeles County Fire Department
John Douglas	Resident
Karen Logan	Resident
Dave Mathe	Consultant

## **4.5. HAZARD MITIGATION ADVISORY COMMITTEE MEETINGS**

### **Kick-off Meeting – Thursday, July 7, 2016**

During the kick-off meeting, the Consultant discussed the objectives of the DMA 2000, the hazard mitigation Planning process, the public outreach process, City Council approval, LHMP document format, and Plan maintenance.

### **Planning Meeting – Monday, August 8, 2016**

During the second meeting, the Consultant briefed the HMAC on progress made to date, including the notification to neighboring communities and relevant agencies of the LHMP preparation. Nine hazards were determined to pose the greatest potential risk to the City: earthquakes, earth movement, floods, windstorms, land subsidence, wildland fires, climate change, rising sea level, and drought, all of which are included in this Plan. Additionally, the Consultant and the HMAC discussed the mitigation strategy, distributing draft mitigation goals, objectives, and actions for review.

### **Planning Meeting – Tuesday, September 27, 2016**

On Wednesday, August 31, 2016, an electronic copy of the draft mitigation Plan was sent to the Hazard Mitigation Advisory Committee. HMAC was requested to make comments and return them to the Consultant by Wednesday, September 14, 2016. During this meeting, the HMAC walked the consultant through the City's capabilities to include - Planning, regulatory, financial, administrative, technical, and safe growth audit.

## **4.6. PUBLIC INVOLVEMENT**

On January 2016, the City issued a press release regarding the preparation of the LHMP. The press release was sent to the local newspapers and posted on the City's website. On September 27, 2016, a public meeting was held in conjunction with the Planning meeting to inform residents of the hazard mitigation Planning process and their role in the development of the Plan.

The City posted a copy of the Public Review Draft on its web site during a public comment period from April 1 through April 30, 2017. Additionally, the City provided an e-mail address as well as a physical mailing address to receive public comments.

On April 17, 2017 the City held two public meetings to discuss the LHMP development and receive public comments. All information related to the promotion of this public meeting can be found in Appendix C.

See Appendix C for all comments received during this period.

## **4.7. NEIGHBORING COMMUNITIES/JURISDICTIONS INVOLVEMENT**

### **Planning**

The City sent an email requesting participation in the Planning of the Palos Verdes Estates Local Hazard Mitigation Plan. The following communities/jurisdictions were invited:

City of Gardena

City of Hawthorne

City of Inglewood



City of Lawndale  
City of Lomita  
City of Rancho Palos Verdes  
City of Redondo Beach  
Disaster Management Area G Coordinator

Due to staffing concerns, each of the communities/jurisdictions advised they would be unavailable to participate in any Planning Meetings.

The planning team attended the Los Angeles County Area “G” South Bay Emergency Coordinator Monthly Meeting on August 18, 2016 to discuss the LHMP process for the City. Information on the Agenda and attendees can be found in Appendix B

#### Plan Review

The City e-mailed a draft copy of the LHMP requesting comments to the following entities:

- Area G Disaster Management
- American Red Cross
- Athens Services
- CalWater
- City of Rancho Palos Verdes
- City of Rolling Hills
- City of Rolling Hills Estates
- Los Angeles County Department of Public Works
- Los Angeles County Sheriff’s Department
- Palos Verdes Peninsula Unified School District
- Palos Verdes Police Department
- Salvation Army
- Southern California Edison
- Southern California Gas Company

A copy of the email that was sent is located in Appendix C

The only response was from the **Los Angeles County Fire Department Community Services Liaison** and is in Appendix C.

#### **4.8. INCORPORATION OF EXISTING PLANS AND DOCUMENTS**

During the Planning process, the Consultant and the HMAc reviewed and incorporated information

from existing Plans, studies, reports, and technical reports into the LHMP. A synopsis of the sources follows.

*City of Palos Verdes Estates General Plan:* The Land Use Element provides information on existing land use and future development trends. The Safety Element provides information for the initial hazard identification process and development of the mitigation strategy.

*City of Palos Verdes Estates Emergency Response Plan:* This Plan outlines current mitigation activities and response procedures, which were used for the mitigation strategy.

*The Zoning Regulations of the City of Palos Verdes Estates, Title 18 of the Palos Verdes Estates Municipal Code:* These codes regulate development and land use and were used for the capability assessment and mitigation strategy.

*Los Angeles County General Plan 2035:* The County's General Plan was used for the risk assessment because it contains information on hazard areas adjacent to the City limits.

*State of California Draft Multi-Hazard Mitigation Plan:* This Plan, prepared by California Governor's Office of Emergency Services, was used to ensure that the City's LHMP was consistent with the State's Plan.

The following FEMA guides were also consulted for general information on the LHMP process:

How-To Guide #1: Getting Started: Building Support for Mitigation Planning (FEMA 2002c)

How-To Guide #2: Understanding Your Risks – Identifying Hazards and Estimating Loss Potential (FEMA 2001)

How-To Guide #3: Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies (FEMA 2003a)

How-To Guide #4: Bringing the Plan to Life: Implementing the Hazard Mitigation Plan (FEMA 2003b)

## SECTION 5: RISK ASSESSMENT

This section identifies and profiles the hazards that could affect Palos Verdes Estates, assesses the risk of such hazards, describes the City’s vulnerability, and estimates potential losses from hazards. Each of these tasks is described in detail below.

In compliance with DMA 2000, the requirements for the risk assessment are described below.

**DMA 2000 Requirements: Risk Assessment - Overall**

Requirement §201.6(c) (2): The Plan shall include risk assessment that provides the factual basis for activities proposed in the table strategy to reduce losses from identified hazards. Local risk assessments must provide sufficient information to enable the jurisdiction to identify and prioritize appropriate mitigation actions to reduce losses from identified hazards.

Source: FEMA, March 2013.

Table 5-1 Federal Criteria for Risk Assessment

Section 322 Plan Requirement	How Is This Addressed?
Identifying Hazards	Each hazard section includes an inventory of the best available data sources that identify hazard areas. To the extent data is available, the existing maps identifying the location of the hazard were utilized. The Executive Summary and the Risk Assessment sections of the Plan include a list of the hazard maps.
Profiling Hazard Events	Each hazard section includes documentation of the history, causes, and characteristics of the hazard in the City.
Assessing Vulnerability: Identifying Assets	Where data is available, the vulnerability assessment for each hazard addressed in the mitigation Plan includes an inventory of all publicly owned land within hazardous areas. Each hazard section provides information on vulnerable areas within the City. Each hazard section also identifies potential mitigation strategies.
Assessing Vulnerability: Estimating Potential Losses	The Risk Assessment Section of this mitigation Plan identifies key critical facilities that provide services to the City. Assessments have been completed for the hazards addressed in the Plan, and quantitative estimates were made for each hazard where data was available.
Assessing Vulnerability: Analyzing Development Trends	The Community Profile Section of this Plan provides a description of the history, location, geography, population, and land use trends in the City.

## 5.1 RISK ASSESSMENT METHODOLOGY

Conducting a risk assessment can provide information on the location of hazards, the value of existing land and property in hazard locations, and an analysis of risk to life, property, and the environment that may result from natural hazard events.

The requirement for hazard identification, as stipulated in the DMA 2000 and its implementing regulations, are described below.

### **DMA 2000 Requirements: Risk Assessment – Identifying Hazards**

Requirement §201.6(c)(2)(i): [The risk assessment shall include a] description of the type, location and extent of all natural hazards that can affect the jurisdiction. The Plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Source: FEMA, March 2013.

The probability of future events for each hazard has been assigned a category as outlined below with the corresponding percentage of likelihood:

Low: 20%

Medium: 60%

High: 90%

## 5.2 EARTHQUAKES

### 5.2.1 NATURE

An earthquake is a sudden motion or trembling caused by a release of strain accumulated within or along the edge of the earth's tectonic plates. The impact of an earthquake can be felt far beyond the site of its occurrence and can cause massive damage and extensive casualties. The most common effect of earthquakes is ground motion, or the vibration or shaking of the ground during an earthquake.

The severity of ground motion generally increases with the amount of energy released and decreases with distance from the fault or epicenter of the earthquake. Ground motion causes waves in the earth's interior, also known as seismic waves, and along the earth's surface, known as surface waves. There are two kinds of seismic waves. P (primary) waves are longitudinal or compressional waves similar in character to sound waves that cause back-and-forth oscillation along the direction of travel (vertical motion). S (secondary) waves, also known as shear waves, are slower than P waves and cause structures to vibrate from side to side (horizontal motion). There are also two kinds of surface waves: Rayleigh waves and Love waves. These waves travel more slowly and typically are significantly less damaging than seismic waves.

In addition to ground motion, several secondary hazards can occur from earthquakes, such as surface faulting. Surface faulting is the differential movement of two sides of a fault at the earth's surface. Displacement along faults, both in terms of length and width, varies but can be significant (e.g., up to 20 feet), as can the length of the surface rupture (e.g., up to 200 miles). Surface faulting can cause severe damage to linear structures, including railways, highways, pipelines, and tunnels.

Earthquake-related ground failure due to liquefaction is another secondary hazard. Liquefaction occurring when seismic waves pass through saturated granular soil, distorting its granular structure, and causing some of the empty spaces between granules to collapse. Pore-water pressure may also increase sufficiently to cause the soil to behave like a fluid for a brief period and cause deformations.

### 5.2.2 HISTORY

California is often referred to as “Earthquake Country” because every few seconds an earthquake occurs somewhere in the state. The vast majorities of these go totally unnoticed by the general populace and cause little if any damage. Earthquakes of 6.5 magnitude or greater (generally considered moderate to heavy damage quakes) occur within the state on an average of once every four years. Earthquakes of 8.0 magnitude or greater are much more uncommon; the last 8.0 magnitude earthquake occurring in the state was the 1906 San Francisco earthquake.

Table 5-2: Historical Earthquakes near Palos Verdes Estates, California

Date	Magnitude	Geographic Region
1/17/1994	6.7	Northridge
1/18/1994	4.8	Santa Clarita
1/19/1994	4.5	Reseda
1/19/1994	5.1	Valencia
1/21/1994	4.5	Pacoima
1/22/1994	4.6	Santa Clarita
1/24/1994	4.6	Santa Clarita
1/27/1994	4.6	Chatsworth
1/29/1994	5.1	Chatsworth
3/20/1994	5.2	Panorama City
12/6/1994	4.5	Lake View Terrace
9/20/1995	5.0	Southern California
4/27/1997	4.9	Valencia
6/14/2002	4.8	Yorba Linda
6/16/2005	4.9	Greater Los Angeles Area
8/9/2007	4.7	Chatsworth
7/29/2008	5.4	Chino Hills
5/19/2009	4.7	Lennox
3/29/2014	5.1	Brea

(Source: [http://earthquake.usgs.gov/regional/sca/ca\\_eqs.php](http://earthquake.usgs.gov/regional/sca/ca_eqs.php)) 1994-2016

There have been no earthquakes in the Palos Verdes Estates vicinity in the 4.5-8.0 Richter magnitude since March 2014.

### 5.2.3 LOCATION, EXTENT, AND POTENTIAL FUTURE SEISMIC EVENTS

The Palos Verdes Estates area is exposed to seismic hazards from movement along several regional faults. The major active fault zones in this area include the Palos Verdes Fault, Cabrillo Fault, and Redondo Canyon Fault.

#### Location:

Identifying hazardous locations is an essential step towards implementing more informed mitigation activities. All areas of the City are considered to be at equal risk to earthquakes, however, the existing conditions of certain structures render them more vulnerable to damage than others during an earthquake.

Table 5-3: Potential Seismic Hazards<sup>1</sup>

Fault	Length of Fault (Miles)	Most Recent Surface Rupture	Probable Magnitudes
Palos Verdes Fault	50	.05-1.0 million years considered active Holocene-off shore, Late Quaternary-on shore	6.0-7.0
Cabrillo Fault	12	.05-1.0 million years considered active Holocene-off shore, Late Quaternary-on shore	6.0-6.8
Redondo Canyon Fault	7	11,700 years, considered active Holocene	5.8-6.5

**The known faults in the area are described as follows:**

**Palos Verdes Fault**

The Palos Verdes Fault is roughly 50 miles in length. It is a reverse fault, wherein the block above the fault moves up relative to the block below the fault. This fault motion is caused by compressional forces and results in shortening. A reverse fault is called a thrust fault if the dip of the fault Plane is small.

The probable magnitude is from 6.0-7.0 on the Richter Scale and VII to X on the Mercalli Intensity Scale which is categorized as a strong earthquake. It should be noted that the fault geometries allow only partial rupture at any one time.

Earthquake-resistant structures survive with slight to moderate damage. Poorly-designed structures receive moderate to severe damage. Felt in wider areas; up to hundreds of miles/kilometers from the epicenter. Strong to violent shaking in epicenter. Death toll would be major.

The interval between major ruptures is unknown.

**Cabrillo Fault**

The Cabrillo Fault is approximately 12 miles in length. It is a normal fault in which the block above the fault moves down relative to the block below the fault. This fault motion is caused by tensional forces and results in extension. The probable magnitude is 6.0 to 6.8 on the Richter Scale and VII to X on the Mercalli Intensity Scale which is categorized as a strong earthquake.

Damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly-designed structures receive moderate to severe damage. Felt in wider areas; up to hundreds of miles/kilometers from the epicenter. Strong to violent shaking in epicenter. Death toll would be major.

The interval between major ruptures is unknown.

### **Redondo Canyon Fault**

The Redondo Canyon Fault is approximately 7 miles in length. It is a reverse fault, with the block above the fault moving up relative to the block below the fault. This fault motion is caused by compressional forces and results in shortening. A reverse fault is called a thrust fault if the dip of the fault Plane is small. The probable magnitude range is from 5.8-6.5 on the Richter Scale and VI to X on the Mercalli Intensity Scale which is categorized as a moderately strong earthquake.

The earthquake can cause damage of varying severity to poorly constructed buildings. At most, none to slight damage to all other buildings. Felt by everyone. Casualties range from none to a few. In addition, there may be damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly-designed structures receive moderate to severe damage. Felt in wider areas; up to hundreds of miles/kilometers from the epicenter. Strong to violent shaking in epicenter. Death toll would be major.

The interval between major ruptures is unknown.

## **5.2.4 VULNERABILITIES**

Earthquakes have historically caused the most damage to older, Unreinforced Masonry Structures (URM).

Identifying URM structures may aid the City in preparing for future earthquakes.

The methodology used in preparing the vulnerability estimate consisted of determining the value of critical buildings and facilities from insurance property schedules. Critical infrastructure values were established by using actual replacement costs that were determined by recent comparable replacement projects. Earthquakes can extensively damage a wide area; therefore, all critical structures and infrastructure were calculated at a 100% value.

## **5.2.5 IMPACTS**

Earthquakes can cause many cascading Impacts such as fires, flooding, hazardous materials spills, utility disruptions, land subsidence, tsunamis, and transportation emergencies. Ground shaking may cause seiche, the rhythmic sloshing of water in lakes or bays.

**Impacts on people and housing.** In any earthquake, the primary consideration is saving lives. Time and effort must also be dedicated to providing for mental health by reuniting families, providing shelter to displaced persons, and restoring basic needs and services. Major efforts will be required to remove debris and clear roadways, demolish unsafe structures, assist in

reestablishing public services and utilities, and provide continuing care and temporary housing for affected citizens. A survey of local, State, and Federal government emergency Plans indicate that although there is a general capacity to respond to small and intermediate-sized earthquakes, it is unlikely that any of these governmental units will be able to cope with the *immediate* impact of a great quake, such as an M 8.3 Richter Magnitude (Great) earthquake event on the south-central San Andreas fault. The general public must realize that the assistance that they have been used to expecting will not be immediately available. In fact, in the event of an earthquake of such magnitude, citizens must be prepared to wait for up to 72 hours or more for any type of organized response.

**Impacts on commercial and industrial structures:** After any earthquake, individuals are likely to lose wages due to the inability of businesses to function because of damaged goods and/or facilities. With business losses, the City of Palos Verdes Estates will lose revenue. Economic recovery from even a minor earthquake will be critical to the communities involved.

**Impacts on infrastructure:** The damage caused can lead to the paralysis of the local infrastructure: police, fire, medical and governmental services. There will also be disruption of utilities and roads. Fires frequently follow the shaking. The community's water supply may fail. Earth movement may damage pipelines, sanitary sewers, and underground utilities.

The probabilistic seismic hazard model, displays both fault locations for anticipated future earthquakes. As such, the western portion of Palos Verdes Estates remains within the moderate range of the earthquake shaking potential model, while the remaining areas of the City fall within the moderate-high range and therefore may experience stronger earthquake shaking.



Table 5-4: Richter Magnitude and Mercalli Intensity Scale

Richter Magnitude	Description	Mercalli Intensity	Average Earthquake Impacts
Less than 2.0	Micro	I	Micro-earthquakes, not felt, or felt rarely by sensitive people. Recorded by seismographs.
2.0–2.9	Minor	I to II	Felt slightly by some people. No damage to buildings.
3.0–3.9	Minor	II to IV	Often felt by people, but rarely causes damage. Shaking of indoor objects can be noticeable.
4.0–4.9	Light	IV to VI	Noticeable shaking of indoor objects and rattling noises. Felt by most people in the affected area. Slightly felt outside. Generally, causes none to minimal damage. Moderate to significant damage very unlikely. Some objects may fall off shelves or be knocked over.
5.0–5.9	Moderate	VI to VIII	Can cause damage of varying severity to poorly constructed buildings. At most, none to slight damage to all other buildings. Felt by everyone. Casualties range from none to a few.
6.0–6.9	Strong	VII to X	Damage to a moderate number of well-built structures in populated areas. Earthquake-resistant structures survive with slight to moderate damage. Poorly-designed structures receive moderate to severe damage. Felt in wider areas; up to hundreds of miles/kilometers from the epicenter. Strong to violent shaking in epicenter. Death toll would be major.
7.0–7.9	Major	VIII or greater	Causes damage to most buildings, some to partially or completely collapse or receive severe damage. Well-designed structures are likely to receive damage. Felt across great distances with major damage mostly limited to 250 km from epicenter. Death toll would be sizeable.
8.0–8.9	Great		Major damage to buildings, structures likely to be destroyed. Will cause moderate to heavy damage to sturdy or earthquake-resistant buildings. Damaging in large areas. Felt in extremely large regions. Death toll ranges would be substantial.
9.0 and greater			Near or at total destruction - severe damage or collapse to all buildings. Heavy damage and shaking extends to distant locations. Permanent changes in ground topography. Death toll catastrophic.

The Richter Magnitude and Mercalli Intensity Scale were used as a basis for damage estimates from areas active and dormant in earthquake faults.

## **5.2.6 FUTURE PROBABILITY**

Severity High – Probability Medium

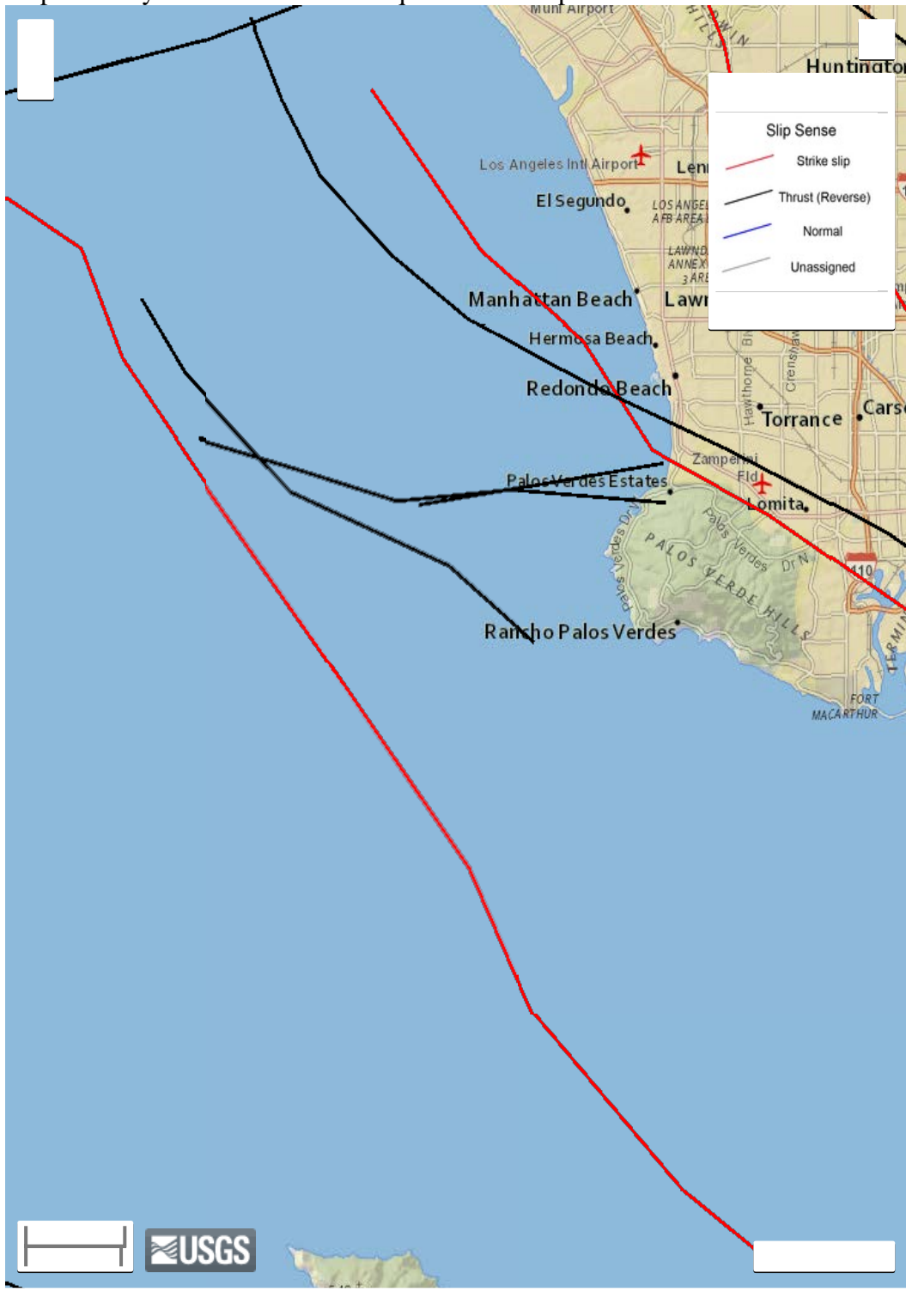
The greatest threat to this community from a natural hazard is that of a significant earthquake. The event itself can be catastrophic and the cascading impacts (hazardous materials spills, flooding, fires, utility disruption, liquefaction, landslides, tsunamis and structural hazards) can also significantly impact the safety of the public.

The only known mapped faults in the City of Palos Verdes Estates are the potentially active Palos Verdes, Cabrillo and Redondo Canyon fault system. Further studies to evaluate the activity of the faults are warranted, prior to placing structures near the mapped fault traces.

There are a number of active or potentially active fault systems throughout the area and given the past history of earthquakes in the area, experts agree that the probability of a damaging earthquake occurring is Medium. It is important to note that it is also possible for an earthquake to occur on an unknown fault.

There have been no significant Earthquakes impacting the City of Palos Verdes Estates since 2014.

Map 5-1: City of Palos Verdes Earthquake Fault Map



34.107°N (<http://earthquake.usgs.gov/hazards/qfaults/map/#qfaults>)

## 5.3 WINDSTORMS

### 5.3.1 NATURE

Wind is associated with multiple natural hazards. In some hazards, wind is the primary cause of damage, while in others, wind plays a contributory or auxiliary role. Damaging wind events are primarily associated with winter storms. Wind events, post winter storms, are generally from the west to southwest.

Palos Verdes Estates experiences Santa Ana winds. These winds generally do not have a damaging impact on Palos Verdes Estates and usually do not exceed 30 mph.

Microbursts are strong, damaging winds which strike the ground and often give the impression a tornado has struck. A downburst is a straight-direction surface wind in excess of 39 mph caused by a small-scale, strong downdraft from the base of convective thundershowers and thunderstorms.

The Beaufort Scale below, coined and developed by Sir Francis Beaufort in 1805, illustrates the effect that varying wind speed can have on sea swells and structures:

Table 5-5: Beaufort Scale

BEAUFORT SCALE		
Beaufort Force	Speed (mph)	Wind Description - State of Sea - Effects on Land
0	Less 1	Calm - Mirror-like - Smoke rises vertically
1	1-3	Light - Air Ripples look like scales; No crests of foam - Smoke drift shows direction of wind, but wind vanes do not
2	4-7	Light Breeze - Small but pronounced wavelets; Crests do not break - Wind vanes move; Leaves rustle; You can feel wind on the face
3	8-12	Gentle Breeze - Large Wavelets; Crests break; Glassy foam; A few whitecaps - Leaves and small twigs move constantly; Small, light flags are extended
4	13-18	Moderate Breeze - Longer waves; Whitecaps - Wind lifts dust and loose paper; Small branches move
5	19-24	Fresh Breeze - Moderate, long waves; Many whitecaps; Some spray - Small trees with leaves begin to move
6	25-31	Strong Breeze - Some large waves; Crests of white foam; Spray - Large branches move; Telegraph wires whistle; Hard to hold umbrellas
7	32-38	Near Gale - White foam from breaking waves blows in streaks with the wind - Whole trees move; Resistance felt walking into wind
8	39-46	Gale - Waves high and moderately long; Crests break into spin drift, blowing foam in well-marked streaks - Twigs and small branches break off trees; Difficult to walk
9	47-54	Strong Gale - High waves with wave crests that tumble; Dense streaks of foam in wind; Poor visibility from spray - Slight structural damage
10	55-63	Storm - Very high waves with long, curling crests; Sea surface appears white from blowing foam; Heavy tumbling of sea; Poor visibility - Trees broken or uprooted; Considerable structural damage

BEAUFORT SCALE		
11	64-73	Violent Storm - Waves high enough to hide small and medium sized ships; Sea covered with patches of white foam; Edges of wave crests blown into froth; Poor visibility - Seldom experienced inland; Considerable structural damage
12	>74	Hurricane - Sea white with spray. Foam and spray render visibility almost non-existent - Widespread damage. Very rarely experienced on land.

Source: <http://www.compuweather.com/decoder-charts.html>

### 5.3.2 HISTORY

Since 2007, there has been one National Oceanic Atmospheric Administration (NOAA) recorded Windstorm event near the City of Palos Verdes Estates. That event was at Catalina Island approximately 25 miles southwest of Palos Verdes Estates.

### 5.3.3 LOCATION, EXTENT OF POTENTIAL WIND STORM HAZARDS

A windstorm event in the region can range from short term microburst activity lasting only minutes to a long duration. Windstorms in the City of Palos Verdes Estates may cause damage to heavy tree stands, exposed coastal properties, road and highway infrastructure, and critical utility facilities.

### 5.3.4 IMPACTS AND VULNERABILITIES

#### Impacts

Based on the history of the region, windstorm events can be expected, perhaps annually.

**Impacts on People and Housing.** Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of structures, siding, or walls. When severe windstorms strike a community, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery. Perhaps the greatest danger from windstorm activity in Southern California comes from the combination of the Santa Ana winds with the major fires that occur every few years in the Wildland/Urban Interface (WUI).

**Impacts on Commerce and Industry.** Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail, causing property and economic damage.

**Impacts on Infrastructure.** The damage caused can interrupt the day to day operations of local infrastructure including but not limited to police, fire, medical and governmental services. Falling trees have been the major cause of power outages in the region. Windstorms such as strong Santa Ana Wind conditions can cause flying debris and downed utility lines. Windstorm activity can have an impact on local transportation in addition to the problems caused by downed trees and electrical wires blocking streets.

#### Vulnerabilities

Both residential and commercial structures with weak reinforcement are susceptible to damage. Wind pressure can create a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents can create lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail causing considerable damage.

Debris carried along by extreme winds can directly contribute to loss of life and indirectly to the failure of protective building envelopes, siding, or walls. When severe windstorms strike a community, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery.

### **5.3.5 FUTURE PROBABILITY**

Severity Light – Probability High

Based on the history of the region, windstorm events can be expected, perhaps annually, across widespread areas of the region.

The significant wind events in Palos Verdes Estates may be expected annually.

### **5.3.6 EXISTING WINDSTORM MITIGATION ACTIVITIES**

As stated, one of the most common problems associated with windstorms is power outage. High winds commonly occur during winter storms. Wind-induced damage to the power system causes power outages to customers, incurs cost to make repairs, and in some cases, can lead to wild land fires.

One of the strongest and most widespread existing mitigation strategies pertains to tree clearance. Currently, California State Law requires utility companies to maintain specific clearances between electric power lines and all vegetation depending on the type of voltage running through the line.

Enforcement of the following California Public Resource Code Sections provides guidance on tree pruning regulations:<sup>1</sup>

4293: Power Line Clearance Required

4292: Power Line Hazard Reduction

4291: Reduction of Fire Hazards Around Buildings

4171: Public Nuisances

The following pertain to tree pruning regulations and are taken from the California Code of Regulations:

Title 14: Minimum Clearance Provisions  
Sections 1250-1258  
General Industry Safety Orders  
Title 8: Group 3: Articles 12, 13, 36, 37, 38  
California Penal Code Section 385

The following California Public Utilities Commission section has additional guidance:

California Public Utilities Commission  
General Order 95: Rule 35

### **Homeowner Liability**

Failure to allow a utility company to comply with the law can result in liability to the homeowner for damages or injuries resulting from a vegetation hazard. Many insurance companies do not cover these types of damages if the policy owner has refused to allow the hazard to be eliminated.

The power companies, in compliance with the above regulations, collect data about tree failures and their impact on power lines. This mitigation strategy assists the power company in preventing future tree failure. From the collection of this data, the power company can advise residents as to the most appropriate vegetative planting and pruning procedures.

## **5.4. EARTH MOVEMENT/LANDSLIDE/EXPANSIVE SOILS/LAND SUBSIDENCE**

Palos Verdes Estates may be vulnerable to various earth movement events. It should be noted that Landslide and Earth movement are the same event. Other events include Land Subsidence and Expansive Soils. All three events will be discussed within this section.

### **5.4.1 NATURE**

#### **Landslide/Earth Movement/Debris or Mud Flow**

Landslide/Earth Movement is the movement of a mass of rock, debris, or earth movement down a slope. The term “landslide” encompasses events such as rock falls, topples, slides, spreads, flows, land slip, slumps, debris flow or slope failure.

Landslides may be initiated by rainfall, earthquakes, volcanic activity, changes in groundwater, disturbance and change of a slope by human-caused construction activities, or any combination of these factors.

A debris or mud flow is a river of rock, earth and other materials, including vegetation that is saturated with water. This high percentage of water gives the debris flow a very rapid rate of movement down a slope. Debris flows often have speeds greater than 20 miles per hour, but can move much faster. This high rate of speed makes debris flows extremely dangerous to people and property in its path. Slow moving events can cause significant property damage, but are less likely to result in serious human injuries.

There have been no instances of Landslide/Earth Movement/Debris or Mud Flow since the last plan was submitted.

#### **Land Subsidence**

Land subsidence is defined as the lowering of the land surface. Many different factors can cause the land surface to subside. Subsidence can occur rapidly due to a sinkhole or during a major earthquake. Conditions that intensify land subsidence described below:

Intense or prolonged precipitation that causes flooding can saturate slopes and cause failures leading to land subsidence.

Wildland fires can remove vegetation from hillsides, significantly increasing runoff and land subsidence potential.

There have been no instances of land subsidence since the last plan was submitted.

### **Expansive Soils**

Expansive soils, also known as shrink-swell soils, refer to the potential of soil to expand when wet and contract when dry. The shrink-swell potential of these soils occurs when the expanding and moving of the soil upward. When the soil dries out, it contracts and shrinks. Pressures can be as great as 15,000 pounds per square foot.

There have been no instances of expansive soils since the last plan was submitted.

## **5.4.2 HISTORY**

**1956 Portuguese Bend, Rancho Palos Verdes, California.** Cost, \$14.6 million (2000 dollars) California Highway 14, Palos Verdes Hills.

**1958-1971 Pacific Palisades, California.** Cost, \$29.1 million (2000 dollars) California Highway 1 and house damaged.

**1961 Mulholland Cut, California.** Cost, \$41.5 million (2000 dollars) On Interstate 405, 11 miles north of Santa Monica, Los Angeles County.

**1980 Southern California Slides.** \$1.1 billion in damage (2000 dollars) Heavy winter rainfall in 1979-80 caused damage in six Southern California counties.

**1995 Los Angeles and Ventura Counties, Southern California.** Above normal rainfall triggered damaging debris flows, deep-seated landslides, and flooding. Several deep-seated landslides were triggered by the storms, the most notable was the La Conchita landslide, which in combination with a local debris flow, destroyed or badly damaged 11 to 12 homes in the small town of La Conchita, about 20 km west of Ventura.

**1998 Laguna Beach.** Destroyed 18 homes, damaged 300 others. Killed two people

**1998 Laguna Niguel.** Destroyed 9 homes and 57 condominiums. \$12 million awarded to homeowners in lawsuit; \$16 million to stabilize slope

**2005 Laguna Beach** Destroyed 18 homes, damaged 8 others. Slide repair cost: \$21 million. Cost of damage: estimated \$35 million

## **5.4.3 LOCATION EXTENT POTENTIAL EARTH MOVEMENT EVENTS**

Earth Movement/Landslide/Expansive Soils/Land Subsidence

Locations at risk from earth movement events are areas with one or more of the following conditions:

On or close to steep hills;

Steep road-cuts or excavations;

Existing landslides or places of known historic landslides (such sites often have tilted power lines, trees tilted in various directions, cracks in the ground, and irregular-surfaced ground);

Steep areas where surface runoff is channeled, such as below culverts, V-shaped valleys, canyon bottoms, and steep stream channels; and

Fan-shaped areas of sediment and boulder accumulation at the outlets of canyons. Canyon areas



below hillside and mountains that have recently (within 1-6 years) been subjected to a wildland fire.

### **Land Subsidence**

The likelihood of sliding increases during or after a period of heavy rain, when saturated soil fractures or weak spots give way. Therefore, while slides generally occur during the rainy season, after very wet winters, deep-seated land subsidence can continue to be active for many months, extending well into the summer. The area affected by land subsidence may range in size from less than an acre to several that extend over a mile of hillside.

### **Expansive Soils**

The shrink-swell characteristics of soils, however, can vary widely by depth and distance, depending on the relative amount and type of soil conditions. Not all expansive soils have the same swell potential. Future soil tests can determine the extent of swell potential throughout the City and the probability for structural damage.

## **5.4.4 VULNERABILITIES IN EARTH MOVEMENT EVENTS**

### **Landslide/Earth Movement/Debris or Mud Flow/Land Subsidence/Expansive Soils**

For the purpose of this section we will use the term “Landslide” in reference to all earth movement events listed. The City of Palos Verdes Estates has experienced landslides in the recent past (please see Historic Landslides). Some landslides result in private property damage; other landslides impact transportation corridors, fuel and energy conduits, and communication facilities. They can also pose a serious threat to human life. Past landslide events have caused property damage and have impacted residents.

### **Infrastructure**

Landslide events may cause major property damage or significantly impact City residents. Landslides may also affect utility services, transportation systems, and critical lifelines. Disruption of infrastructure, roads, and critical facilities may also have a long-term effect on the economy. Utilities, including potable water, wastewater, telecommunications, natural gas, and electric power are all essential to service community needs. Loss of electricity has the most widespread impact on other utilities and on the whole community. Natural gas pipes may also be at risk of breakage from landslide movements as small as an inch or two. Losses of power and phone service are also potential consequences of landslide events

### **Roads and Bridges**

Road damage is a possible consequence of landslide hazards in the City. The Streets & Parks Department is responsible for responding to slides that inhibit the flow of traffic or are damaging a road or a bridge. Cities can alleviate problem areas by grading slides and by installing new drainage systems on the slopes to divert water from the landslides. This type of response activity is often the most cost-effective in the short-term, but is only temporary.

### **Lifelines and Critical Facilities**

Lifelines and critical facilities should remain accessible. The impact of closed transportation arteries may be increased if a closed road or bridge is critical for hospitals and other emergency facilities. Therefore, inspection and repair of critical transportation facilities and routes is essential and should

receive high priority. Due to heavy rains, soil erosion in hillside areas can be accelerated, resulting in loss of soil support beneath high voltage transmission towers in hillsides and remote areas.

#### **5.4.5 IMPACTS**

Landslide/Earth Movement/Debris or Mud Flow/Land Subsidence/Expansive Soils are usually an effect of severe weather.

**Effects on people and housing:** People and housing are at risk from an event. For the most part, past incidents have impacted existing single family residences, and multi-family residences, the impacts could be major in nature. The structures may have to be evacuated causing the relocation of people and families. Property loss is rare, but is usually significant when it occurs.

**Effects on commercial and industrial structures:** After an event, employees lose wages due to the inability of businesses to function because of damaged goods and/or facilities. With business losses, the City will lose revenue.

**Effects on infrastructure:** Events may result in the destruction of infrastructure such as water and sewer lines, electrical and telecommunications utilities and drainage. Disrupted transportation routes occur occasionally, usually during heavy rain storms, and could disrupt police, fire, medical and governmental services.

#### **5.4.6 FUTURE PROBABILITY**

Severity Medium – Probability Medium

There are several mapped landslide areas in Palos Verdes Estates and are noted on the attached map.

Map 5-2: City of Palos Verdes Estates Landslide Movement Event Map



## 5.5. DROUGHT

### 5.5.1 NATURE

A drought, or an extreme dry period, is an extended timeframe where water availability falls below the statistical requirements for a region. Droughts are not a purely physical phenomenon, but rather interplay between the natural water availability and human demands for the water supply.

A drought can last for months or years. Generally, this occurs when a region receives consistently below average precipitation. Droughts can have a substantial impact on the ecosystem and agriculture of the affected region. Although droughts can persist for several years, even a short, intense drought can cause significant damage and harm to the local economy. Annual dry seasons significantly increase the chances of a drought developing along with subsequent brush fires. Periods of heat can significantly worsen drought conditions by hastening the evaporation of water vapor.

The precise definition of drought is made complex, owing to political considerations, but there are generally three types of conditions that are referred to as drought:

**Meteorological drought** is brought about when there is a prolonged period with less than average precipitation.

**Agricultural drought** occurs when there is insufficient moisture for average crop or range production. This condition can arise, even in times of average precipitation, owing to soil conditions or agricultural techniques.

**Hydrologic drought** is brought about when the water reserves available in sources such as aquifers, lakes, and reservoirs falls below the statistical average. This condition can arise, even in times of average (or above average) precipitation, when increased usage of water diminishes the reserves.

When the word drought is used by the general public, the most often intended definition is meteorological drought. However, when the word is used by urban Planners, it is frequently in the sense of hydrologic drought.

Drought is an extended period when a region receives a deficiency in its water supply, whether atmospheric, surface, or ground water. A drought can last for months or years. Generally, this occurs when a region receives consistently below average precipitation. Droughts can have a substantial impact on the ecosystem and agriculture of the affected region. Although droughts can persist for several years, even a short, intense drought can cause significant damage and harm to the local economy. Annual dry seasons significantly increase the chances of a drought developing along with subsequent brush fires. Periods of heat can significantly worsen drought conditions by hastening the evaporation of water vapor.

### 5.5.2 HISTORY

The period between late 2011 and 2014 has been the driest in California history since record-keeping began. Unprecedented precipitation during the winter of 2016 – 2017 resulted in significant drought relief throughout the State.

The current relief could be only temporary and periods of drought can have significant environmental, agricultural, health, economic, and social consequences. Drought can also reduce water quality, because lower water flows reduce dilution of pollutants and increase contamination of remaining water sources. Wildland fires are typically larger and more severe in periods of drought due to the lower fuel moisture.

### **5.5.3 EXTENT OF DROUGHT HAZARDS**

The entire city is at risk for drought and the City has adopted the following to minimize the extent of the recent drought:

The City's Municipal Code includes Section 18.50 – Water Conservation Landscaping intended to promote water conservation and water-efficient landscaping.

The City is in compliance with state mandates for water use reduction, e.g. not watering turf in medians, etc.

The City posts drought notices and mandates from the State such as Post Rainfall State Mandates, mandatory water use reductions, etc., and information from California Water Service such as water use reduction requirements, turf removal programs, etc.

The City's website has a "Conservation" page that provides water conservation measures.

### **5.5.4 IMPACTS**

Drought is a serious threat to life and property and may result in a longer fire season as the damaged vegetation dries out and increases the fuel loading.

**Impacts on people and housing:** Potential increases in the cost of water will have an economic impact on people. As a direct impact of the drought, a possible reduction in property values may occur.

**Impacts on commercial and industrial structures:** Area businesses may have to curtail water use causing a loss in tax revenue.

**Impacts on infrastructure:** Drought conditions have resulted in substantial costs to the City for tending to damage public landscaping, replacement of landscaping with drought-tolerant alternatives and additional costs for conducting and monitoring water rationing.

### **5.5.5 FUTURE PROBABILITY**

Severity High – Probability Medium

Droughts are an expected weather phenomenon and are cyclical in nature, generally lasting 3 to 5 years, with an occasional drought lasting longer. Droughts have occurred in the following years: 1917–1921, 1922–1926, 1928–1937, 1943–1951, 1959–1962, 1976–1977, 1987–1992, 2007–2009, and 2012 to present.

## 5.6 TSUNAMIS

### 5.6.1 NATURE

A tsunami is a series of sea waves commonly caused by an earthquake beneath the sea floor, generated by submarine volcanic eruptions, or from an underwater landslide. As the waves enter shallow water, they may rise rapidly and inundate coastal areas, endangering lives and possibly causing significant property damage. The first wave is often not the largest, and waves may continue arriving for several hours.

Types of Tsunamis:

**Distant Tsunami:** A far field or teletsunami (distant) may be generated by a very large earthquake in remote areas of the Pacific Ocean, such as the Cascadia Subduction Zone near Eureka, which is considered by experts to be the most threatening. Since distant tsunamis, such as from Cascadia, may take several hours to reach the Southern California coast following the event, it allows for warnings to be issued giving residents time to evacuate.

**Local Tsunami:** A near field or near shore tsunami (local) can arrive at the coast within minutes following an offshore geological event. This type of locally generated tsunami is possible at many points along the Southern California coast and provides little time for warnings and less time for evacuation. Studies have identified the Palos Verdes, Santa Cruz Island, and Santa Rosa Island faults as active and potentially tsunami-genic.

Tsunamis are often triggered by earthquakes in the ocean and coastal regions. Submarine landslides, volcanic eruptions, and meteorite impact in the ocean may cause tsunamis as well. Coastal regions are susceptible to tsunamis. All oceanic regions are at risk of a tsunami, however some geologic locations, are more susceptible to tsunamis than others. The Pacific Ocean has more frequent large and destructive tsunamis because of the large earthquake along the margins of the Pacific Ocean.

The main issue which determines the initial size of a tsunami is the “amount of vertical sea floor deformation. This is controlled by the earthquake’s magnitude, depth, fault characteristics, and coincident slumping of sediments or secondary faulting.” Other factors that determine the size of a tsunami are the shoreline and bathymetric configuration, the sea floor deformation velocity, the depth of the water where the earthquake was located, and the efficiency which energy is transferred from the earth’s crust to the water column.

### 5.6.2. HISTORY

History has shown that the probability of a tsunami in Palos Verdes Estates is an extremely low threat because of the elevation of the City.

“Since 1812, the California coast has had 14 tsunamis with wave heights higher than three feet; six of these were destructive. The worst tsunami resulted from the 1964 Alaskan Earthquake and caused 12 deaths and at least \$17 million in damages in Northern California.” In Los Angeles County, the last tsunami occurred after the 7.5, 2012 Haida Gwaii earthquake in Canada. The affects were minimal, with water run up of 0.08 meters.

(Source: [http://education.sdsc.edu/optiputer/htmlLinks/california\\_tsunami.html](http://education.sdsc.edu/optiputer/htmlLinks/california_tsunami.html))

Table 5-6: History of Tsunamis in California

Date	Location	Maximum Run-up*(m)	Earthquake Magnitude
08/31/1930	Redondo Beach	6.10	5.2
08/31/1930	Santa Monica	6.10	5.2
08/31/1930	Venice	6.10	5.2
03/11/1933	La Jolla	0.10	6.3
03/11/1933	Long Beach	0.10	6.3
08/21/1934	Newport Beach	12.00	Unknown
02/09/1941	San Diego	Unknown	6.6
10/18/1989	Monterey	0.40	7.1
10/18/1989	Moss Landing	1.00	7.1
10/18/1989	Santa Cruz	0.10	7.1
04/25/1992	Arena Cove	0.10	7.1
04/25/1992	Monterey	0.10	7.1
09/01/1994	Crescent City	0.14	7.1
03/11/2011	Los Angeles	0.49	8.3
10/28/2012	Los Angeles	0.08	7.5

(Source: Worldwide Tsunami Database [www.ngdc.noaa.gov](http://www.ngdc.noaa.gov))

### 5.6.3 IMPACTS

For coastal communities, an assessment of the tsunami hazard is needed to identify risks. This assessment requires knowledge of probable tsunamis sources (such as earthquakes, landslides, and volcanic eruptions), their likelihood of occurrence, and the characteristics of tsunamis from those sources at different places along the coast.

#### Vulnerabilities

The only vulnerability to a tsunami in the City is the Palos Verdes Beach and Athletic Club due to its location. It should be noted that there are no other vulnerabilities to the City because all other structures lie 217' above sea level or more.

#### Impacts

As mentioned earlier, there should be no direct impacts to the City of Palos Verdes Estates because of its location. However, there could be minor impact to tourism as the Palos Verdes Beach and Athletic Club may be impacted.

## **5.6.4 FUTURE PROBABILITY**

### **Future Probability**

Severity Low – Probability Low

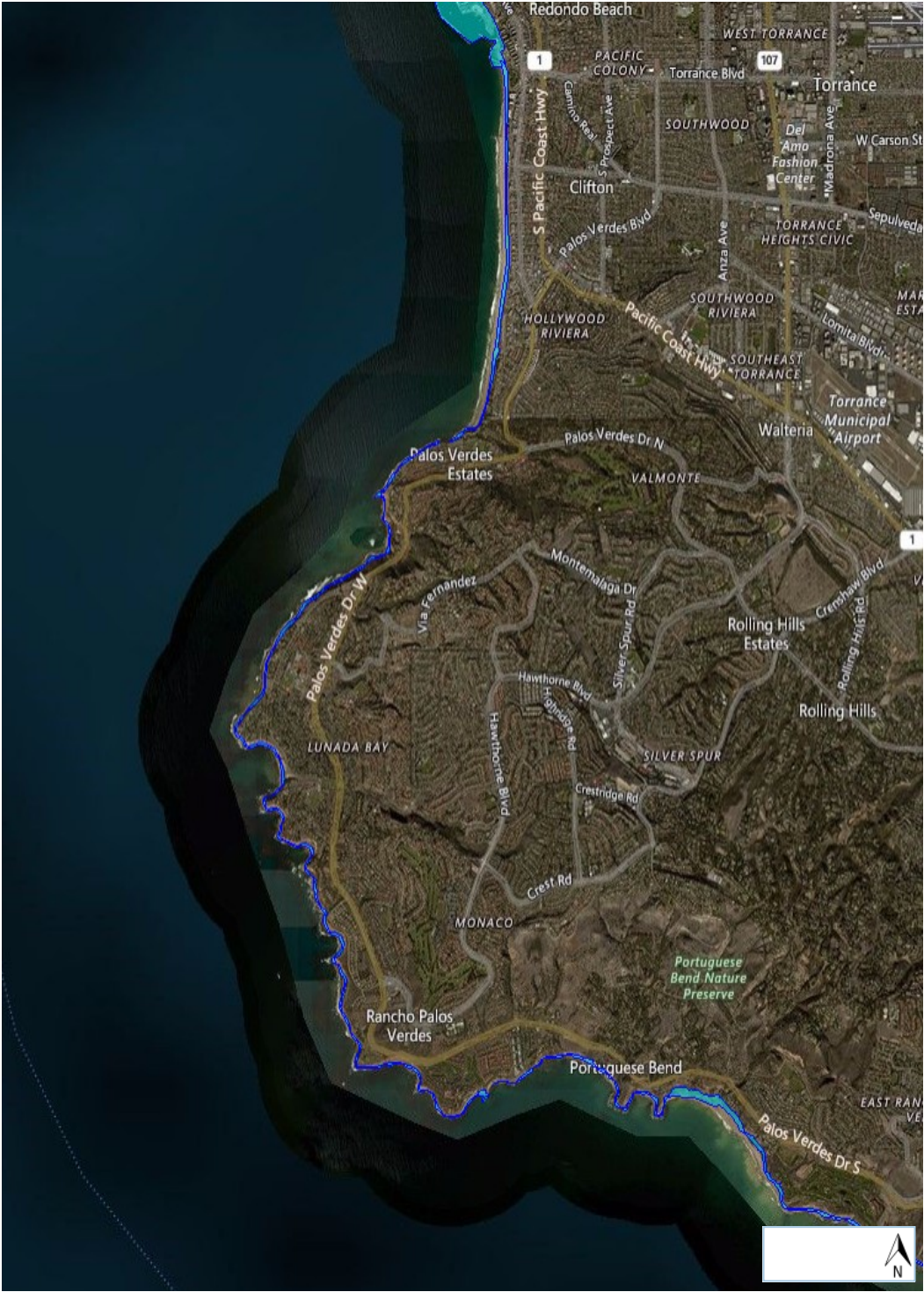
History has shown that the probability of a damaging tsunami is not considered a threat to the City.

### **Maps**

Attached are Tsunami inundation maps with and without the City borders.



Map 5-5: City of Palos Verdes Estates Inundation Map Without Borders



## **5.7 RISING SEA LEVELS**

Rising Sea Levels is a relatively new science with minimal historical data to accurately predict them. The City of Palos Verdes is cognizant of the future impact of Rising Sea levels and will monitor them to take appropriate actions to Rising Sea Levels as warranted.

### **5.7.1 NATURE**

Sea level rise is the result of warming ocean waters (thermal expansion) and melting ice caps, especially in Greenland and the West Antarctic Ice Sheet. Accurate projections are currently hampered by the limits in scientists' ability to model ice sheet dynamics, however, using the best available science, statewide studies in 2009 projected that sea levels could rise 12 to 16 inches by 2050. This is double the amount California's coastline has experienced over the past century. By the end of this century, these studies project a total average sea level rise of 3.3 - 4.6 feet (23 to 55 inches) above current levels. Some recent studies project even higher figures, but the slightly more moderate rates agreed upon for the statewide sea level rise guidance is presented here. The exact amount of sea level rise is still up for debate, but a more rapid increase than historically experienced is virtually certain.

### **5.7.2 HISTORY**

It is estimated that over the past 100 years, sea levels have increased regionally by 0.5 feet. With medium confidence, estimates are that the sea level will rise between 1.3 and 2.7 feet by 2100.

### **5.7.3 LOCATION, EXTENT OF POTENTIAL SEA LEVEL RISE**

In 2014, the NOAA Coastal Service Center produced the "Digital Coast Sea Level Rise and Coastal Flooding Impacts Viewer," which displays the areas affected by sea level rise (<http://coast.noaa.gov/digitalcoast/tools/slr>). Examples of this are shown in the accompanying illustrations. The maps show general areas that are vulnerable to sea level rise, but may not accurately depict the extent of the rise in water levels. Predicting inundation comes with high uncertainty due to the many variables that remain unknown.

### **5.7.4 VULNERABILITIES**

The City of Palos Verdes is located approximately 217' above sea level. Due to its location, at this time, there are no known vulnerabilities to residential, multi-residential, or commercial structures. The only possible vulnerability would be the Palos Verdes Beach and Athletic Club.

### **5.7.5 IMPACT**

In the event of a storm surge, coastal erosion will be exacerbated and cliff failures become more likely as a result of Rising Sea Levels. While more specific data on the exact changes is necessary, Rising Sea Levels are not a foreseeable problem for the City at this time.

### **5.7.6 FUTURE PROBABILITY**

Severity Low – Probability Low

The probability in the near term of impacting Palos Verdes Estates is Low. However, the long probability projections indicate there is a High Probability of Rising Sea Levels.

## 5.8. WILDLAND FIRES

### 5.8.1 NATURE

A wildland fire spreads through consumption of vegetation. It often begins unnoticed, spreads quickly, and is usually signaled by dense smoke that may be visible from miles around. Wildland fires can be caused by human activities (such as arson or campfires) or by natural events such as lightning. Wildland fires often occur in forests or other areas with ample vegetation. High temperatures and drought, followed by an active period of vegetation growth, provide the most dangerous conditions. Wildland fires can be classified as, wild land urban interface or prescribed fires.

The following factors contribute significantly to wildland fire behavior and can be used to identify wildland fire hazard areas:

**Topography:** As slope increases, the rate of wildland fire spread increases. South-facing slopes are also subject to more solar radiation, making them drier and thereby intensifying wildland fire behavior.

**Fuel:** The type and condition of vegetation plays a significant role in the occurrence and spread of wildland fires. Certain types of Plants are more susceptible to burning or will burn with greater intensity. Dense or overgrown vegetation increases the amount of combustible material available to fuel the fire (referred to as the “fuel load”). The ratio of living to dead Plant matter is also important. The risk of fire is increased significantly during periods of prolonged drought as the moisture content of both living and dead Plant matter decreases. The fuel’s density, both horizontally and vertically, is also an important factor.

**Weather:** The most variable factor affecting wildland fire behavior is weather. Temperature, humidity, wind, and lightning can affect chances for ignition and spread of fire. Extreme weather, such as high temperatures and low humidity, can lead to extreme wildland fire activity. By contrast, cooling and higher humidity often signals reduced wildland fire occurrence and easier containment.

**Drought:** Recent concerns about the 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.

Growth and development in scrubland and forested areas is increasing the number of human-caused structures in Southern California interface areas. Wildfire affects development, yet development can also influence wildfire. Owners often prefer homes that are private with scenic views, nestled in vegetation, and use natural materials. A private setting is usually far from public roads, or hidden behind a narrow, curving driveway. These conditions, however, make evacuation and firefighting difficult. The scenic views found along mountain ridges can also mean areas of dangerous topography. Natural vegetation contributes to scenic beauty, but it may also provide a ready trail of fuel leading a fire directly to the combustible fuels of the home itself.

The frequency and severity of wildland fires is also dependent upon other hazards, such as lightning, drought, and infestations (such as the 2003 firestorm damage to southern California alpine forests by the pine bark beetle). If not promptly controlled, wildland fires may grow into a large-scale emergency or disaster. Even small fires can threaten lives and resources and destroy improved properties. The indirect effects of wildland fires can be catastrophic. In addition to stripping the land of vegetation and destroying forest resources, large, intense fires can harm the soil, waterways, and the land itself. Soil exposed to intense heat may lose its capability to absorb moisture and support life. Lands stripped of vegetation are also subject to increased debris flow hazards, as described above.

## 5.8.2 DISASTER HISTORY

Large fires have been part of the Southern California landscape for millennia. Significant Wildland Fires in Los Angeles County are shown in Table 5.8.

Table 5-7 Significant Los Angeles/San Diego County Wildland Fires, 2003-2010

Fire Name	Year	Acres	Structures Impacted
Cedar	2003	273,246	2,820
Witch	2007	197,990	1,650
Harris	2007	90,440	548
Buckweed/Agua Dulce	2007	38,356	73
Canyon	2007	4,500	22
Magic	2007	2,840	Unknown
Ranch	2007	58,401	12
Meadow Ridge	2007	20	0
October	2007	100	0
Sayre	2008	11,262	634
Sesnon	2008	14,703	89
Marek	2008	4,824	52
Osito	2009	304	0
Morris	2009	2,168	0
Station	2009	160,577	266
Crown	2010	14,000	16
Briggs	2010	530	0

Source: CDF Incident reports

There have been no wildfires since the last plan update.

## 5.8.3 LOCATION, EXTENT, AND PROBABILITY OF FUTURE EVENTS

The hills and mountainous areas of Southern California are considered to be interface areas for wildland fires. The development of homes and other structures is encroaching onto the wildlands and is expanding the Wildland Urban Interface (WUI). The WUI neighborhoods are characterized by a diverse mixture of varying housing structures, development patterns, ornamental and natural vegetation, and natural fuels.

In the event of a wildfire, vegetation, structures, and other flammables can merge into unwieldy and unpredictable events. Factors important to the fighting of such fires include access, firebreaks, proximity of water sources, distance from a fire station, and available firefighting personnel and

equipment. Reviewing past WUI fires shows that many structures are destroyed or damaged for one or more of the following reasons:

Combustible roofing material;

Wood construction;

Structures with no defensible space;

Fire department with poor access to structures;

Subdivisions located in heavy natural fuel types;

Structures located on steep slopes covered with flammable vegetation;

Limited water supply; and

Winds over 30 miles per hour.

Generally, fire susceptibility throughout California dramatically increases in the late summer and early autumn as vegetation dries out, decreasing Plant moisture content and increasing the ratio of dead fuel to living fuel. However, other various factors, including humidity, wind speed and direction, fuel load and fuel type, and topography, can contribute to the intensity and spread of wildland fires. In addition, common causes of wildland fires in California include arson and negligence.

#### **5.8.4 VULNERABILITIES**

Palos Verdes Estates residents are served by Los Angeles County Fire Department. Data that includes the location of interface areas in the county can be used to assess the population and total value of property at risk from wildfire and direct these fire agencies in fire prevention and response.

Key factors included in assessing wildfire risk include ignition sources, building materials and design, community design, structural density, slope, vegetative fuel, fire occurrence and weather, as well as occurrences of drought.

The National Wildland/Urban Fire Protection Program has developed the Wildland/Urban Fire Hazard Assessment Methodology tool for communities to assess their risk to wildfire. For more information on wildfire hazard assessment refer to <http://www.Firewise.org>.

#### **5.8.5 IMPACTS**

Major wildland fires can completely destroy ground cover. If heavy rains follow a major fire, flash floods, heavy erosion, land subsidence, and mudflows can occur. After a wildland fire passes through an area, the land is laid bare of its protective vegetation cover and is susceptible to excessive run-off and erosion from winter storms. The intense heat from the fire can also cause a chemical reaction in the soil that makes it less porous, and the fire can destroy the root systems of shrubs and grasses that aid in stabilizing slope material.

These cascading effects can have ruinous impacts on people, structures, infrastructure, and agriculture.

**Impacts on people and housing:** In addition to damage to natural environments, wildland fires result in a high risk for personal injury, loss of life to inhabitants of the fire area and firefighters, and losses of structures and personal property. Such events may require emergency watering/feeding, evacuation, and shelter.

**Impacts on commercial and industrial structures:** As mentioned in the historic wildland fires, the effects on commercial and industrial structures can be significant. Many of the fires resulted in damaged or destroyed structures.

**Impacts on infrastructure:** Public utilities are often strained by the impacts of wildland fire, including depletion of water reserves, downed power lines, disrupted telephone service, and blocked roads. Furthermore, flood control facilities may be inadequate to handle an increase in storm runoff, sediment, and debris that is likely to be generated from barren, burned-over hillsides.

#### **5.8.6 FUTURE PROBABILITY**

Probability Low – Severity High

Map 5-6: Wildfire Prone Areas of Palos Verdes Estates



## 5.9. FLOODS

### 5.9.1 NATIONAL FLOOD INSURANCE PROGRAM (NFIP) CONTINUED PARTICIPATION AND COMPLIANCE

The City of Palos Verdes Estates joined the National Flood Insurance Program on May 17, 1974 and its CID # is 060145. There have been no repetitively flood-damaged structures or any NFIP insurance claims in Palos Verdes Estates date. The City will continue to participate and remain in compliance with the NFIP.

Palos Verdes Estates will consult FIRM maps to determine if proposed developments reside within identified flood prone area. Should the proposed development be within the defined flood Plane, mitigation efforts will be implemented prior to development. If mitigation measures prove to be inadequate, the proposed project may be denied.

### 5.9.2 NATURE

**Flood Categories:** Floods are categorized by severity. The severity of flooding is not the same at all locations. The stage value assigned for a given flood category is usually associated with a water level where the most significant flood impacts occur. The flood categories used in the National Weather Service (NWS) are:

**Minor Flooding:** minimal or no property damage, but possibly some public threat or inconvenience.

**Moderate Flooding:** some inundation of structures and roads near streams. Some evacuations of people and/or transfer of property to higher elevation is necessary.

**Major Flooding:** extensive inundation of structures and roads. Significant evacuations of people and/or transfer of property to higher elevations.

**Record Flooding:** flood which is equal to or exceeds the highest stage at any site during the period of record keeping.

Nationwide, floods result in more deaths than any other natural hazard. Physical damage from floods includes the following:

Inundation of structures, causing water damage to structural elements and contents.

Erosion or scouring of stream banks, roadway embankments, foundations, footings for bridge piers, and other features.

Impact damage to structures, roads, bridges, and other features from high-velocity flow and from debris carried by floodwaters.

Erosion of topsoil and deposition of debris and sediment.

The City of Palos Verdes Estates has a high concentration of impermeable surfaces that either collect water, or concentrate the flow of water in unnatural channels. Storm drains may back up with vegetative debris causing additional, localized flooding.



### **5.9.3 HISTORY**

Historically, flooding in the City has been the result of heavy rainstorms with specific damages occurring in low lying parts of the City. Localized flooding can render roads unusable. A severe winter storm has the potential to disrupt the daily driving routines of the people in the City. In addition, floods can disrupt emergency vehicles and shut down local and regional transit systems.

Under average rainstorms, the City's infrastructure normally prevents flooding. Localized small-scale flooding represents the only concern. Historically, there has been localized street flooding during heavier storms that has resulted in some property damage but there is no record of riverine flooding.

### **5.9.4 LOCATION-EXTENT, OF FUTURE EVENTS**

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. Flood studies often use historical records, such as streamflow gauges, to determine the probability of occurrence for floods of different magnitudes. The probability of occurrence is expressed in percentages of a specific extent occurring in any given year.

Locations at risk from flooding:

On or close to steep hills;

Steep road-cuts or excavations;

Existing landslides or places of known historic landslides (such sites often have tilted power lines, trees tilted in various directions, cracks in the ground, and irregular- surfaced ground);

Steep areas where surface runoff is channeled, such as below culverts, V-shaped valleys, canyon bottoms, and steep stream channels;

Fan-shaped areas of sediment and boulder accumulation at the outlets of canyons;

Hillside and mountains that have recently (within 1-6 years) been subjected to a wildland fire;

Dam or storm drainage failure;

Paved areas which increase the volume and velocity of runoff after a rainfall.

There are various locations throughout Palos Verdes Estates that can be affected by localized flooding and flooding due to storm surges. While there is no significant history of major flooding in Palos Verdes Estates, localized flooding can be caused by heavy rains.

### **5.9.5 VULNERABILITIES**

Floods can affect utility services, roads and bridges, and critical facilities and lifelines. Communities may suffer immediate damages and loss of service. Disruption of infrastructure, roads, and critical facilities may also have a long-term effect on the economy. Utilities, including potable water, wastewater, telecommunications, natural gas, and electric power are all essential to service community needs. Loss of electricity has the most widespread impact on other utilities and on the whole community.

## 5.9.6 IMPACTS

Floods can cause various effects: fires can break out as a result of dysfunctional electrical equipment, hazardous materials can seep into floodways causing public health concerns, potential contamination of water and in many cases polluted water supplies from flood debris.

**Effects on people and housing:** Direct impacts of flooding can include injuries and loss of life, damage to property, and health hazards from ruptured sewage lines and damaged septic systems. Secondary impacts include the cost and commitment to resources for flood fighting services, cleanup operations, and the repair or replacement of damaged structures.

**Effects on commercial and industrial structures:** Floods also result in economic losses through closure of businesses and government facilities. Flood events can cut off customer access to a business as well as close a business for repairs. A quick response to the needs of businesses affected by flood events can help a community maintain economic vitality in the face of flood damage. Responses to business damages can include funding to assist owners in elevating or relocating flood-prone business structures.

**Effects on infrastructure:** Flooding can cause damage to roads, communication facilities, and other infrastructure.

Publicly owned facilities are a key component of daily life for all citizens. Damage to public water and sewer systems, transportation networks, flood control facilities, emergency facilities, and offices can hinder the ability of the government to deliver services. Government can take action to reduce risk to public infrastructure from flood events, as well as craft public policy that reduces risk to private property.

During natural hazard events, or any type of emergency or disaster, dependable road connections are critical for providing emergency services. Road systems in the City of Palos Verdes Estates are maintained by multiple jurisdictions. Federal, State, County, and City governments all have a stake in protecting roads from flood damage. Road networks often traverse floodplain and floodway areas. Transportation agencies responsible for road maintenance are typically aware of roads at risk from flooding.

Flood-related environmental quality problems could potentially include bacteria, toxins, and pollution. These conditions would need to be addressed during the response and recovery phases of disaster management.

## 5.9.7 FUTURE PROBABILITY

Probability Medium – Severity Low

While it is impossible to predict future long range weather patterns, it is certain that the location of the City, adjacent to the Pacific Ocean, will continue to have a significant exposure to major winter storms and flooding. The probability is **Medium and** the severity, based on the fact that only limited areas of the City are exposed, is **Low**.

Map 5-7: Flooding Areas



## 5.10 CLIMATE CHANGE

The City of Palos Verdes Estates recognizes the future impacts of Climate change. As such, the City is collaborating with the South Bay Cities Council of Governments (SBCCOG) on the development of the Climate Action Plan (CAP). CAP is being completed in phases: Phase I – development of energy efficiency strategies and analysis of targets and Phase II – development of waste, greening, power generation/storage, land use, and transportation. Currently, for your review and consideration is the energy efficiency Green House Gas reduction strategies or measures that will later be incorporated into the CAP.

The CAP is being drafted to be in line with the goals in AB 32, California's Global Warming Solutions Act, for greenhouse gas reductions. On April 29, 2015, Governor Brown issued a new Executive Order (AB-30-15) to establish a California greenhouse gas reduction target of 40% below 1990 levels by 2030.

The State's California Climate Change Scoping Plan emission target for 2020 and 2050 are 15% and 80% respectively below the baseline. The executive order and scoping Plan are not requirements for local government, but may inform future legislation and be the criteria for grants. Studies conducted for the California Energy Commission have found that to meet these long-term goals, the state will need to derive 50% of its electricity from renewable resources by 2030.

Reducing GHG emissions have associated co-benefits that can contribute to current and future prosperity and sustainability for the City by:

Conserving resources such as energy and water

Fostering the creation of green jobs

Further clean technology industries

The City commenced work on the Climate Action Plan in September of 2015. The resulting document will be an Energy Efficient Climate Action Plan for the City of Palos Verdes Estates.

Historical documentation can be found at

[http://www.southbaycities.org/sites/default/files/EECAP\\_PVE\\_Final\\_20151218.pdf](http://www.southbaycities.org/sites/default/files/EECAP_PVE_Final_20151218.pdf)

## SECTION 6: VULNERABILITY ASSESSMENT

This section includes an overview of the vulnerability assessment, methodology, data limitations, and exposure analysis.

### 6.1 OVERVIEW OF A VULNERABILITY ASSESSMENT

The requirements for a risk assessment, as stipulated in the DMA 2000 and its implementing regulations, are described below.

A summary of Palos Verdes Estates vulnerability to each hazard that addresses the impact of each hazard on the community.

#### **DMA 2000 Requirements: Risk Assessment, Assessing Vulnerability, Overview**

##### **Assessing Vulnerability: Overview**

Requirement §201.6(c) (2) (ii): [The risk assessment **shall** include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c) (2) (i) of this section. This description **shall** include an overall summary of each hazard and its impact on the community.

Source: FEMA, October 2011.

An identification of the types and numbers of existing vulnerable buildings, infrastructure, and critical facilities and, *if possible*, the types and numbers of vulnerable future development.

#### **DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Identifying Structures**

##### **Assessing Vulnerability: Identifying Structures**

Requirement §201.6(c) (2) (ii) (A): The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard area.

Source: FEMA, October 2011.

Estimate of potential dollar losses to vulnerable structures and the methodology used to prepare the estimate.

#### **DMA 2000 Recommendations: Risk Assessment, Assessing Vulnerability, Estimating Potential Losses**

##### **Assessing Vulnerability: Estimating Potential Losses**

Requirement §201.6(c) (2) (ii) (B): An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c) (2) (i) (A) of this section and a description of the methodology used to prepare the estimate.

Source: FEMA, October 2011.

### 6.2 METHODOLOGY

The methodology used to prepare the dollar estimates for vulnerability is described below. Potential dollar losses are summarized in Tables 6-1, 6-2, 6-3, 6-4, 6-5, and 6-6.

A conservative exposure-level analysis was conducted to assess the risks of the identified hazards. This analysis is a simplified assessment of the potential effects of the hazard on values at risk without consideration of probability or level of damage.

Using GIS, the building footprints of critical facilities were compared to locations where hazards are likely to occur. If any portion of the critical facility fell within a hazard area, it was counted as impacted. Using census block level information, a spatial proportion was used to determine the percentage of the population and residential and nonresidential structures located where hazards are likely to occur. Census blocks that are completely within the boundary of the hazard area were determined to be vulnerable and were totaled by count. A spatial proportion was also used to determine the amount of linear assets, such as highways and pipelines, within a hazard area. The exposure analysis for linear assets was measured in miles.

Replacement values or insurance coverage were developed for physical assets. These values were obtained from the City. For facilities that didn't have specific values per building in a multi-building scenario, the buildings were grouped together and assigned one value. For each physical asset located within a hazard area, exposure was calculated by assuming the worst-case scenario (that is, the asset would be completely destroyed and would have to be replaced). Finally, the aggregate exposure in terms of replacement value or insurance coverage for each category of structure or facility was calculated. A similar analysis was used to evaluate the proportion of the population at risk. However, the analysis simply represents the number of people at risk; no estimate of the number of potential injuries or deaths was prepared.

### **6.3 DATA LIMITATIONS**

The vulnerability estimates provided herein use the best data currently available, and the methodologies applied result in an approximation of risk. These estimates may be used to understand relative risk from hazards and potential losses. However, uncertainties are inherent in any loss estimation methodology arising in part from incomplete scientific knowledge concerning hazards and their effects on the built environment, as well as approximations and simplifications that are necessary for a comprehensive analysis.

It is also important to note that the quantitative vulnerability assessment results are limited to the exposure of people, buildings, and critical facilities and infrastructure to hazard. It was beyond the scope of this LHMP to develop a more detailed or comprehensive assessment of risk (including annualized losses, people injured or killed, shelter requirements, loss of facility/system function, and economic losses). Such impacts may be addressed with future updates of the LHMP.

### **6.4 EXPOSURE ANALYSIS**

The results of the exposure analysis are summarized in Tables 6-1 through 6-6 in the following discussion.

Table: 6-1 Transportation System Lifeline Inventory

System	Component	# Locations/ # Segments	Replacement value (millions of dollars)
Roads	Bridges	Via Campesina/1	\$2,500,000
	Arterial/Collector Streets	144 lane miles of roads	59,500,000
		Subtotal	62,000,000
<b>TOTAL</b>			<b>62,000,000</b>

Table: 6-2 Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Water Treatment Plan	Facility	76 miles of sewer pipe 2,000 manholes Two pump stations	33,105,000
		Subtotal	33,105,000
<b>Total</b>			<b>33,105,000</b>

Table: 6-3 Critical Facilities in the City of Palos Verdes Estates

Category of Facility	Total Structures	Total Worth	Contents Total
City Hall	2	5,239,211	766,300
Beach and Athletic Club	1	3,849,149	110,000
Country Club Clubhouse	1	18,959,085	750,000
Country Club Main Shed	1	1,176,421	0
Country Club Cart Shed	1	196,071	0
Tennis Club	1	2,058,109	33,000
2 <sup>nd</sup> Hole Cart Bridge	1	156,856	0
12 <sup>th</sup> Hole Cart Bridge	1	325,275	0
Snack Bar	1	92,070	0
Rest Room	1	40,346	0
Pump House	1	19,296	0
Tower Residence	1	98,020	0
City Stables	1	854,508	40,000
Bridge	1	1,111,997	0
Parking Structure	1	2,797,977	0
Pro Shop	1	616,863	0
Computer Equipment	Various Locations	0	818,058
Mobile Equipment	Various Locations	0	66,944
Golf Club Restroom	1	119,253	0
<b>Total</b>	<b>18</b>	<b>\$37,710,507</b>	<b>\$2,584,302</b>

The methodology used in preparing the Vulnerability Estimate consisted of determining the value of critical buildings and facilities from insurance property schedules. Critical infrastructure values were established by using actual replacement costs determined by recent comparable replacement projects. Earthquakes can extensively damage a wide area; therefore, all critical structures and infrastructure were calculated at a 100% value.

Table 6-4 Potential Hazard Vulnerability Assessment – Population and Buildings

Population	Buildings					
	Residential		Commercial		Multi-Family	
Number	Number	Value (\$)	Number	Value (\$)	Number	Value (\$)
13,623	5283	9,577,550,700	30	18,341,116	42	19,040,767

Table 6-5 Potential Hazard Vulnerability Assessments – Critical Infrastructure

Highways		City Arterials		Bridges	
Miles	Value (\$)	Miles	Value (\$)	Number	Value (\$)
0	0	144	59,500,000	1	2,500,000

Table 6-6 Potential Hazard Vulnerability Assessment – Critical Facilities

City Hall/Police Station		Other City-Owned Facilities	
Number	Value (\$)	Number	Value (\$)
2	5,239,211	16	32,471,296

## 6.5. EARTHQUAKES

Of all the hazards assessed in this LHMP, an earthquake poses the greatest exposure and potential loss for the City. The city’s population, residential and nonresidential structures, and critical buildings, facilities, and infrastructure are exposed to either high or moderate ground shaking zones.

## 6.6. WINDSTORM

Windstorms are a relatively short duration events involving sustained winds and/or gusts generally in excess of 50 mph. Windstorms can affect the entire City and are especially dangerous in areas with significant tree coverage, exposed property, major infrastructure, and above ground utility lines. A windstorm can down trees, power lines, damage structures, and create large volumes of debris.

The Beaufort Wind Scale, found in section 5.3.1, shows the relationship of wind, miles per hour, and the typical effects on land.

## 6.7. EARTH MOVEMENT/LANDSLIDE/EXPANSIVE SOILS/LAND SUBSIDENCE

Palos Verdes Estates has experienced Earth movement events in the recent past. Vulnerabilities impacted include infrastructure, roads and bridges, and lifelines and critical facilities.



## **6.8. DROUGHT**

Short-term effects of drought include excessively dry soil causing stress for Plants and trees, and increased potential for wildland fire. When rainfall is less than normal for several weeks, months, or years, the following may occur: the flow of streams and rivers declines; water levels in lakes and reservoirs fall; and the water table drops, i.e., the depth to reach groundwater in water wells increases.

## **6.9. TSUNAMI**

As with Sea Level Rise, the only vulnerability to Palos Verdes Estates is the Palos Verdes Beach and Athletic Club. There are no other tsunami vulnerabilities in the City.

## **6.10. RISING SEA LEVELS**

The only site in Palos Verdes Estates identified as having the potential risk of tsunami damage is the Palos Verdes Beach and Athletic Club located at 389 Paseo Del Mar. There are no other vulnerabilities to the City of Palos Verdes Estates as it is located 217' above sea level.

## **6.11. WILDLAND FIRES**

The location and time of year for the occurrence of wildland fires cannot be predicted with any certainty. It should be noted that extenuating circumstances, such as the current drought, have a major impact on the frequency and severity of wildland incidents. The human-caused plays a major role in wildfire events as 90% of wildfires are caused by human carelessness.

Much of the densely-populated areas within the City have wildland fire hazard designations of moderate or high, with a small portion of the City designated as having very high wildland fire hazard designation.

## **6.12. FLOODS**

The risk posed by the 100 and 500-year floodplains to Palos Verdes Estates is minimal. Past flooding events haven't caused extensive property damage or impacted City residents. Vulnerabilities include City arterials, drainage basins, infrastructure, and public roads.

## **6.13. CLIMATE CHANGE**

Long-term changes in the climate, especially those driven by the accumulation of greenhouse gases in the atmosphere, are expected to change short-term weather patterns and thus, change weather-related impacts, both short and long-term. Most prominently, climate change is warming the average global temperatures, which will result in frequent and intense extreme events related to changes in temperature and precipitation, such as heat waves and flooding.

Possible climate change vulnerabilities to Palos Verdes Estates may include increased air pollution, increase in earth movements and localized flooding.

## **6.14 FUTURE DEVELOPMENT**

Future residential development in Palos Verdes Estates is very limited as there is only a minimal number of vacant single family lots available.

Commercial development is considered built out as there is no additional land available for commercial development.

Section 3 contains the Land Use Map for Palos Verdes Estates. The map notes all commercial and residential developments.

## SECTION 7: CAPABILITY ASSESSMENT

While not required by the DMA 2000, an important component of a hazard mitigation Plan is a review of the City’s resources to identify, evaluate, and enhance the capacity of those resources to mitigate the effects of hazards. This section evaluates City resources in three areas: legal and regulatory, administrative and technical, and financial. Capabilities are assessed to implement current and future hazard mitigation actions.

### DMA 2000 Recommendations: Capability Assessment

#### Capability Assessment

Requirement §201.6(c) (3): The Plan must include mitigation strategies based on the jurisdiction’s “existing authorities, policies, programs and resources, and its ability to expand on an improve these existing policies and programs.

Source: FEMA, March 2013.

## 7.1 LEGAL AND REGULATORY CAPABILITIES

The City currently supports hazard mitigation through its regulations, Plans, and programs. The Palos Verdes Estates Municipal Code outlines hazard mitigation-related ordinances. Additionally, pursuant to State Planning laws, the *General Plan* includes a safety element with policies and programs to protect the community from risks associated with seismic, tsunami, flood, land movement, and fire hazards. Other Planning documents, including the Emergency Response Plan, establish official City policy for response to emergencies.

In addition to policies and regulations, the City participates in hazard mitigation programs including the National Flood Insurance Program (NFIP).

The following table, Table 7-1, summarizes the City’s hazard mitigation legal and regulatory capabilities.

Table 7-1 Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Plans	General Plan	Establishes policies, programs, goals and objectives to protect the community from risks associated with seismic, tsunami, flood, land movement, and fire hazards.
	Emergency Plan Municipal Code Chapter 2.28 Emergency Services, Chapter 2.28.080	Establishes the City’s response organization, responsibilities, functions, and interactions required to mitigate the effects of hazards affecting the City. Hazards identified in this Plan include earthquakes, hazardous material, multi-casualty incident, storm/flood, wildland/major fire, and civil disturbance/terrorism.

Table 7-1 Legal and Regulatory Resources Available for Hazard Mitigation

Regulatory Tool	Chapter or Section	Effect on Hazard Mitigation
Programs	National Flood Insurance Program (NFIP) CID # 060145	Makes affordable flood insurance available to homeowners, business owners, and renters in participating communities. In exchange, those communities must adopt and enforce minimum floodplain management regulations to reduce the risk of damage from future floods. Palos Verdes Estates joined the NFIP in 1974
Ordinances and Policies (Municipal Code) Ordinances and Policies (Municipal Code)	Title 8 Health and Safety Chapter 8.12 Fire Code	Title 32, Fire Code, of the Los Angeles County Code, as amended and in effect on April 24, 2014, adopting the California Fire Code, 2013 Edition (California Code of Regulations Title 24, Part 9), is hereby incorporated herein by reference as if fully set forth herein, and shall be known and may be cited as the fire code of the City of Palos Verdes Estates. In the event of any conflict between provisions of the California Fire Code, 2013 Edition, Title 32 of the Los Angeles County Code, or any amendment to the fire code contained in the Palos Verdes Estates Municipal Code, the provision contained in the latter listed document shall control.
	Title 15 Buildings and Construction Chapter 15.50.020 Methods of reducing Flood Losses	<p>A. Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities;</p> <p>B. Require that uses vulnerable to floods, including facilities that serve such uses, be protected against flood damage at the time of initial construction;</p> <p>C. Control the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters;</p> <p>D. Control filling, grading, dredging, and other development which may increase flood damage; and</p> <p>E. Prevent or regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other areas.</p>
	Title 15 Buildings and Construction Chapter 15.50 Floodplain Management	Identifies areas where terrain characteristics would present new developments and their users with potential hazards to life and property from potential inundation by a 100-year frequency flood or other known flood hazards. These standards are also intended to minimize the effects of development on drainage ways and watercourses.

## 7.2 ADMINISTRATIVE AND TECHNICAL CAPABILITIES

The administrative and technical capability assessment identifies the staff and personnel resources available within the City to engage in mitigation Planning and carry out mitigation projects. The City government consists of seven departments: City Manager, City Clerk, Administrative Analyst, Police, Planning and Building, Finance, and contracts with the Los Angeles County Fire Department for Fire Services. The City may increase its technical resources by drawing upon neighboring communities and County staff. The administrative and technical capabilities of the City are listed in Table 7-2.

Table 7-2 Administrative and Technical Resources for Hazard Mitigation

Staff/Personnel Resources	Department Position
Planner(s) or engineer(s) with knowledge of land development and land management practices	Director of Building and Planning
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Director of Public Works/City Engineer
Planner(s) or engineer(s) with an understanding of manmade or natural hazards	Director of Public Works/City Engineer
Floodplain Manager	Director of Public Works/City Engineer
Personnel skilled in GIS and/or HAZUS-MH	Director of Public Works/City Engineer
Director of Emergency Services	City Manager
Finance (grant writers, purchasing)	Director of Finance
Public Information Officers	City Manager
Planning Commission	Director of Building and Planning
Mitigation Planning Committee	Director of Building and Planning
Mutual and Automatic Aid Agreements	Police Chief
Maintenance Program for risk reduction	Director of Public Works/City Engineer

## 7.3 FINANCIAL CAPABILITIES

Finance is responsible for a broad range of core financial duties, operational and capital budgeting, long-term forecasting and planning, fiscal policy development, banking and investments support, financial system administration, and maintaining internal controls compliance with regulatory reporting, annual audits, State Controller's filings, Gas Tax reporting, state and federal grant tracking as well as numerous other county, state and federal government fiscal requirements. The department also handles general tax filings and debt administration and guides the City's Information Technology initiatives.

Core duties include: collection and recording of all revenue, posting expenditures to accounting records, preparation of interim financial reports to the City Council and staff; bank monitoring, reconciliation and treasury reporting; business licensing, animal licenses; preparing payroll; biweekly processing of all obligations and invoices for payment for review and approval by City administration and City Council; ensuring payment and filing of demands and compliance with City purchasing procedures; preparing and distributing monthly financial management reports to staff; and reviewing staff report fiscal impacts.

The fiscal capability assessment lists the specific financial and budgetary tools that are available to the City for hazard mitigation activities. These capabilities, which are listed in Table 7-3, include both local and Federal entitlements.

Table 7-3 Financial Resources for Hazard Mitigation

Financial Resources	Effect on Hazard Mitigation
Authority to levy taxes for specific purposes	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Development Impact Fee	Can be used for both on-site and off-site capital improvements, including seismic hazard repair and maintenance, drainage, and critical facilities.
Incur debt through general obligation bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Incur debt through special tax and revenue bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
Incur debt through private activity bonds	Can be used for any hazard mitigation activity; however, it is only eligible for use with voter approval.
FEMA HMPG and PDM grants	HMGP grant funding is available to local communities after a Presidentially declared disaster. It can be used to fund both pre- and post-disaster mitigation Plans and projects. PDM funding is available on an annual basis. This grant can only be used to fund pre-disaster mitigation Plans and projects only.

The City has various financial and budgetary tools available such as capital improvements project funding and the authority to levy taxes for general and specific purposes.

## 7.4 FINANCIAL RESOURCES

The General Fund’s balance is an important element that can show the City’s financial strengths or weaknesses. For the Fiscal Years 16/17 and 17/18, the City of Palos Verdes Estates’ General Fund operating appropriations has been approved at \$12,968,042. The revenue estimates in the City’s biennial budget contains numerous line items representing different sources, each governed by a distinct set of conditions particular to that revenue source. The largest revenue factor and the core of the resource base that enables the City’s provision of community services is the local revenue portion of Palos Verdes Estates’ General Fund. The City’s revenue base is determined by different community conditions such as the current population, employment and income, economic activity within the City, and the growth of invested value from residential and commercial construction, business investment in Plant and equipment, and demand for local real property. National, State, and regional economic conditions can also affect the City’s revenue base by creating demand for community goods and services produced within Palos Verdes Estates. The chart below is a summary of expected General Fund revenues from the City’s approved budget. The largest revenue categories

are from service charges and property tax.

Table 7-4: Fiscal Capacities/Impacts

Financial Tools	Availability
Does PVE have Community Development Block Grants (CDBG)?	N
Does PVE have Capital Improvements project funding	Y
Does PVE have the authority to levy taxes for general and specific purposes?	Y with 2/3 voter approval
Does PVE have service charges for water, solid waste and wastewater services?	N
Does PVE have service charges for electricity services?	N
Does PVE use development impact fees to mitigate effects of new development?	N
Does PVE incur debt through general obligation bonds?	N
Does PVE incur debt through special tax and revenue bonds?	N
Does PVE incur debt through private activity bonds?	N
Does PVE withhold spending in hazard-prone areas?	Y
Other—Grants?	Y <sup>2</sup>

Table 7-5: General Fund

PVE General Fund Financial Sources		
	ADOPTED	
FINANCIAL SOURCES	2016/17	
PROPERTY TAXES	\$7,648,833	59%
PROPERTY TAX IN-LIEU-FEE	1,317,554	10%
CONCESSIONS & INTEREST	1,333,100	10%
PLANNING & BUILDING FEES	994,000	8%
FRANCHISE FEES	561,135	4%
OTHER AGENCIES	274,920	2%
FINES	150,000	1%
BUSINESS LICENSE TAX	208,000	2%
REAL ESTATE TRANSFER TAX	200,000	2%
SALES TAX	192,000	1%
LICENSE & PERMITS	30,500	0%
SERVICE CHARGES	58,000	0%
<b>TOTAL FINANCIAL SOURCES</b>	<b>\$ 12,968,042</b>	<b>100%</b>

## SECTION 8: MITIGATION STRATEGY

### 8.1 MITIGATION GOALS AND OBJECTIVES

The requirements for local hazard mitigation goals, as stipulated in the DMA 2000 and its implementing regulations, are described below.

**DMA 2000 Requirements: Mitigation Strategy – Local Hazard Mitigation Goals**

Requirement §201.6(c) (3) (i): [The hazard mitigation strategy shall include a] description of mitigation goals to reduce or avoid long-term vulnerabilities to the identified hazards.

Source: FEMA, March 2013.

The Planning Team identified common goals and objectives. Using the 2004 Plan, the last FEMA Approved Plan, the Planning Team reviewed and revised the goals and objectives to reflect the current capabilities, exposure to hazards, and vulnerability assessment findings. A LHMP draft was submitted in 2015 but returned with deficiencies and city leadership decided for a new LHMP which would meet current FEMA and OES guidelines. As part of the Planning process, the Planning Team reviewed and validated these goals and objectives.

Given the City did not have a previous approved LHMP and no previous identification of mitigation hazards needed our action items for this plan are focused on assessing hazards and analyzing vulnerabilities. This step will allow the City to include in the next version of the LHMP mitigation-specific actions.

Table 8-1: Goals and Objectives

<b>Goal 1: Promote disaster-resiliency for future development to help the City become less vulnerable to hazards</b>
Objective 1.A Facilitate the development (or updating) of the City’s Comprehensive Plan, City General Plans, and zoning ordinances to limit (or ensure safe) development in hazard areas
Objective 1.B: Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster resistant design
Objective 1.C: Facilitate consistent implementation of Plans, zoning ordinances, and building and fire codes
<b>Goal 2: Promote disaster resiliency for existing assets (critical facilities/infrastructure and public facilities) and people to help them become less vulnerable to hazards</b>
Objective 2.A: Mitigate vulnerability structures and public infrastructure including facilities, roadways, and utilities
Objective 2.B: Mitigate vulnerability populations
Objective 2.C: Support a coordinated permitting processes and consistent enforcement
<b>Goal 3: Enhance hazard mitigation coordination and communication</b>
Objective 3.A: Address data limitations identified in Hazard Profiling and Risk Assessment



Objective 3.B: Increase awareness and knowledge of hazard mitigation principles and practice among local government officials
Objective 3.C: Provide technical assistance to implement private sector mitigation Plans
Objective 3.D: Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions
Objective 3.E: Monitor and publicize the effectiveness of mitigation actions implemented Citywide
Objective 3.F: Educate the professional community on design and construction techniques that will minimize damage from the identified hazards
Objective 3.G: Participate in initiatives that have mutual hazard mitigation benefits for the City.
Objective 3.H: Encourage other organizations, within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and Plans
Objective 3.I: Continue to identify, prioritize, and implement mitigation actions
Objective 3.J: Continuously improve the City's capability and efficiency at administering pre- and post-disaster mitigation programs.

## 8.2 MITIGATION ACTION/PROGRESS

The LPT reviewed the mitigation actions identified in the 2004 Plan to determine the status of each mitigation action. **Table 8.2** provides an overview and the status of each mitigation actions.

Table 8.2 Completed Mitigation Actions<sup>3</sup>

#	Description	Completion <sup>4</sup> Date	Comments <sup>5</sup>
1.	Establish a formal role for the City of Palos Verdes Estates Natural Hazards Mitigation Committee to develop a sustainable process for implementing, monitoring, and evaluating citywide mitigation activities.	Completed	Created an Advisory Committee composed of City departments to oversee and manage mitigation action items and future LHMP revisions. This committee meets annually. The committee recommended a thorough hazard review to include the hazards in the future LHMP. The committee conducts an annual report to the City manager to include a review of the budget and work plan.

#	Description	Completion Date <sup>4</sup>	Comments <sup>5</sup>
2.	Develop public partnerships to foster natural hazard mitigation program coordination and collaboration in the City of Palos Verdes Estates.	Ongoing	Peninsula Emergency Preparedness Taskforce meets bimonthly.
3.	Identify, improve, and sustain collaborative programs focusing on the real estate and insurance industries, public and private sector organizations, and individuals to avoid activity that increases risk to natural hazards	Completed	Annual meeting with real estate groups, home owners associations, and Palos Verde Homes Association to educate residents of mitigation steps and preparedness information. Presented information on creating continuity Plans
4.	Develop inventories of at-risk buildings and infrastructure and prioritize mitigation projects.	Ongoing	Annual site review of all concessions to address vulnerabilities. Annual review of all soft story buildings. Completed a seismic study of City Hall. Currently evaluating whether to complete a retrofit of soft story buildings.
5.	Strengthen emergency services preparedness and response by linking emergency services with natural hazard mitigation programs and enhancing public education.	Ongoing	Developed the Disaster District Program (DDP) to assist residents in mitigating potential natural hazards. Linking the mitigation Plan to the Emergency Operations Plan (EOP) remains a work in progress. The EOP is out-of-date and is currently being updated.
6.	Develop, enhance, and implement education programs aimed at mitigating natural hazards, and reducing the risk to citizens, public agencies, private property owners, businesses, and schools.	Ongoing	Developed various public outreach campaigns to include PVE's Get Ready and the Neighborhood Amateur Radio Team. The PVE CERT team collaborates with Palos Verde Peninsula CERT program to offer classes to City residents once a year. Created annual Preparedness Expo to help inform and prepared residents. Collaborates with schools, faith based organizations, and residents to provide FEMA webinar and online train information.
7.	Use technical knowledge of natural ecosystems and events to link natural resource management and land use organizations to mitigation activities and technical assistance.	Ongoing	City utilizes professional staff ( i.e. Urban Forrester and contractors) to address and monitor forestry, drainage, and landslide issues. Work with consultants to develop Plans to address potential problems.

### 8.3 PRIORITIZING MITIGATION ACTIONS

The Planning team used the STAPLE/E Criteria (Social, Technical, Administrative, Political,

Legal, Economic, and Environmental) to evaluate and prioritize the mitigation actions. Based on the evaluation score of each of STAPLE/E Criteria (Table 8-3), mitigation actions received a cumulative score. The cumulative score was then used to prioritize the mitigation actions. The following scale was used to evaluate each STAPLE/E Criteria:

0 = Poor (negative impacts)

1 = Fair (neutral or no impacts)

2 = Good (positive impacts)

3 = Excellent (very favorable impacts)

The intent of prioritizing mitigation actions is to help the City focus and concentrate their efforts; however, it should be noted that when and if specialized grants and/or funds are made available that could finance a mitigation action, the City may adjust the ranking to enable them to implement the mitigation action.

Table 8-3 STAPLE/E Criteria

Criteria	Overview
Social	<ul style="list-style-type: none"> <li>• Is the proposed action socially acceptable to the community?</li> <li>• Are there equity issues involved that would mean that one segment of the community is treated unfairly?</li> <li>• Will the action cause social disruption?</li> </ul>
Technical	<ul style="list-style-type: none"> <li>• Will the proposed action work?</li> <li>• Will it create more problems than it solves?</li> <li>• Does it solve a problem or only a symptom?</li> <li>• Is it the most useful action in light of other community goals?</li> </ul>
Administrative	<ul style="list-style-type: none"> <li>• Can the community implement the action?</li> <li>• Is there someone to coordinate and lead the effort?</li> <li>• Is there sufficient funding, staff, and technical support available?</li> <li>• Are there ongoing administrative requirements that need to be met?</li> </ul>
Political	<ul style="list-style-type: none"> <li>• Is the action politically acceptable?</li> <li>• Is there public support both to implement and to maintain the project?</li> </ul>
Legal	<ul style="list-style-type: none"> <li>• Is the community authorized to implement the proposed action? Is there a clear legal basis or precedent for this activity?</li> <li>• Are there legal side effects? Could the activity be construed as a taking?</li> <li>• Is the proposed action allowed by the general Plan, or must the general Plan be amended to allow the proposed action?</li> <li>• Will the community be liable for action or lack of action?</li> <li>• Will the activity be challenged?</li> </ul>
Economic	<ul style="list-style-type: none"> <li>• What are the costs and benefits of this action?</li> <li>• Do the benefits exceed the costs?</li> <li>• Are initial, maintenance, and administrative costs taken into account?</li> <li>• Has funding been secured for the proposed action? If not, what are the potential sources (public, non-profit, and private)?</li> <li>• How will this action affect the fiscal capability of the community?</li> <li>• What burden will this action place on the tax base or local economy?</li> <li>• What are the budget and revenue effects of this activity?</li> <li>• Does the action contribute to other community goals, such as capital improvements or economic development?</li> <li>• What benefits will the action provide?</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• How will the action affect the environment?</li> <li>• Will the action need environmental regulatory approvals?</li> <li>• Will it meet local and state regulatory requirements?</li> <li>• Are endangered or threatened species likely to be affected?</li> </ul>

## 8.4 MITIGATION ACTIONS

The requirements for identifying and analyzing mitigation actions, as stipulated in the DMA 2000 and its implementing regulations, are described below.

### **DMA 2000 Requirements: Mitigation Strategy – Identification and Analysis of Mitigation Actions**

Requirement §201.6(c) (3) (ii): [The hazard mitigation strategy shall include a] section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effect of each hazard, with particular emphasis on new and existing buildings and infrastructure. All Plans approved by FEMA after October 1, 2008 must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirement, as appropriate.

Source: FEMA, March 2013.

The following table (**Table 8.4**) presents the prioritized list of mitigation actions which will be considered and implemented during the life of the City Plan update.

Table 8.4 Prioritized and Recommended Mitigation Actions<sup>6</sup>

#	TITLE	PRIORITY SCORE							TOTAL
		S	T	A	P	L	E	E	
1.	Identify potential landslide vulnerabilities and consult with subject matter experts to implement mitigation activities	2	3	3	3	3	3	3	20
2.	Implement recent adoption of City's (SBCCOG) Climate Action Plan.	2	2	3	3	3	2	3	18
3.	Forester promotes the ready set go that focuses on urban interface	2	2	3	3	3	2	2	17
4.	Provide links on city's website to flood zone maps from FEMA and assist residents in identifying best practices in developing property outside of the flood zone.	2	2	2	3	2	2	2	17
5.	Link the EOP hazards to the LHMP hazard	2	2	3	3	2	2	3	17
6.	Integrate the LHMP into existing programs, ordinances, and building codes	2	2	2	3	2	3	2	16
7.	Perform a building audit to identify soft story structures and develop implementation Plan to retrofit for seismic activity.	3	2	2	3	2	2	2	16
8.	Encourage citizens to take water-saving measures, such as the following: <ul style="list-style-type: none"> <li>• Installing low-flow water-saving showerheads and toilets.</li> <li>• Turning water off while brushing teeth or during other cleaning activities.</li> <li>• Adjusting sprinklers to water the lawn and not the sidewalk or street.</li> <li>• Running the dishwasher and washing machine only when they are full.</li> <li>• Checking for leaks in plumbing or dripping faucets.</li> <li>• Installing rain-capturing devices for irrigation.</li> </ul>	2	2	2	3	2	2	3	16
9.	Continue to monitor. Study impacts of a sea level rise and on existing facilities.	3	2	2	3	2	2	2	16
10.	Study the impact on existing facilities including potential impacts to the beach club.	3	2	2	3	2	2	2	16

## 8.5 IMPLEMENTATION PLAN

The DMA 2000 requires the evaluation, selection, and prioritization of potential mitigation actions, as described below.

### DMA 2000 Requirements: Mitigation Strategy - Implementation of Mitigation Actions

Requirement: §201.6(c) (3) (iii): [The mitigation strategy section shall include] an action Plan describing how the actions identified in section (c) (3) (ii) will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost benefit review of the proposed projects and their associated costs.

Source: FEMA, March 2013.

Table 8.5 Implementation Plan

Implementation Plan		
1.	Action Title	Landslide Vulnerabilities
	Description	Identify potential landslide vulnerabilities and consult with subject matter experts to implement mitigation activities
	Objective	<u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials. <u>Objective 3.D:</u> Educate the public to increase awareness of hazards, potential impact, and opportunities for mitigation actions.
	Hazard	Landslide
	Timeline	2 years
	Cost	\$75,000 (Grant Funding)
	Department	Engineering
2.	Action Title	Earthquake
	Description	Perform a building audit to identify soft story structures and develop an implementation Plan to retrofit the buildings for seismic activity
	Objective	<u>Objective 2.A:</u> Mitigate vulnerable structures and public infrastructure including facilities, roadways, and utilities. <u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials. <u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City. <u>Objective 3.I:</u> Continue to identify, prioritize, and implement mitigation actions.
	Hazard	Earthquake
	Timeline	2 Years
	Cost	\$10,000 (Grant Funds/City Building Dept. Budget)
	Department	Building
3.	Action Title	Wildland Fire
	Description	The Los Angeles County Fire Department Forester promotes the Ready Set Go program that focuses on the wildland urban interface
	Objective	<u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials. <u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City.

Implementation Plan	
	Hazard Wildfire
	Timeline Annual
	Cost County Fire Operational Budget
	Department Administration
4.	<p>Action Title Multi-hazard</p> <p>Description Link the EOP hazards to the LHMP</p> <p>Objective <u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials. <u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City. <u>Objective 3.I:</u> Continue to identify, prioritize, and implement mitigation actions.</p> <p>Hazard Multi-hazard</p> <p>Timeline 2 years</p> <p>Cost \$50,000 (Grant Funding) Outsource the project to a consulting firm. There is no one in the qualified to link the EOP with the LHMP.</p> <p>Department Emergency Management</p>
5.	<p>Action Title Promote disaster-resiliency for future development to help the City become less vulnerable to hazards</p> <p>Description Integrate the LHMP into existing programs, ordinances, and building codes</p> <p>Objective <u>Objective 1.B:</u> Facilitate the incorporation and adoption of building codes and development regulations that encourage disaster-resistant design. <u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials.</p> <p>Hazard Multi-hazard</p> <p>Timeline 3 Years</p> <p>Cost City Building Dept. Budget</p> <p>Department Building</p>
6.	<p>Action Title Flooding</p> <p>Description Perform a building audit to identify residential, commercial and critical infra structures vulnerable to flooding.</p> <p>Objective <u>Objective 2.A:</u> Mitigate vulnerable structures and public infrastructure including facilities, roadways, and utilities. <u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials. <u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City. <u>Objective 3.I:</u> Continue to identify, prioritize, and implement mitigation actions.</p> <p>Hazard Flood</p> <p>Timeline 1 Years</p> <p>Cost \$10,000 (City Engineering Dept.)</p> <p>Department Engineering</p>
	<p>Action Title Drought</p> <p>Description Encourage citizens to take water-saving measures, such as the following:</p>



Implementation Plan		
7.		<ul style="list-style-type: none"> <li>• Installing low-flow water saving showerheads and toilets.</li> <li>• Turning water off while brushing teeth or during other cleaning activities.</li> <li>• Adjusting sprinklers to water the lawn and not the sidewalk or street.</li> <li>• Running the dishwasher and washing machine only when they are full.</li> <li>• Checking for leaks in plumbing or dripping faucets.</li> <li>• Installing rain-capturing devices for irrigation.</li> </ul>
	Objective	<p><u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials.</p> <p><u>Objective 3.D:</u> Educate the public to increase awareness of hazards, potential impacts, and opportunities for mitigation actions.</p> <p><u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City.</p> <p><u>Objective 3.H:</u> Encourage other organizations within the public, private, and non-profit sectors, to incorporate hazard mitigation activities into their existing programs and Plans.</p>
	Hazard	Drought
	Timeline	1 Years
	Cost	City Administration Dept. Budget
Department	Administration	
8.	Action Title	Sea Level Rise
	Description	Continue to monitor. Study future impacts of sea level rise and the impact on existing facilities.
	Objective	<p><u>Objective 3.A:</u> Address data limitations identified in Hazard Profiling and Risk Assessment.</p> <p><u>Objective 3.B:</u> Increase awareness and knowledge of hazard mitigation principles and practices among local government officials.</p> <p><u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City.</p>
	Hazard	Sea Level Rise
	Timeline	3 Years
	Cost	\$25,000 (Grant Funding) The project will need to be outsourced as the city does not have personnel qualified to conduct this project.
	Department	Engineering
9.	Action Title	Tsunami
	Description	Study the potential impacts of a tsunami on existing facilities. Identify potential impacts to the Beach Club.
	Objective	<p><u>Objective 3.A:</u> Address data limitations identified in Hazard Profiling and Risk Assessment.</p> <p><u>Objective 3.G:</u> Participate in initiatives that have mutual hazard mitigation benefits for the City.</p>
	Hazard	Tsunami
	Timeline	5 Years
	Cost	\$25,000 (Grant Funding) The project will need to be outsourced as the city does not have personnel qualified to conduct this project.
	Department	Engineering

## SECTION 9: PLAN MAINTENANCE

This section describes a formal Plan maintenance process to ensure that the LHMP remains an active and applicable document. It includes an explanation of how the City and the HMAC intend to organize their efforts to ensure that improvements and revisions to the LHMP occur in a well-managed, efficient, and coordinated manner.

The following three process steps are addressed in detail below:

Monitoring, evaluating, and updating the LHMP

Implementation through existing Planning mechanisms

Continued public involvement

### 9.1 MONITORING, EVALUATING, AND UPDATING THE LOCAL HAZARD MITIGATION PLAN

The requirements for monitoring, evaluating, and updating the LHMP, as stipulated in the DMA 2000 and its implementing regulations, are described below.

#### **DMA 2000 Requirements: Plan Maintenance Process - Monitoring, Evaluating, and Updating the Plan**

##### **Monitoring, Evaluating and Updating the Plan**

Requirement §201.6(c) (4) (i): [The Plan maintenance process **shall** include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation Plan within a five-year cycle.

Source: FEMA, October 2011

The 2017 LHMP was prepared as a collaborative effort between the HMAC and the Consultant. To maintain momentum and build upon previous hazard mitigation Planning efforts and successes, the City will use the HMAC to monitor, evaluate, and update the LHMP. In addition to the original members of the HMAC, other interested parties, and any other department representative, can be responsible for implementing the LHMP's action Plan. Marcelle Herrera the HMAC leader, will serve as the primary point of contact and will coordinate all local efforts to monitor, evaluate, and revise the LHMP.

The Chief of Police will appoint the Project Manager for the revision of this Plan. The Review Team will conduct an annual review of the progress in implementing the LHMP, particularly the action Plan. This review will provide the basis for possible changes in the action Plan by refocusing on new or more threatening hazards, adjusting to changes to, or increases in resource allocations, and engaging additional support for the LHMP implementation. The HMAC leader will initiate the review one month prior to the date of adoption and the findings will be presented annually to the City Council. The review will include an evaluation of the following:

Notable changes in the City's risk of natural hazards.

Impacts of land development activities and related programs on hazard mitigation.

Progress made with the LHMP action Plan (identify problems and suggest improvements as necessary).

The use of adequate resources for implementation of the LHMP.

Participation of City agencies and others in the LHMP implementation.

In addition to the annual review, the HMAc will update the LHMP every five years, as required by the DMA 2000. To ensure that this occurs, in the fourth year following adoption of the LHMP, the HMAc will undertake the following activities:

Thoroughly analyze and update the City's risk of natural hazards

Provide a new annual review (as noted above), plus a review of the three previous annual reports.

Provide a detailed review and revision of the mitigation strategy.

Prepare a new action Plan with prioritized actions, responsible parties, and resources.

Prepare a new draft LHMP and submit it to the Palos Verdes Estates City Council for adoption.

Submit an updated LHMP to the California OES and FEMA Region 9 for approval.

Barriers to updating the Plan are twofold: Fiscal and Personnel. The City of Palos Verdes Estates is committed to the mitigation of hazards and creating a disaster resilient community. Due to local fiscal conditions proposed, however, Mitigation Projects may not be fulfilled without grant funding. The City of Palos Verdes Estates is a very small city with a very small staff and limited fiscal resources. Some proposed Mitigation Projects could either be delayed or unable to be completed due to staffing and limited finances during the period of performance.

## **9.2 IMPLEMENTATION THROUGH EXISTING PLANNING MECHANISMS**

The requirements for implementation through existing Planning mechanisms, as stipulated in the DMA 2000 and its implementing regulations, are described below.

### **DMA 2000 Requirements: Plan Maintenance Process - Incorporation into Existing Planning Mechanisms**

#### **Incorporation into Existing Planning Mechanisms**

Requirement §201.6(c)(4)(ii): [The Plan **shall** include a] process by which local governments incorporate the requirements of the mitigation Plan into other Planning mechanisms such as comprehensive or capital improvement Plans, when appropriate.

Source: FEMA, October 2011

After the adoption of the LHMP, the HMAc will ensure that the LHMP, in particular the action Plan, is incorporated into existing Planning mechanisms. The HMAc will achieve this by undertaking the following activities:

Conduct a review of the regulatory tools to assess the integration of the mitigation strategy. These regulatory tools are identified in Section 7 and include:

General Plan

Palos Verdes Estates Municipal Code

Work with pertinent divisions and departments to increase awareness of the LHMP and provide assistance in integrating the mitigation strategy (including the action Plan) into relevant Planning mechanisms. Implementation of these requirements may require updating or amending specific Planning mechanisms.

### 9.3 CONTINUED PUBLIC INVOLVEMENT

The requirements for continued public involvement, as stipulated in the DMA 2000 and its implementing regulations, are described below.

**DMA 2000 Requirements: Plan Maintenance Process - Continued Public Involvement**

**Continued Public Involvement**

Requirement §201.6(c) (4) (iii): [The Plan maintenance process **shall** include a] discussion on how the community will continue public participation in the Plan maintenance process.

Source: FEMA, October 2013

The City is dedicated to involving the public directly in the continual reshaping and updating of the LHMP. Hard copies of the LHMP will be provided to each department. In addition, a downloadable copy of the Plan and any proposed changes will be posted on the City's website. This site will also contain an e-mail address and phone number to which people can direct their comments or concerns.

The HMAC will also identify opportunities to raise community awareness about the LHMP and the City's hazards. This could include attendance and provision of materials at City-sponsored events. Any public comments received regarding the LHMP will be collected by the HMAC leader, included in the annual report to the City Council, and be considered during future LHMP updates.

Using the previous LHMP as a basis, the City and Police Department have developed and presented a number of outreach programs specifically to address Mitigation, Preparation and Prevention programs. As examples, the following events were made available to the public:

- Peninsula Emergency Preparedness Expo
- Community Emergency Response Team
- Peninsula Emergency Preparedness Taskforce (PEPT)
- Disaster District Program (DDP)
- PVE-CARES Senior Program
- Emergency Backpack Program (ongoing)
- Weekly Resident Newsletter with emergency preparedness tips
- Weekly Resident Newsletter with Hazard Mitigation tips
- Energy and Environment Expo
- Citizens Academy

All these events are presented on an annual basis and are well attended.

Prior to adoption of updates, the City will provide multiple opportunities for the public to comment on the revisions. Palos Verdes Estates' citizens will be made aware of public meetings via the City's website, print media, and social media.

#### **9.4 POINT OF CONTACT**

Comments or suggestions regarding this Plan may be submitted at any time to Marcelle Herrera, Community Relations Officer, using the following information:

Marcelle Herrera  
City of Palos Verdes Estates  
340 Palos Verdes Drive West  
Palos Verdes Estates, CA 90274  
Email: mherrera@pvestates.org  
Phone: 310-378-4211

## SECTION 10: REFERENCES

During the Planning process, the Consultant and Planning Team reviewed and used all relevant information found in existing Plans, studies, graphs, and best practices found in other mitigation Plans to aid in the development of this LHMP. Below are the resources utilized in developing the Palos Verdes Estates Local Hazard Mitigation Plan:

- Palos Verdes Estates General Plan
- County of Los Angeles General Plan, (Draft 2013)
- County of Los Angeles All-Hazards Mitigation Plan, (Draft 2013)
- U.S. Census data
- FEMA “How To” Mitigation Series (386-1 to 386-9)
- National Oceanic and Atmospheric Administration Statistics
- National Weather Service Statistics and Historical Data
- City of Rancho Palos Verdes and City of Rolling Hills Estates Multi-Jurisdictional Hazard Mitigation Plan
- State of California Multi-Hazard Mitigation Plan
- Palos Verdes Estates Resident Handbook
- FEMA Local Hazards Mitigation Plan Review Guide
- 2015 City of Atascadero Hazard Mitigation Plan
- 2014 Los Angeles County Local Hazard Mitigation Plan: This Plan, prepared by the County, was used to ensure that the City’s LHMP was consistent with the County’s Plan.
- 2013 Santa Monica Hazard Mitigation Plan
- Manhattan Beach Local Hazard Mitigation Plan
- Sothern California Catastrophic Earthquake Response Plan
- Landslide Hazards, U.S. Geological Survey Fact Sheet 0071-00, Version 1.0, U.S. Department of the Interior - U.S. Geological Survey, <http://pubs.usgs.gov/fs/fs-0071-00/>
- Natural History of Fire & Flood Cycles. <http://www.coastal.ca.gov/fire/ucsbfire.html> California Coastal Commission
- Federal Emergency Management Agency. *Hazards Disaster Facts*: [http://www.fema.gov/hazards/df\\_3.shtml](http://www.fema.gov/hazards/df_3.shtml).
- National Flood Insurance Program. Web-site at: <http://www.floodsmart.gov/floodsmart/pages/whatflood.jsp>
- National Flood Insurance Program: Program Description. (August 1, 2002). Federal Emergency Management Agency and Federal Insurance and Mitigation Administration.
- Federal Emergency Management Agency. Hazards: Backgrounder: Tsunamis. Website at <http://www.fema.gov>
- National Tsunami Hazard Mitigation Program Center for Tsunami Inundation Mapping Efforts Background at: <http://www.pmel.noaa.gov/tsunami/time/background/index.shtml>
- National Fire Protection Association Standard 299: Protection of Life and Property from Wildfire, National Wildland/Urban Interface Fire Protection Program, (1991)
- WINDSTORMS: Protect Your Family and Property from the Hazards of Violent Windstorms
- <http://emd.wa.gov/5-prep/trng/pubed/Windstrm.pdf>
- <http://nimbo.wrh.noaa.gov/Sandiego/snawind.html>

## **APPENDICES**

Appendix A: City of Palos Verdes Estates Resolution

Appendix B: Planning Team Meetings Documentation

Appendix C: Public Meetings and Notifications Documentation

Appendix D: FEMA Review Tool

**APPENDIX A: PLAN ADOPTION RESOLUTION**

CITY OF PALOS VERDES ESTATES

CALIFORNIA

RESOLUTION NO. \_\_\_\_\_

A RESOLUTION OF THE CITY OF PALOS VERDES ESTATES ADOPTING THE

Local Hazard Mitigation Plan, **Date**

WHEREAS the City of Palos Verdes Estates recognizes the threat that natural hazards pose to people and property within City of Palos Verdes Estates; and

WHEREAS the City of Palos Verdes Estates has prepared a multi-hazard mitigation Plan, hereby known as Local Hazard Mitigation Plan, **Date** in accordance with the Disaster Mitigation Act of 2000; and

WHEREAS Local Hazard Mitigation Plan, **Date** identifies mitigation goals and actions to reduce or eliminate long-term risk to people and property in Palos Verdes Estates from the impacts of future hazards and disasters; and

WHEREAS adoption by the City of Palos Verdes Estates demonstrates their commitment to the hazard mitigation and achieving the goals outlined in the Local Hazard Mitigation Plan, **Date**.

NOW THEREFORE, BE IT RESOLVED BY THE CITY OF PALOS VERDES ESTATES, CALIFORNIA, THAT:

Section 1. In accordance with (local rule for adopting resolutions), the City of Palos Verdes Estates City Council adopts the Local Hazard Mitigation Plan, November 2017.

ADOPTED by a vote of \_\_\_\_ in favor and \_\_\_\_ against, and \_\_\_\_ abstaining, this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_.

By: \_\_\_\_\_  
(print name)

ATTEST:

By: \_\_\_\_\_  
(print name)

APPROVED AS TO FORM:

By: \_\_\_\_\_  
(print name)



## **APPENDIX B: PLANNING TEAM MEETINGS DOCUMENTATION**

The following documents detail the Planning process. The Planning process consisted of the following meetings:

Project Kick-off Meeting: July 7, 2016

Planning Meeting: July 28, 2016

Planning Meeting: October 9, 2016

The following is the documentation from our project kick off meeting on July 7, 2016.

## **AGENDA**

Thursday, July 7, 2016

9:00 AM to 10:00 AM

Palos Verdes Estates City Hall (Small Conference Room)

340 Palos Verdes Drive.

Palos Verdes Estates, CA 90274

### **Welcome & Admin**

- Introductions
- Administration
- Review Agenda

### **Meeting Purpose**

- Confirm project scope and final deliverables
- Review Draft Plan Outline
- Information Gathering
- Determine our Hazard Mitigation Team
- Begin plotting our outreach strategy

### **Review of Resources**

- Project History
- Local Hazard Mitigation Plan
- Other Resources Available

### **Project Management**

- Project Approach
- Final Deliverables
- Project Stakeholders
- Project Timeline
- Community Involvement
- Communications

### Action Items & Next Step

- Confirm next deliverables
- Confirm time, date, and location of next meeting.
- Request all relevant materials, plans, maps

## MEETING MINUTES

Thursday, July 7, 2016

9:00 AM to 10:00 AM

Palos Verdes Estates City Hall (Small Conference Room)

340 Palos Verdes Drive.

Palos Verdes Estates, CA 90274

*The first planning meeting is to be determined (TBD)*

Table 1: Action Items

#	Item	Due Date	Responsible
1.	Send Constant & Associates (C&A) a list of resources Palos Verdes Estates (PVE)	Completed	Marcelle Herrera
2.	Develop and distribute meeting minutes to the steering committee	Completed	Francisco Soto
3.	Send Francisco the list of members in the Peninsula Emergency Preparedness	Complete	Marcelle Herrera

#	Item	Due Date	Responsible
4.	Identify three community organizations/groups who can be a part of Local Hazard Mitigation Plan (LHMP)	Complete	Marcelle Herrera
5.	Send a list of past projects and LHMP experience to the steering committee	Friday, July 15, 2016	Francisco Soto
6.	Revise the current schedule and send it to Marcelle Herrera for review	Friday, July 15, 2016	Francisco Soto
7.	Send weekly updates to the steering committee	Friday, July 15, 2016	Ongoing
8.	Schedule Dave Mathe to attend a steering committee meeting	Friday, July 29, 2016	Francisco Soto
9.	Confirm that PVE will host the August 18, 2016 Area G meeting	Tuesday, July 19, 2016	Marcelle Herrera
10.	Invite Los Angeles County Public Works to the next planning meeting	Friday, July 22, 2016	Francisco Soto
11.	Identify/confirm possible dates that community groups convene for their	Friday, July 29, 2016	Francisco Soto
12.	Develop language to send to FEMA Region 9 that informs them that PVE is	Friday, July 29, 2016	Francisco Soto

## I. Welcome/Administration

### a. Introductions

- i. Meeting attendees provided their name, position and agency
- ii. Constant & Associates provided a brief introduction on the organization and past work experience in Los Angeles
- iii. Francisco Soto introduced himself as the project manager and point of contact for any questions

### b. Administration

### c. Materials provided

- i. Agenda
    - ii. Sign-in sheet
    - iii. LHMP Outline (Draft)
    - iv. LHMP Timeline (Draft)
  - d. Agenda
    - i. Francisco went over the areas of key discussion for the meeting

## **II. Meeting Purpose**

- a. Confirm project scope and final deliverables
- b. Review Draft Plan Outline
- c. Information Gathering
- d. Determine our Hazard Mitigation Team
- e. Begin plotting our outreach strategy

## **III. Review of Resources**

- a. Project History
  - i. The steering committee provided a brief history of the LHMP
  - ii. Public participation was incorporated at the later stages of development; FEMA requires the public to be involved throughout the development process
- b. Other Resources Available
  - i. Throughout the development of the plan, we will reference LA County LHMP, State and Federal guidelines on hazard mitigation planning and review documents from similar jurisdictions and incorporate best practices and useful elements
  - ii. We will also utilize the current and past versions of the PVE LHMP in the plan revisions

## **IV. Project Management**

- a. Project Approach

- i. We will hold meetings with the steering committee and planning team to show progress and receive approval on the documents as they are being developed
  - ii. We will also work one on one with key stakeholders in the city as C&A is introduced
  - iii. The LHMP will be developed in tandem, with Dave Mathe taking the lead on revisions and supported by Francisco Soto
- b. Review Process
  - a. The steering committee would like to receive all materials in Word format so that comments and edits can be incorporated directly to the file
  - b. Everyone on the steering committee will be involved in the review process
  - c. The steering committee will get 10 business days to review any materials provided. After 10 business days, it will be assumed that the documents are approved
- c. Final Deliverables
  - i. The Planning Commission and the City Council will review the final LHMP before submission to California Office of Emergency Services.
  - ii. The Planning Commission will require one week to review the LHMP
- d. Project Stakeholders
  - i. Additional project stakeholders will include:
    - i. Jeff Robinson – Disaster Management Area Coordinator G
    - ii. PVE Community Emergency Response Team (CERT)
    - iii. PVE Geographic Information Systems
    - iv. City of Rolling Hills Estates
    - v. City of Rancho Palos Verdes

e. Project Timeline

- i. The schedule will be revised and distributed to the steering committee for review

f. Community Involvement

- i. A minimum of 3 public meetings will be conducted throughout the development of the plan
- ii. Public meeting will be supplemented with postings on social media and the city webpage. All materials (sign-in sheets, agendas, public input, and screenshots) must be submitted with the plan for approval

g. Communications

- i. Communications between the PVE steering committee and C&A will be primarily through email and phone calls
- ii. The steering committee will have access to Teamwork where they will be able to view task, due dates, and materials
- iii. We will be developing and disseminating meeting minutes within 5 business days of a meeting
- iv. Weekly project updates will be sent to the steering committee

Table 2: Meeting Participants

#	Name	Agency/ Organization	Email	Telephone
1.	Herrera, Marcelle	Palos Verdes Estates Police Department	mmherrera@pvestates.org	310-378-2121
2.	Mackay, Scott	Constant & Associates	scott@constantassociates.com	424-320-2587
1.	Repp-Loadsman, Sheri	Palos Verdes Estates Planning & Building	srepp@pvestates.org	310-378-0383
2.	Rukavina, Ken	Palos Verdes Estates Public Works	krukavina@pvestates.org	310-378-0383

3.	Soto, Francisco	Constant & Associates	francisco@constantassociates.com	424-320-2696
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City of Palos Verdes Estates  
**LHMP Revisions**  
 Project Kick-off Meeting

**LHMP Revisions**  
**Project Kick-off Meeting**

**SIGN-IN SHEET**

Thursday, July 7, 2016  
 9:00 AM - 10:00 AM  
 Palos Verdes Estates City Hall (Small Conference Room)  
 340 Palos Verdes Dr.  
 Palos Verdes Estates, CA 90274

\*\*Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.\*\*

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Marcelle McCullough	Police Department	mmccullough@pvestates.org	310-378-2121	
2.	Ken Rukavina	Public Works	krukavina@pvestates.org	310-378-0383	
3.	Scott Mackay	Constant & Associates	scott@constantassociates.com	424-320-2587	
4.	Francisco Soto	Constant & Associates	francisco@constantassociates.com	424-320-2696	
5.	Shirley Papp Kadoshman	Palos Verdes Estates	shirley.papp@pvestates.org	310-378-0383	
6.					



The following is the documentation from our meeting on August 8, 2016.

## **AGENDA**

Monday, August 8, 2016

10:00 AM to 12:00 PM

Conference Call

Phone: 267-930-4000

Pin: 811-180-369

### **I. Welcome/Administration**

- a. Roll Call
- b. Material Confirmation
  - i. DMA 2000 Fact Sheet
  - ii. LHMP Crosswalk
  - iii. Plan Development Schedule
  - iv. Hazard Identification Worksheet
  - v. LHMP Document Format

### **II. Meeting Purpose**

- a. Review Pre-Disaster Mitigation Planning
- b. Review the Disaster Mitigation Act of 2000 (DMA 2000)
- c. Review the plan development schedule
- d. Conduct a hazard identification exercise

### **III. Pre-Disaster Mitigation Planning**

- a. Pre-Disaster Mitigation Planning
- b. Disaster Mitigation Act of 2000 (DMA 2000)

### **IV. Plan Development Schedule**

### **V. Hazard Identification Exercise**

## VI. Adjourn

## MEETING MINUTES

Monday, August 8, 2016

9:00 AM to 10:00 AM

Conference Call

Phone: 267-930-4000

Pin: 811-180-369

*The second planning meeting is to be determined (TBD)*

Table 1: Action Items

#	Item	Due Date	Responsible Party
1.	Develop and distribute meeting minutes	Completed	Francisco Soto
2.	Identify a date for the next Planning Team meeting in September	Monday, August 15, 2016	Francisco Soto
3.	Provide feedback on the Plan Outline and Plan Development Schedule	Tuesday, August 16, 2016	Planning Team
4.	Submit Sections 1, 2, 3, 9, and 10 to the Planning Team	Wednesday, August 31, 2016	Francisco Soto



## **I. Welcome/Administration**

- a. Roll Call
  - i. Francisco Soto welcomed the group to the first Planning Meeting. He additionally reviewed the meeting agenda and the materials that were provided.
- b. Materials provided Included:
  - i. Agenda
  - ii. LHMP Outline
  - iii. Plan Development Schedule
  - iv. Disaster Mitigation Act of 2000 (DMA 2000) Fact Sheet
  - v. Hazard Identification Worksheet
  - vi. LHMP Review Tool

## **II. Meeting Purpose**

- a. The purpose of the first Planning Meeting was to:
  - i. Review Pre-Disaster Mitigation Planning
  - ii. Review the DMA 2000 fact sheet
  - iii. Review the plan development schedule
  - iv. Conduct a hazard identification exercise

## **III. Pre-Disaster Mitigation Planning**

- a. Pre-Disaster Mitigation Planning
  - i. Dave Mathe provided the group with an overview on the importance of pre-disaster mitigation planning.
- b. Disaster Mitigation Act of 2000
  - i. The group was asked to refer to the DMA 2000 fact sheet document. Dave Mathe reviewed and highlighted key points in the document, and asked if the group had any questions.

#### **IV. Plan Development Schedule**

- a. The group was asked to refer to the Plan Development Schedule. Dave Mathe walked the group through the document and asked if the timeline was feasible. The Planning Team decided that the schedule was reasonable and had a minor correction to one of the dates.
- b. The group was asked to review the Local Hazard Mitigation Plan Outline. Dave Mathe asked the group to review the outline and provide any feedback. The group decided that the plan outline highlighted pertinent sections of a Local Hazard Mitigation Plan.

#### **V. Hazard Identification Exercise**

- a. The group was asked to refer to the Community Hazard Identification document. Dave Mathe reviewed the document with the Planning Team by going through each hazard and asking the team which hazard has the potential to impact their city.
- b. The Planning Team Identified the following hazards that have the potential to cause damage to the City of Palos Verdes Estates:
  - i. Dam Failure – The Planning Team identified one reservoir that has the potential to damage property if it was breached.
  - ii. Drought
  - iii. Earthquake
  - iv. Erosion
  - v. Expansive Soils
  - vi. Flood
  - vii. Hail
  - viii. Hurricane
  - ix. Landslide
  - x. Sea Level Rise

- xi. Severe storm
- xii. Storm Surge
- xiii. Subsidence
- xiv. Tsunami
- xv. Wildfire

**VI. Other**

- a. The Planning Team Identified the following hazards that have the potential to cause damage to the City of Palos Verdes Estates:

**VII. Adjourn**



Table 2: Meeting Participants

#	Name	Agency/ Organization	Email	Telephone
1.	Herrera, Marcelle	Palos Verdes Estates Police Department	mherrera@pvestates.org	310-378-2121
2.	Mathe, Dave	Constant & Associates	davidlmathe@gmail.com	805-929-5805
3.	Rukavina, Ken	Palos Verdes Estates Public Works	krukavina@pvestates.org	310-378-0383
4.	Soto, Francisco	Constant & Associates	francisco@constantassociates.com	424-320-2696

The following is the documentation from our meeting on September 27, 2016.

## **AGENDA**

Tuesday, September 27, 2016

3:00 PM to 4:15 PM

340 Palos Verdes Drive West.

Palos Verdes Estates, CA 90274

Phone: 267-930-4000

Pin: 811-180-369

### **I. Welcome/Administration**

- a. Introductions
- b. Material Confirmation

### **II. Meeting Purpose**

- a. Plan Status
- b. Hazard Impact Identification
- c. Planning Process Worksheet

### **III. Plan Status**

### **IV. Hazard Impacts**

### **V. Planning Process Worksheet**

### **VI. Next Steps**

### **VII. Adjourn**



## MEETING MINUTES

Tuesday, September 27, 2016

4:00 PM to 5:00 PM

340 Palos Verdes Drive West.

Palos Verdes Estates, CA 90274

Phone: 267-930-4000

Pin: 811-180-369

*The third planning meeting is to be determined (TBD)*

Table 1: Action Items

#	Item	Due Date	Responsible Party
1.	Develop and distribute meeting minutes	Completed	Francisco Soto
2.	Determine whether the three reservoirs have been retrofitted to	Tuesday, October 11, 2016	Ken Rukavina
3.	What was the monetary damage for the 1994 earthquake?	Tuesday, October 11, 2016	Sheri Repp-Loadsmen
4.	Where has flooding occurred? What was the extent of monetary damage? Were the past flood insurance claims	Tuesday, October 11, 2016	Ken Rukavina
5.	What areas of the City have experienced land subsidence? What	Tuesday, October 11, 2016	Ken Rukavina
6.	What was the monetary damage for the January 31, 2016 windstorm?	Tuesday, October 11, 2016	Sheri Repp-Loadsmen
7.	What parts of the City does erosion occur? Has there been any monetary	Tuesday, October 11, 2016	Ken Rukavina
8.	What areas of the City have experienced landslides? What year?	Tuesday, October 11, 2016	Sheri Repp-Loadsmen
9.	What is the ISO rating for the City or LA County?	Tuesday, October 11, 2016	Laura Walters

#	Item	Due Date	Responsible Party
10.	Identify a date for the next Planning Team meeting in November	Tuesday, October 25, 2016	Francisco Soto

### **I. Welcome/Administration**

- a. Roll Call
  - i. Francisco Soto welcomed the group to the second Planning Meeting. He additionally reviewed the meeting agenda and the materials that were provided.
- b. Materials provided Included:
  - i. Agenda
  - ii. Sign in Sheet

### **II. Meeting Purpose**

- a. The purpose of the second Planning Meeting was to:
  - i. Review Pre-Disaster Mitigation Planning
  - ii. Provide a status on plan development
  - iii. Conduct a hazard identification exercise
  - iv. Additional information gathering

### **III. Project Status**

- a. Francisco Soto gave an overview of the milestones that had been completed since the inception of the project, to include:
  - i. Project Kick off meeting - July 7, 2017
  - ii. Planning Team meeting - August 8, 2016
  - iii. Area G Meeting - August 18, 2016

#### **IV. Hazard Identification**

- a. Francisco Soto and Dave Mathe conducted a Hazard Identification Exercise with the group in order to identify hazards that can potentially impact the City. The Planning Team identified the following hazards:
  - i. 3 Water Reservoirs
  - ii. Drought
  - iii. Earthquake – Last occurrence was 1994, the City suffered a gas line rupture on Via Del Monte
  - iv. Expansive Soils/Land Subsidence
  - v. Flooding – Occurs on low line streets, but there are no flood zones in the City. In the past, the City has filed insurance claims because of floods
  - vi. Landslides
  - vii. Sea Level Rise
  - viii. Severe Storm
  - ix. Tsunami – The majority of the City is located 100-150 feet above sea level. The Beach Club would be the only structure that would be impacted as a result of a tsunami.
  - x. Climate Change
  - xi. Wildfire – Small fires occur often, LA County Fire does a great job of putting them out before they increase in size
  - xii. Erosion – Occurring in some areas
  - xiii. Wind Storms – Last occurred in January 31, 2016.

#### **V. Planning Process Worksheets**

- i. Dave Mathe walked the group through the Capability Assessment Worksheets in order to obtain information that will be included in the updated LHMP. The information included:
  1. Planning and Regulatory

2. Administrative and Technical
3. Financial
4. Education and Outreach
5. Safe Growth Audit
  - a. Comprehensive Plan
  - b. Transportation
  - c. Environmental Management
  - d. Public Safety
  - e. Zoning Ordinance
  - f. Subdivision Regulations
  - g. Capital Improvement

**VI. Adjourn**

Table 2: Meeting Participants

#	Name	Agency/ Organization	Email	Telephone
1.	Banales, Karina	Palos Verdes Estates	kbanales@pvestates.org	310-378-0383
2.	Bethel, Bob	Palos Verdes Estates DDP	robert.bethel.cox.net	310-378-8781
3.	Dawson, Cheryl	Palos Verdes Estates PUSD	cheryldawson@cox.net	310-377-8716
4.	Downs, John	Palos Verdes Estates	jdowns@pvestates.org	310-617-6921
5.	Herrera, Marcelle	Palos Verdes Estates Police Department	mherrera@pvestates.org	310-378-2121
6.	Kepler, Jeff	Palos Verdes Estates Police Department	jkepler@pvestates.org	310-378-4211
7.	Kroneberger, Vickie	Palos Verdes Estates City Clerk	vkronberger@pvestates.com	310-525-6396
8.	Mathe, Dave	Constant & Associates	davidlmathe@gmail.com	805-929-5805
9.	Marchese, Sandy	Palos Verdes Estates Community Relations	smarchese@pvestates.org	310-729-8688
10	Meigs, Reggie	Palos Verdes Estates	rmeigs.hrgreens@pvestates.org	925-323-4517
11	Anton Dahlerbruch	Palos Verdes Estates City manager	adahlerbruch@pvestates.org	310-378-0383
12	Repp-Loadsmen, Sheri	Palos Verdes Estates Planning & Building	srepp@pvestates.org	310-378-0383
13	Rukavina, Ken	Palos Verdes Estates Public Works	krukavina@pvestates.org	310-378-0383
14.	Soto, Francisco	Constant & Associates	francisco@constantassociates.com	424-320-2696



15	Tepus, Pete	Palos Verdes Estates	Ptepus@pvestates.org	310-350-3142
16	Walters, Laura	Los Angeles County Fire Department	lwalters@fir.lacounty.gov	310-217-7074
17	Wu, Jacqueline	Palos Verdes Estates	jwu@pvestates.org	310-378-0383



# Local Hazards Mitigation Plan Revisions

## Kick - Off Meeting

### SIGN-IN SHEET

Tuesday, September 27, 2016  
 3:00 PM to 4:15 PM  
 340 Palos Verdes Drive West  
 Palos Verdes Estates, CA 90274  
 Phone: 267-930-4000  
 Pin: 811-180-369

\*\*Please review the contact information provided, complete blank fields and make corrections as needed. Thank you.\*\*

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Herrera, Marcelle	Palos Verdes Estates Police Department	mherrera@pvestates.org	310-378-2454 <i>424 424 x 2121</i>	<i>McKernan</i>
2.	Matthe, David	Constant & Associates	Davidmatthe@gmail.com	424-320-2580	<i>DMATTHE</i>
3.	Repp-Loadsmann, Sheri	Palos Verdes Estates Planning & Building	srepp@pvestates.org	310-378-0383	
4.	Rukavina, Ken	Palos Verdes Estates Public Works	krukavina@pvestates.org	310-378-0383	<i>WRUKAVINA</i>
5.	Soto, Francisco	Constant & Associates	francisco@constantassociates.com	424-320-2696	
6.	<i>Robinson, JIM</i>	<i>ANON-R</i>	<i>JRobinson@Avery-McCoy.org</i>	<i>310-316-0055</i>	<i>Jeffrey Robinson</i>

*1* ~~Robinson, Jim~~  
*CHRISTOPHER DIAZ*  
*STANLEY RIVERA*  
*310-342-1111*  
  
 Constant & Associates, Inc

City of Palos Verdes Estates  
 Local Hazards Mitigation Plan Revisions  
 Sign-In Sheet



#	Name	Agency/ Organization	Email	Telephone	Signature
7.	Cheryl Dawson	PVPSID	cheryl@dawsonco.net		
8.	Pete V. Tepos	City of PVE	ptepos@pvestates.org	310-350-3142 cell #	Pete V. Tepos
9.	Bb Bethel	DDP, PVE	robert.bethel@cr.net	310-378-8781	Bb Bethel
10.	Jacqueline Wu	PVE	jacqueline@pvestates.org	210-378-0383	JW
11.	Mark Koenberger	PVE	mark@pvestates.org	310-558-0516	Mark Koenberger
12.	Ann [unclear]	PVE		310-378-0583	Ann [unclear]
13.	Sandy Manclear	PVE	SMANCL@PVESTATES.ORG	310-729-8688	Sandy Manclear
14.	ZARINA GAMMERS	PVE	z.gam@pvestates.org	310-378-7883	ZARINA GAMMERS
15.	John Dawson	PVE	jdawson@pvestates.org	310-617-6921	John Dawson
16.	Shirley [unclear]	PVE	shirley@pvestates.org	310-378-0383	Shirley [unclear]
17.	Beagle Meigs	Contract	em@meigsinc.com	925-339-4177	Beagle Meigs

WALTERS, AURIA  
 LA County Fire

LA County Fire, 30-217  
 Walters, AURIA  
 lacounty.gov 7074



We attended the Office of Disaster Management Area G monthly meeting to discuss the LHMP process for the City of Palos Verdes Estates and solicit support and information from the community of emergency managers.



Jeffrey R Robinson  
CEM\*

El Segundo  
Gardena  
Hawthorne  
Hermosa Beach  
Inglewood  
Lawndale  
Lomita  
Manhattan Beach  
Palos Verdes Estates  
Rancho Palos Verdes  
Redondo Beach  
Rolling Hills  
Rolling Hills Estates  
Torrance

## Office of Disaster Management Area G

Los Angeles County Area "G"  
South Bay Emergency Coordinators  
Monthly Meeting

Date: August 18, 2016

Time: 2:00 P.M.

Place: Palos Verdes Golf Club, 3301 Via Campesina, Palos Verdes Estates, CA

1. Call to Order
2. Self-Introductions
3. Discussion about PVE LHMP process-Francisco Soto, Constant & Assoc.
4. CWIRS Radios- New Portable Base and Handhelds
5. Operational Area Communications Exercise
6. New Planning Software-coming soon
7. Centinela Hospital Drill- handout
8. THIRA
9. Area G Coordinators Report:
10. ESC Roundtable
11. Old Business:
12. New Business:
13. Date of Next Meeting: September 15, 2016      LOCATION: TBD
14. Next Meeting Topic Suggestions:
15. Adjournment

E-Mail: [jrobinson@areag-lacc.org](mailto:jrobinson@areag-lacc.org) • Phone: 310-316-0055 • Cell: 310-625-7995 •  
3868 Carson Street, #106, Torrance, California 90503

**Area G Emergency Services Sign-In sheet**

August 18, 2016      Location: Palos Verdes Golf Club, 3301 Via Campesina, Palos Verdes Estates, CA

	Name	Agency	Phone	Email
1		El Segundo		
2	WUE D JORDO	Gardena	(310) 722-9677	WJORDO@GARDENA.PA.RG.CA
3	Dennis Hernandez	Hawthorne	310 549-2960	dhernandez@hawthorne.org
4		Hermosa Beach		
5	CLAUDIO TANIGUCHI	Inglewood	(310) 412-5287	
6	Jaime Gueneiro	Lawndale	(714) 973-3285	
7	Laura Vander Neust	Lomita	310) 325-7110	L.Vanderneust@lomitacity.com
8		Manhattan Beach		
9	MARLENE HERRERA	Palos Verdes Estates	910 378 4311	MARLENE@PRESTIGE
10	TRAVY BONATO	Rancho Palos Verdes	310-544-5109	TRAVYB@PVA.GOV
11	(Sgt) Joe	Redondo Beach	310) 368 0663 ext 41842	issac.yang@redondo.org
12		Rolling Hills		
13		Rolling Hills Estates		
14		Torrance		
15	Scott MacKay	Constant And Associates	424-320-2587	
16	Francisco Soto	Constant & Associates	424 320 2696	
17	JEFF Robinson	Alex G Davis	310-316-7055	Jeff@alexg-davis.com

## APPENDIX C: PUBLIC MEETINGS AND NOTIFICATIONS DOCUMENTATION

The following are examples of Public Meeting Notifications

### Email sent to active community members

Wednesday, April 12, 2017 at 1:12:07 PM Pacific Daylight Time

**Subject:** PVE Local Hazard Mitigation Plan -  
**Date:** Friday, March 31, 2017 at 5:00:03 PM Pacific Daylight Time  
**From:** Marcelle Herrera <mherrera@pvestates.org>  
**To:** Henry & Carolyn Bazak (cabwestie@cox.net) <cabwestie@cox.net>, Constance Sullivan (csully2@gmail.com) <csully2@gmail.com>, Deborah Fehn (deborahfehn@aol.com) <deborahfehn@aol.com>, Emily Garley (B.Lgarley@cox.net) <B.Lgarley@cox.net>, Frank Campion (fcampion001@gmail.com) <fcampion001@gmail.com>, GiGi Griffin (salespro@verizon.net) <salespro@verizon.net>, Jacquie Campion (JacquieCampion@gmail.com) <JacquieCampion@gmail.com>, Jamie Shaw (jamieshaw@gmail.com) <jamieshaw@gmail.com>, 'joalyce chiles' <havasujo@gmail.com>, Joyce Martinsen (pvsistie@verizon.net) <pvsistie@verizon.net>, Kathryn Ettlinger (kathrynhill5328@gmail.com) <kathrynhill5328@gmail.com>, Lenore McCormack (lenofpv@hotmail.com) <lenofpv@hotmail.com>, Harold & Linda Koletsky (lyndakol@aol.com) <lyndakol@aol.com>, Lynn Fernandez (Lynn.Fernandez2003@cox.net) <Lynn.Fernandez2003@cox.net>, Philip & Lynn Solomita (lpsolohr@verizon.net) <lpsolohr@verizon.net>, Marcelle Herrera <mherrera@pvestates.org>, lomagreen@cox.net <lomagreen@cox.net>, Werner (rmwerner310@msn.com) <rmwerner310@msn.com>, Mary Curtin (Maryluv39@aol.com) <Maryluv39@aol.com>, David & Marybeth Muir (muirmorgan@aol.com) <muirmorgan@aol.com>, Maureen & Charles Banasky (chomo2@cox.net) <chomo2@cox.net>, nancyway@verizon.net <nancyway@verizon.net>, Norma Burns (kinvaracastle@hotmail.com) <kinvaracastle@hotmail.com>, Gilroy, Olga (olgagilroy@yahoo.com) <olgagilroy@yahoo.com>, Olive O'Brien (olive4canada@gmail.com) <olive4canada@gmail.com>, plk.pve@gmail.com <plk.pve@gmail.com>, Ruth Gralow (rgralow@aol.com) <rgralow@aol.com>, Sheryl Hammond (Sherhamm@cox.net) <Sherhamm@cox.net>, Valerie Gorsuch (vgor@aol.com) <vgor@aol.com>, Anne Celestin <anne@prosourceadvisors.com>, Cheryl Kohr <cheryl\_kohr@mac.com>, David, Merlin (merlindavid@cox.net) <merlindavid@cox.net>, Desiree <dezmys@gmail.com>, Larry & Julie Coleman Manth (larrymanth@gmail.com) <larrymanth@gmail.com>, O'Leary & Karen Logan (kklogan1@mac.com) <kklogan1@mac.com>, Schneider, Tereasa Max (tmaxs@cox.net) <tmaxs@cox.net>, Sears Ron <tennisron@cox.net>, Steve and Virginia Burns (svburns@cox.net) <svburns@cox.net>, windsockbassets@cox.net <windsockbassets@cox.net>, (holmes1149@cox.net) <holmes1149@cox.net>, Bazak, Henry & Carolyn (hbazak@cox.net) <hbazak@cox.net>, Bob Bethel (robert.bethel@cox.net) <robert.bethel@cox.net>, Bob Sylvest (rsylvest@mac.com) <rsylvest@mac.com>, Bruce Brusavich (brusavich@agnwbrusavich.com) <brusavich@agnwbrusavich.com>, Jeff Kepley <jkepley@pvestates.org>, clarkjo@cox.net <clarkjo@cox.net>, Clay Davis (claydav@pacbell.net) <claydav@pacbell.net>, Dave Lindstedt (david.lindstedt@wellsfargoadvisors.com) <david.lindstedt@wellsfargoadvisors.com>, Dwight Abbott <dwrightabb@cox.net>, Heidi Furer <heidi412@cox.net>, Jim Goodhart (jfgoodhart@gmail.com) <jfgoodhart@gmail.com>, John . Douglass <jd@traceww.com>, John Schuricht (john@pvec.com) <john@pvec.com>, Marcelle Herrera <mherrera@pvestates.org>, Neil Stolz <NPStolz@cox.net>, pointe705vs@yahoo.com <pointe705vs@yahoo.com>, ram@traceww.com <ram@traceww.com>, Richard Chaussee <RandJChaussee@verizon.net>, rrup@verizon.net <rrup@verizon.net>, RxDrUSC71@aol.com <RxDrUSC71@aol.com>, Sandy

Page 1 of 3

Durko (trojan16@earthlink.net) <trojan16@earthlink.net>, sfriedrich@cox.net  
<sfriedrich@cox.net>, Steve Delcarson <SteveDelcarson@gmail.com>

**Attachments:** image002.jpg, PVE\_LHMP\_Draft\_3.30.17.pdf

As an active community member through our Disaster District Program, Neighborhood Amateur Radio Team, PVE-CARES Volunteers and/or Neighborhood Watch I would like to ask for your assistance.

The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.

#### **Public and Stakeholder Input**

The HMP planning process requires input from stakeholders and the public. Generally, project stakeholders include neighboring jurisdictions and their agencies and departments that might interface with City during a disaster response. The public is represented by community members and community organizations that have an interest in City projects and actions to mitigate hazards and save lives and property.

The City of Palos Verdes Estates will continue to update the LHMP website throughout the planning process. Documents will be made available on this webpage. The City will post updates on social media when documents are available for review.

The City of Palos Verdes Estates welcomes the public to review and comment on the LHMP documents attached. For questions or comments contact the City of Palos Verdes Estates Emergency Services Coordinator, Marcelle Herrera at [mherrera@pvestates.org](mailto:mherrera@pvestates.org) or 310-378-4211. You may also contact Director of Public Works/City Engineer, Ken Rukavina at [krukavina@pvestates.org](mailto:krukavina@pvestates.org) or at 310-378-0383. Or you may choose to [join us at our open meeting on Monday, April 17<sup>th</sup> at 4pm and again at 6pm.](#)

#### **What is Hazard Mitigation?**

The Federal Emergency Management Agency (FEMA) describes hazard mitigation as “any action taken to reduce or eliminate the long-term risk to human life and property from natural hazards.” Although the requirement set by 44 Code of Federal Regulations (CFR), Subpart M Section 206.401 requires a planning area to describe only natural hazards that may affect the jurisdiction, most planning areas include technological and human-caused hazards in the HMP to represent the total risk from hazards to the planning area. In addition, the State of California, enacted as SB 379, requires all local planning areas to assess vulnerabilities associated with climate change.

Hazards can result in death and destruction of property and infrastructure. The work done to minimize the impact of hazard events to life and property is called hazard mitigation. Often, these damaging events occur in the same locations over time (i.e. earthquakes along fault lines), and cause repeated damage. Because of this, hazard mitigation is often focused on reducing repetitive loss, thereby breaking the disaster cycle. The essential steps of hazard mitigation are:

- Identify and profile hazards that affect the local area
- Analyze the people and facilities at risk from those hazards

- Develop mitigation actions to lessen or reduce the impact of the profiled hazards

**What are the Requirements and Process for the City of Palos Verdes Estates Hazard Mitigation Plan?**

The requirements for an HMP are described in 44 CFR Parts 201 and 206. FEMA has produced a Local Mitigation Plan Review Tool to demonstrate how the mitigation plan meets the regulation in 44 CFR § 201.6. The plan review tool has a regulation checklist that provides a summary of FEMA's evaluation of whether the plan has addressed all requirements. Planners can also use the checklist prior to submitting the plan for approval to ensure they have addressed all the requirements.

The primary tasks that will take place during the planning process include:

1. Capability analysis
2. Vulnerability assessment
3. Hazard identification
4. Defining a hazard mitigation strategy through actions and projects
5. Implementing the hazard mitigation actions and projects

*Marcelle Herrera*

Community Relations Officer/Emergency Services Coordinator  
**Palos Verdes Estates Police Department**  
340 Palos Verdes Drive West  
Palos Verdes Estates, CA 90274  
PH: 310-378-4211 ext 2121  
FX: 310-375-5076  
Hours: Monday-Thursday 7:30 AM - 5:30 PM  
[www.pvestates.org](http://www.pvestates.org)



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# Placement on the City website

The screenshot shows the homepage of the City of Palos Verdes Estates website. At the top, there is a navigation bar with links for 'Rumor Control Page', 'Contact Us', 'Accessibility', 'Font', and 'Translate'. Social media icons for Facebook, Twitter, and YouTube are also present. The main header features the city logo and the name 'CITY OF Palos Verdes Estates' in a stylized font, with navigation links for 'COMMUNITY', 'SERVICES', 'GOVERNMENT', and 'HOW DO I...'. Below the header is a large banner image of a fountain in a park. The banner text reads: 'Welcome to Palos Verdes Estates, California' and 'One of the country's earliest master-planned communities'. A horizontal menu below the banner includes icons and labels for 'PUBLIC SAFETY', 'MEETINGS & AGENDAS', 'CITY PROJECTS', 'OPEN GOVERNMENT', 'SIGN ME UP', and 'REPORT A CONCERN'. The main content area is divided into three columns: 'Upcoming Events', 'In the Spotlight', and 'Latest News'. The 'Upcoming Events' column lists four events with dates in April: 'Parklands Committee Meeting' (APR 13, 7:30 PM), 'Open Meeting for Public Comment: Local Hazard Mitigation Plan' (APR 17, 4:00 PM - 6:00 PM), another 'Open Meeting for Public Comment: Local Hazard Mitigation Plan' (APR 17, 6:00 PM - 8:00 PM), and 'PVPUSD District Facilities Master Plan Community Input Meeting' (APR 19). A 'CALENDAR >' button is at the bottom of this column. The 'In the Spotlight' column features a large question mark icon and a section titled 'Launch of Rumor Control Page' with a paragraph explaining the page's purpose and a note to click the question mark image to access it. The 'Latest News' column lists three news items: 'PVEPD Public Information Bulletin: Vehicle Burglary', 'April 9-15 is National Public Safety Telecommunications Week' (with a circular icon), and 'PVEPD Public Information Bulletin: Theft'. Below this is 'Notice of Public Meetings regarding Local Hazard Mitigation Plan' and 'Notice of Weed Abatement & Detour Routes on Palos Verdes Drive West on 4/6'. A 'MORE >' button is at the bottom of this column.

Rumor Control Page Contact Us Accessibility Font Translate Search

CITY OF Palos Verdes Estates COMMUNITY SERVICES GOVERNMENT HOW DO I...

Welcome to Palos Verdes Estates, California  
One of the country's earliest master-planned communities

PUBLIC SAFETY MEETINGS & AGENDAS CITY PROJECTS OPEN GOVERNMENT SIGN ME UP REPORT A CONCERN

### Upcoming Events

- APR 13** Parklands Committee Meeting  
7:30 PM
- APR 17** Open Meeting for Public Comment: Local Hazard Mitigation Plan  
4:00 PM - 6:00 PM
- APR 17** Open Meeting for Public Comment: Local Hazard Mitigation Plan  
6:00 PM - 8:00 PM
- APR 19** PVPUSD District Facilities Master Plan Community Input Meeting

CALENDAR >

### In the Spotlight

**Launch of Rumor Control Page**  
As the City expands its efforts to provide public information online, the City created the Rumor Control Page to provide information backed with reports and statistical data. (click the image of a question mark above to access the Rumor Control Page)

### Latest News

- PVEPD Public Information Bulletin: Vehicle Burglary
- April 9-15 is National Public Safety Telecommunications Week
- PVEPD Public Information Bulletin: Theft
- Notice of Public Meetings regarding Local Hazard Mitigation Plan
- Notice of Weed Abatement & Detour Routes on Palos Verdes Drive West on 4/6

MORE >

www.pvestates.org/community/calendar-of-events

ppps ★ Bookmarks Google Personal Bids DMH Constant CDPH GSA CA Dashboard - Const... GSA Advantage! e... Other Book

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CITY OF Palos Verdes Estates COMMUNITY SERVICES GOVERNMENT HOW DO I...

Community »

## Calendar Of Events

Font Size: + - Share & Bookmark Feedback Print

(All Categories) (All Departments)

<< Previous Month April 2017 Next Month >>

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
26	27	28	29	30	31	1
2	3	4	5 7:30 PM <a href="#">Traffic Safety Committee Meeting</a>	6	7	8 9:00 AM <a href="#">Household Hazardous Waste and E-Waste Collection Event</a> 10:00 AM <a href="#">Safety Seat Checkup Day</a>
9	10	11 7:30 PM <a href="#">City Council Meeting</a>	12	13	14	15
16	17 4:00 PM <a href="#">Open Meeting for Public Comment: Local Hazard Mitigation Plan</a> 6:00 PM <a href="#">Open Meeting for Public Comment: Local Hazard Mitigation Plan</a>	18 6:30 PM <a href="#">Planning Commission</a>	19 <a href="#">PVPUSD District Facilities Master Plan Community Input Meeting</a>	20	21	22 10:00 AM <a href="#">PV Art Center Malaga Cove Lawn Show</a>
23 10:00 AM <a href="#">PV Art Center Malaga Cove Lawn Show</a>	24	25	26	27	28	29 10:00 AM <a href="#">National Drug Take-Back Day</a>

www.pvestates.org/Home/Components/Calendar/Event/2667/16

Bookmarks Google Personal Bids DMH Constant CDPH GSA CA Dashboard - Const... GSA Advantage! e... Other Bookmar

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CITY OF Palos Verdes Estates COMMUNITY SERVICES GOVERNMENT HOW DO I...

Community »

## Calendar Of Events

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### Open Meeting for Public Comment: Local Hazard Mitigation Plan

**Date:** 04/17/2017 4:00 PM - 6:00 PM  
**Location:** Council Chambers of City Hall  
 340 Palos Verdes Drive West  
 Palos Verdes Estates, California 90274

[Add to my Calendar](#)

The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.

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[Return to full list >>](#)

Community Services Government How Do I... Contact Us Sitemap

340 Palos Verdes Dr West, Palos Verdes Estates, CA 90274  
 City Hall Hours: Mon-Fri 8:00 AM - 5:00 PM  
 Phone: 310-378-0383

Connect with PVE

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www.pvestates.org/Home/Components/Calendar/Event/2669/16

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CITY OF Palos Verdes Estates COMMUNITY SERVICES GOVERNMENT HOW DO I...


Community »

## Calendar Of Events

Font Size: + - + Share & Bookmark Feedback Print

### Open Meeting for Public Comment: Local Hazard Mitigation Plan

**Date:** 04/17/2017 6:00 PM - 8:00 PM  
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 340 Palos Verdes Drive West  
 Palos Verdes Estates, California 90274

 [Add to my Calendar](#)

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## Reminder email sent to community members

Tuesday, May 9, 2017 at 2:05:41 PM Pacific Daylight Time

**Subject:** FW: Please join us in City Council Chambers today at 4pm or 6pm for public discussion of our Hazard Mitigation Plan  
**Date:** Monday, April 17, 2017 at 9:25:06 AM Pacific Daylight Time  
**From:** Marcelle Herrera <mherrera@pvestates.org>  
**To:** Scott MacKay <Scott@constantassociates.com>  
**Attachments:** image002.jpg, image004.jpg

Sent to our DDP Group, Neighborhood Watch group, Volunteer Engineers, and Area G Emergency Coord contacts.

*Marcelle Herrera*

Community Relations Officer/Emergency Services Coordinator  
**Palos Verdes Estates Police Department**  
340 Palos Verdes Drive West  
Palos Verdes Estates, CA 90274  
PH: 310-378-4211 ext 2121  
FX: 310-375-5076  
Hours: Monday-Thursday 7:30 AM - 5:30 PM  
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**From:** Marcelle Herrera  
**Sent:** Monday, April 17, 2017 9:24 AM  
**Subject:** Please join us in City Council Chambers today at 4pm or 6pm for public discussion of our Hazard Mitigation Plan

The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000).

Page 1 of 2

DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.

[Local Hazard Mitigation Plan Draft 03.30.17 \(click link\)](#)

The HMP planning process requires input from stakeholders and the public. Generally, project stakeholders include neighboring jurisdictions and their agencies and departments that might interface with the City during a disaster response. The public is represented by community members and community organizations that have an interest in City projects and actions to mitigate hazards and save lives and property.

**Please join us in City Council Chambers at City Hall 340 Palos Verdes Drive West at either 4:00pm or 6:00pm Monday, April 17<sup>th</sup> to participate in a brief presentation and public participation.**

- [April 17th at 4pm in Council Chambers](#) or
- [April 17th at 6pm in Council Chambers](#)

For questions of comments contact the City of Palos Verdes Estates Emergency Services Coordinator, Marcelle Herrera at [mherrera@pvestates.org](mailto:mherrera@pvestates.org) or 310-378-4211.

*Marcelle Herrera*

Community Relations Officer/Emergency Services Coordinator  
**Palos Verdes Estates Police Department**  
340 Palos Verdes Drive West  
Palos Verdes Estates, CA 90274  
✉ [mherrera@pvestates.org](mailto:mherrera@pvestates.org)  
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**Placement in community update newsletter**



**TO:** HONORABLE MAYOR, CITY COUNCIL, AND CITY STAFF  
**FROM:** ANTON DAHLERBRUCH, CITY MANAGER  
**SUBJECT:** WEEKLY UPDATE  
**DATE:** April 14, 2017

**General Community Updates**

Title	Description
<a href="#">Notice of Public Meetings regarding Local Hazard Mitigation Plan</a>	<p>The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.</p> <p><a href="#">Local Hazard Mitigation Plan Draft 03.30.17</a></p> <p>The HMP planning process requires input from stakeholders and the public. Generally, project stakeholders include neighboring jurisdictions and their agencies and departments that might interface with City during a disaster response. The public is represented by community members and community organizations that have an interest in City projects and actions to mitigate hazards and save lives and property.</p> <ul style="list-style-type: none"> <li>• <a href="#">April 17th at 4pm in Council Chambers</a></li> <li>• <a href="#">April 17th at 6pm in Council Chambers</a></li> </ul> <p>For questions of comments contact the City of Palos Verdes Estates Emergency Services Coordinator, Marcelle Herrera at <a href="mailto:mherrera@pvestates.org">mherrera@pvestates.org</a> or 310-378-4211.</p>

## Posting on Facebook

The screenshot shows a Facebook post from the official page of the City of Palos Verdes Estates. The post is titled "City of Palos Verdes Estates" and was posted 40 minutes ago. The main text of the post discusses the preparation of a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). It states that the HMP planning process requires input from stakeholders and the public, and lists project stakeholders including neighboring jurisdictions, agencies, and departments. The post also provides a link to view the draft or learn when public meetings are held, and mentions that the City's website is the official source for all City information. A large graphic for the "Disaster District Program" is featured, with the text "City of Palos Verdes Estates Police Department Disaster District Program Prepared? We Can Help Visit us at www.pvestates.org". Below the graphic is a "Notice of Public Meetings regarding Local Hazard Mitigation Plan" with a link to the latest news on the City's website. The post has a "Like" button, a "Comment" button, and a "Share" button. The right sidebar shows "People You May Know" with suggestions for Isaac Fuentes and Nathan Wright, and "Suggested Pages" with a suggestion for "The Last 60 Days of Rancho Relaxo". The bottom of the page shows the Facebook navigation bar with the search bar and user profile information.

**City of Palos Verdes Estates** 40 mins · 🌐 Like Page

The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.

The HMP planning process requires input from stakeholders and the public. Generally, project stakeholders include neighboring jurisdictions and their agencies and departments that might interface with City during a disaster response. The public is represented by community members and community organizations that have an interest in City projects and actions to mitigate hazards and save lives and property.

To view the draft or learn when the public meetings are, please visit <http://www.pvestates.org/Home/Components/News/News/724/183...>

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The City's website is the official source for all City information on meetings, agendas, reports and background information. The City does not receive or monitor social media sites for comments or for receiving public reports and requests. NextDoor, other social media tools (such as Nixle), Neighborhood Watch e-blasts, and the City Newsletter are utilized to share some key information, such as event notification and general information, but residents are encouraged to monitor the City's website ([www.pvestates.org](http://www.pvestates.org)) for official information.

To receive email notifications from the City, select SIGN ME UP to register on the City's website. ([www.pvestates.org](http://www.pvestates.org)).

**City of Palos Verdes Estates Police Department**  
**Disaster District Program**  
Prepared? We Can Help  
Visit us at [www.pvestates.org](http://www.pvestates.org)

**Notice of Public Meetings regarding Local Hazard Mitigation Plan**  
Latest News provides the most current information posted by the City related to events and activities. It includes notices, press releases, tips, reminders and...  
PVESTATES.ORG

Like Comment Share

Write a comment...

People You May Know See All

- Isaac Fuentes 20 mutual friends Add Friend
- Nathan Wright Add Friend

Suggested Pages See All

- The Last 60 Days of Rancho Relaxo 57 people like this. Like

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## Posting on Twitter

The image shows a screenshot of a Twitter profile for CityofPVEstates (@CityofPVEstates). The profile bio reads: "The official Twitter account for the City of Palos Verdes Estates, Calif. Announcements to come." The location is "City of Palos Verdes Estates" and the website is "pvestates.org". The account was joined in August 2016 and has 4 photos and videos.

The main tweet is from CityofPVEstates, posted at 4:11 PM on April 12, 2017. The text of the tweet is: "How should the City mitigate hazards? Share your opinion at an upcoming public meeting! Learn more at [pvestates.org/Home/Component ...](https://pvestates.org/Home/Component...)".


Below the main tweet is a retweet from Palos Verdes PD (@PVEPD) posted 9 hours ago. The text of the retweet is: "If someone watches you 'hide' your car key, it's not hidden-look what can happen. Don't be a victim!".

The retweet includes an "INFORMATION BULLETIN PUBLIC RELEASE" from the City of Palos Verdes. The title of the bulletin is "VEHICLE BURGLARY--SURFER VICTIM (HIDDEN KEY)". The image shows two young girls in red jackets standing in a room, one holding a car key.

On the right side of the screenshot, there is a "Worldwide Trends" section with the following items:



- #isola: 60.5K Tweets
- Bayern: 364K Tweets
- Charlie Murphy: 846K Tweets
- #MarioBauYoQuiero: 49.1K Tweets
- #NintendoDirect: 23.2K Tweets
- Corée du Nord: 82.2K Tweets
- فكتمه ضروري لتولها: 33.9K Tweets
- Tanner Glass: 5,392 Tweets

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### City of Palos Verdes Estates

The City's website is the official source for all City information on meetings, agendas, reports and background information. The City does not receive or monitor social media sites for comments...

[pvestates.org](#)  
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Activity



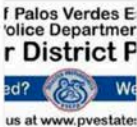
**Notice of Public Meetings regarding Local Hazard Mitigation Plan**  
Palos Verdes Estates from City of Palos Verdes Estates · 44m ago

The City of Palos Verdes Estates is preparing a Hazard Mitigation Plan (HMP) in accordance with the Federal Disaster Mitigation Act of 2000 (DMA 2000). DMA 2000 requires local governments to develop and submit HMPs as a condition of receiving Hazard Mitigation Grant Program and other mitigation project grant funding. This includes pre-disaster mitigation funding and post-disaster mitigation funding for existing City of Palos Verdes Estates facilities.

The HMP planning process requires input from stakeholders and the public. Generally, project stakeholders include neighboring jurisdictions and their agencies and departments that might interface with City during a disaster response. The public is represented by community members and community organizations that have an interest in City projects and actions to mitigate hazards and save lives and property.

To view the draft or learn when the public meetings are, please visit <http://www.pvestates.org/Home/Components...>

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**Palos Verdes Police Department**  
**District P**  
We  
us at [www.pvestates.org](http://www.pvestates.org)

The following are minutes generated from our public comment meeting on April 17, 2017.

## MEETING MINUTES

Monday, April 17, 2017

4:00 PM to 5:00 PM and 6:00 PM to 7:00 PM

340 Palos Verdes Drive West.

Palos Verdes Estates, CA 90274

Table 1: Action Items

#	Item	Due Date	Responsible Party
1.	Update the description of Implementation Item #7	May 10, 2017	Constant Associates (CONSTANT)
2.	Review Local Hazard Mitigation Plan (LHMP) and send edits to the	Friday, April 28 <sup>th</sup> , 2017 or Monday, May 1 <sup>st</sup> , 2017	PVE Community Members
3.	Determine how to update Section 7 of LHMP to be more thorough while still meeting FEMA/Cal OES requirements	May 10, 2017	CONSTANT/ PVE

### I. Welcome/Administration

#### a. Welcome

- i. Scott MacKay of CONSTANT welcomed the group to the Community Meeting for the Palos Verdes Estates LHMP. He also explained CONSTANT' s role in helping PVE to update their LHMP and how as part of the updating process, the LHMP must reflect input from the community
- ii. Scott MacKay reminded the group that the meeting is taking part in two sessions, with Session One taking place between 4:00 PM-5:00 PM and Session Two taking place between 6:00 PM-7:00 PM
- iii. Marcelle Herrera of PVE reminded the group that the community can give their feedback on the LHMP at the meeting and/or by emailing her at

mherrera@pvestates.org

- b. Materials provided Included:
  - i. Sign in Sheet
  - ii. Coffee

## **II. Meeting Purpose**

- a. The purpose of the Community Meeting was to:
  - i. Gather input from the community on the LHMP
  - ii. Answer questions from the community on the status and details of the LHMP

## **III. Planning Status**

- i. The LHMP is currently being updated by CONSTANT & PVE
- ii. Scott MacKay told the group that CONSTANT & PVE have filed a letter with Cal OES stating that PVE' s LHMP is in being updated. He explained that even though the plan is not yet complete, by filing this letter, PVE maintains eligibility for state grant funding for disasters that occur anytime during the LHMP updating process

## **IV. Community Feedback—Session One**

- a. A community member suggested that climate change/ sea level rise should be addressed in the LHMP, especially regarding Bluff Cove
  - i. The planning group responded that this issue is addressed in the plan, along with tsunamis and erosion
- b. A community member suggested that Section 7 of the LHMP should be more thorough and should include information about disaster districts, preparedness, neighborhood watch, and the role of the Red Cross. The community member also expressed concern that the LHMP would be more of a "checklist" rather than a thorough and executable plan
  - i. Scott responded that CONSTANT/ PVE are working to determine

how to update Section 7 of LHMP to be more thorough while still meeting FEMA/Cal OES requirements

- c. The community members expressed a consensus that their primary concerns are earthquakes, rain, wind, high trees, and damage to utilities caused by earthquakes
- d. A community member commented that PVE should focus on applying for grants for more common emergencies/disasters rather than extreme and rare events
- e. A community member commented that he is unsure of the public' s role in the LHMP
  - i. The planning group answered that the public' s role is to be the "eyes and ears" for potential hazard areas, make sure that the plan is easy to read and accessible, and help city council prioritize vulnerabilities
- f. A community member asked if the "soft" action items (i.e. education and awareness) imply that the more "hard fixes" (i.e. engineering fixes) have already been implemented
  - i. The planning group responded yes to this question
- g. There was a thorough discussion about the STAPLE E & whether the ranking system for vulnerabilities is accurate
- h. Scott reviewed the Implementation Plan (Section 8.1 of the LHMP) with the group

#### **V. Community Feedback—Session Two**

- a. Joan Davidson (a community member) asked if information would be added to the LHMP regarding protection of the city' s historic character/sites (historic preservation), specifically the Beach Club
  - i. Ken Rukavina answered that Section 8 addresses the Beach Club, specifically regarding sea level rise/ tsunami, and that the Beach Club is already considered a historic site
- b. A community member asked for clarification on the term "arterials" used in the LHMP
  - i. Ken Rukavina responded that arterials refer to storm flooding, not

water main breaks

- c. A community member asked if the PVE DDP will be set up in Malaga Cove next to the sewage pumping station. The community member expressed concern that if the power goes out, pumping will stop and sewage may run onto the street towards the church/ Beach Club
  - i. The planning group noted that it will look in to this issue

## **VI. Adjourn**



City of Palos Verdes Estates  
**Local Hazards Mitigation Plan Revisions**  
 Sign-In Sheet

## Local Hazards Mitigation Plan Community Meeting

### SIGN-IN SHEET

Monday, April 17, 2017  
 4:00 PM and 6:00 PM  
 340 Palos Verdes Drive West  
 Palos Verdes Estates, CA 90274

#	Name	Agency/ Organization	Email	Telephone	Signature
1.	Bob Sylvest	NART	A-B657@me.com	310 977-1198	
2.	MARILYN LITAK		MLITAK@HOTMAIL.COM	310-378-8098	
3.	JEFF ABRAHAM	AVAG	j.abraham@RAAG-120.org	310-576-0055	
4.	DWIGHT ABSOFT	DDP	dwrightzbb@cox.net	310/573-5618	
5.	STEVE FRIEDRICH	DDP	emau1506@USA.NET	818/730-9696	
6.	JOHN SCHWICHT	DDP	john@Pec.com	310-809-2803	
7.	PHIL BOGACUTA	DDP	RRSP@verizon.net	310-378-0765	





City of Palos Verdes Estates  
**Local Hazards Mitigation Plan Revisions**  
 Sign-In Sheet

#	Name	Agency/ Organization	Email	Telephone	Signature
8.	JOAN DAVIDSON		j135cooper@yahoo.com		<i>Joan Davidson</i>
9.	MARCELE HERRELA	PVE PD	MHERRELA@PRESTATES.ORG		<i>Marcele Herrela</i>
10.	Ken Ralavaria	PVE	kralavaria@prestates.org		<i>Ken Ralavaria</i>
11.	Kate Powell	C&A	Kate@constantassociates.com		<i>Kate Powell</i>
12.	Scott McKay	C&A	Scott@constantassociates.com		<i>Scott McKay</i>
13.					
14.					
15.					
16.					
17.					
18.					
19.					





**The following is a summary of comments provide:**

Received from the Los Angeles County Fire Department Community Liaison:

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*I had 2 questions and a couple comments for you regarding the Haz Mit. plan:*

*Both come from Page 60, 6.11 Wildland Fires.*

*1. Last sentence in first paragraph-Where did the “95%” come from? We use a figure of 90%. Also, more accurate terminology is “human-caused.”*

*2. In the second paragraph, where did that information come from? The entire Peninsula, including the entire City of PVE, is designated as a Very High Fire Hazard Severity Zone (VHFHSZ).*

*Page 63: Just a reminder that there is a new Fire Code, but I don’t think the City has taken it to Council yet. Sheri Repp would know the status of that.*

*Page 74: Section #3, in “Description” area-Don’t forget to capitalize “Go” (For “Ready Set Go” program).*

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In response to this comment we updated the percentage to 90% and updated the term used to human-caused. We did not update the map it was the correct map provided by Cal-Fire.

We received comments from a community member Bob Bethel, his comments were:

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*Pg 26 Impacts on Tourism - Several words with missing first letters*

*Pg 27 Para. 5.2.6 "Severity High - Probability Medium" I think this wording might be confusing. It is not consistent with the Richter scale descriptions. Wording should be Severity Moderate to Strong consistent with the Richter Scale descriptions tied to local faults. Probability should be stated in terms related to time Probability or Likelihood an event within 30 or X Years.*

*Pg 32 Para. 5.3.5 Wind Events in the Beaufort Scale Range of 7 to 10 are Experienced 2 to 4 times annually. This is Seasonal in the Fall and Winter period.*

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Based on these comments we did not update the information on page 27 because it was not in alignment with the standards we are using for other hazards. For the information on page 32 we did update the statement to outline that the wind issues did occur annually.

Additional commentary was provided by community member Dwight Abbott in two emails which we have summarized below.

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*As I understand the STAPLE/E process was selected, not required, as the evaluation process. While the elements of the STAPLE/E criteria are certainly relevant, I find at least 2 substantial deficiencies in how they are applied.*

- 1) The criteria are assigned values for each mitigation option to get a total for that option, but nowhere in the process is one option actually judged against another.

- 2) The STAPLE/E criteria are equally rated in the process and I believe they should not be. I also suspect that the most appropriate weighting of the criteria is different for each option.

*I am uncertain as to what is the most appropriate analytical methodology for rating hazard mitigation actions, but I am submitting the Forced Choice Analysis (FCA) process as an alternative for consideration. It is described in the attachment. The FCA process also uses judgmentally assigned values, but utilizes them to compare options one against all others, not just to assign a rating level to options as does STAPLE/E. FCA has the “deficiency” of not assigning individual values to the STAPLE/E criteria, but rather doing that assignment judgmentally as options are compared one against another. I personally prefer the FCA process because of its direct comparison of options.*

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The city determined that it did not have the time or budget to conduct the hazard prioritization process again but would consider the FCA when updating the LHMP in five years.

Mr. Abbot’s second email:

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*In the process of further review of the LHMP Section 8 mitigations actions and implementation plan I found that the priority of actions as defined and listed in Table 8.4 is different than the sequence listed in the following Table 8.5. I believe that it is intended that these 2 tables use the same item sequence.*

*To list the items in Table 8.5 in the same sequence as defined by Table 8.4 they should be reordered as follows. Using the item numbers as listed in Table 8.5 the correct sequence to align with Table 8.4 would be. 1, 2, 3, 7, 4, 5, 6, 8, 9, 10. Stated another way, item #7 in Table 8.5 needs to be pulled out, moved forward and inserted between # 4 & 5.*

*Table 8.5, Item 4, lists a cost of \$50,000 to outsource to a consultant since “no one in the City is qualified to link the EOP with the LHMP”. I would think just the opposite, i. e., that it takes experienced staff within the City to best know the EOP and how to best link it to the LHMP. Cost seems excessive.*

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For these issues the City chose to not update the sequence of items in the implementation plan to match the results of the STAPLE/E. They feel the implementation plan is correctly ordered for the needs of the City. The City did not remove Item 4 or Table 8.5, they do not have the staffing to develop an EOP.

**APPENDIX D: FEMA REVIEW TOOL**

**LOCAL MITIGATION PLAN REVIEW TOOL**

The Local Mitigation Plan Review Tool demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA’s evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan’s strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction:</b> City of Palos Verdes Estates	<b>Title of Plan:</b> All Hazard Mitigation Plan	<b>Date of Plan:</b>
<b>Local Point of Contact:</b> Marcelle Herrera	<b>Address:</b> Marcelle Herrera 340 Palos Verdes Drive West Palos Verdes Estates, CA 90274	
<b>Title:</b> Emergency Services Coordinator		
<b>Agency:</b> City of Palos Verdes Estates		
<b>Phone Number:</b> (310) 378-4211 ext 2121	<b>E-Mail:</b> mherrera@pvestates.org	

<b>State Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
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<b>FEMA Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>Date Received in FEMA Region (insert #)</b>		
<b>Plan Not Approved</b>		
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>		

**SECTION 1:  
REGULATION  
CHECKLIST**

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval.

Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub- elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Pages 15-21, Appendix B			
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Pages 15-21, Appendix C			
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Page 17-18, Appendix C			
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Page 18-19			
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Page 77-78			
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Page 75-76			
<b><u>ELEMENT A: REQUIRED REVISIONS</u></b>				

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation</b> (44 CFR 201.6 Local Mitigation Plans)				
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Pages 20-53			
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Pages 20-53			
B3. Is there a description of each identified hazard's impact on the community as well as an overall summary of the community's vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Pages 20-53			
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Page 49			
<b><u>ELEMENT B: REQUIRED REVISIONS</u></b>				
<b>ELEMENT C. MITIGATION STRATEGY</b>				
C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))	Pages 60-63			
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Page 49			
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Page 65			
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Pages 70-71			
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Pages 72-74			
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Page 76-77			
<b><u>ELEMENT C: REQUIRED REVISIONS</u></b>				

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)				
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Page 16			
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Page 16			
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Page 16			
<b><u>ELEMENT D: REQUIRED REVISIONS</u></b>				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	Page 1, Appendix A			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	N/A			
<b><u>ELEMENT E: REQUIRED REVISIONS</u></b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b><u>ELEMENT F: REQUIRED REVISIONS</u></b>				