

AGENDA

PUBLIC SAFETY COMMITTEE

Regular Meeting
Tuesday, December 10, 2013
2 P.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637

AGENDA DESCRIPTION: The agenda descriptions are intended to give notice, to members of the public, of a general summary of items of business to be transacted or discussed. Any person wishing to address the Public Safety Committee on any matter, whether or not it appears on this agenda, may do so under the appropriate section of the agenda. Whenever possible, lengthy testimony should be presented to the Committee in writing (12 copies) and only pertinent points presented orally. Requests to speak to items on the agenda shall be heard at the appropriate point on the agenda; requests to speak about subjects not on the agenda will be heard during the Public Comment section of the meeting.

I. CALL TO ORDER

II. ROLL CALL

III. COMMITTEE BUSINESS

A. General Plan Safety Element Update

Staff and consultants will discuss and solicit input on an update of the City's General Plan Safety Element.

RECOMMENDED ACTION: Discuss and provide input.

B. Climate Adaptation Plan

Staff and consultants will discuss and solicit input on the development of the City's Climate Adaptation Plan.

RECOMMENDED ACTION: Discuss and provide input.

C. Free Flu Shot Clinic/Point of Dispensing Exercise

Staff will discuss and solicit input on the Free Flu Shot Clinic/Point of Dispensing Exercise that was held on October 25, 2013.

RECOMMENDED ACTION: Discuss and provide input.

IV. COMMITTEE MEMBER COMMENTS

V. PUBLIC COMMENTS

VI. ADJOURN

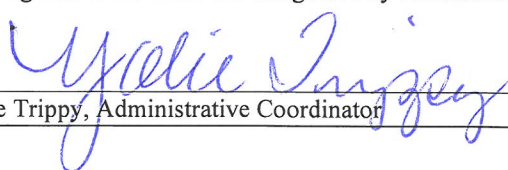
The next regular meeting of the Public Safety Committee will be at 2 p.m. on January 14, 2014, at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637. Meetings may be cancelled due to a lack of agenda items.

AMERICANS WITH DISABILITIES ACT: In compliance with Americans with Disabilities Act, if you need assistance to participate in this meeting, please contact the City Clerk at (949) 639-0500 (Voice) or, TDD (949) 639-0535 or the California Relay Service at (800) 735-2929 if you have a TDD or (800) 735-2922 if you do not have a TDD. Notification 48 hours prior to the meeting should enable the City to make reasonable arrangements to assure accessibility to the meeting.

AGENDA: The Public Safety Committee agenda and agenda back-up materials are available from the Office of the City Clerk, after 4:30 p.m., on the Friday prior to the Public Safety Committee meeting. The office of the City Clerk is located at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637. Copies of the agenda are provided at no cost. Agenda back-up materials are available at City Hall for inspection and copies are available at no charge prior to the meeting. A per page copy cost does apply after the meeting. If you wish to be added to the e-mail or regular mail list to receive a copy of the agenda, a request must be made to the City Clerk in writing. Copies of the agenda are mailed only if stamped, self-addressed envelopes are provided. The City of Laguna Woods mailing address is 24264 El Toro Road, Laguna Woods, CA 92637. Phone: (949) 639-0500, FAX (949) 639-0591.

I declare under penalty of perjury that I posted this notice of agenda at the locations designated by Resolution 02-33.

12-4-13
Date


Yolie Trippy, Administrative Coordinator

PUBLIC SAFETY COMMITTEE Meeting Recap
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Regular Meeting
Tuesday, October 8, 2013
2 P.M.

Laguna Woods City Hall
Council Chambers
24264 El Toro Road
Laguna Woods, CA 92637

I. CALL TO ORDER

Vice Chair Ohrn called the meeting to order at 2 p.m.

II. ROLL CALL

Present: Brauer, Chodash, Gross, Horne, Ohrn, Rook, Verrall, Watkins,
Whitehead

Absent: Mathews, Monin

III. COMMITTEE BUSINESS

A. General Plan Safety Element Update

City Manager Macon introduced Jeff Henderson, Aaron Pfannenstiel, and Corinne Bartshire, planning consultants assisting with the General Plan Safety Element Update project. Staff and consultants provided information on the project and solicited input on issues including the Safety Element Workbook that was distributed with the agenda packet.

Committee members provided the following input:

- The Safety Element should be circulated to surrounding cities as part of the public review process.
- Information should be included concerning infrastructure failure and maintenance activities for flood control channels.
- Evacuation planning should be emphasized.
- Aerial maps are preferable to more simplistic maps.

- The City and Orange County Fire Authority's Fire Watch Patrol program should be referenced in some manner.
- Liquefaction and landslide hazards should be separated into two maps and superimposed on aerial images.
- The City should consider requiring improvements to disconnect valves for gas and water main lines.
- Consideration should be given to the impact of power outages on vulnerable residents and the City should consider leveraging existing community resources to meet emergency power needs (e.g., recreational vehicles and golf cart/car batteries).
- The Laguna Woods Village Disaster Preparedness Task Force should be given an opportunity to review the Safety Element.
- Public education programs and the need for residents to prepare themselves for emergencies should be emphasized.
- A reference should be made to the decommissioning of the San Onofre Nuclear Generating Station (SONGS).
- Public health, including air pollution, should be considered.

Committee members noted that it would be informative to participate in a tour of the Orange County Sheriff's Department's Loma Ridge facility to learn more about dispatch and emergency response.

IV. STAFF AND SUBCOMMITTEE REPORTS

A. Public Safety Project Updates and General Information – None

V. COMMITTEE MEMBER COMMENTS – None

VI. PUBLIC COMMENTS

At the request of an audience member, City Manager Macon noted that recruitment to fill the City's Public Safety Director vacancy is ongoing.

VII. ADJOURN

The next regular meeting of the Public Safety Committee will be at 2 p.m. on November 12, 2013, at Laguna Woods City Hall, 24264 El Toro Road, Laguna Woods, CA 92637. Meetings may be cancelled due to a lack of agenda items.

City of Laguna Woods Agenda Report

DATE: December 10, 2013 Public Safety Committee Meeting

TO: Chair and Members of the Public Safety Committee

FROM: Christopher Macon, City Manager

AGENDA ITEM: General Plan Safety Element Update

Recommendation

Discuss and provide input.

Background

In 2011, the City was awarded a grant of \$250,000 from the State of California's Disaster Recovery Initiative (DRI) for a variety of disaster planning projects. One of those projects is an update of the City's General Plan Safety Element.

State law requires the City to adopt and maintain a General Plan "for the physical development of the... city." General Plans are required to address a minimum of seven elements – land use, circulation, housing, conservation, open space, noise, and safety. The City's existing Safety Element was adopted in 2002.

Discussion

The Public Safety Committee has discussed and provided input on this item at two prior meetings (September 10, 2013 and October 8, 2013). Today's meeting will include review of a complete draft of the updated Safety Element (attached).

The City is providing numerous opportunities for public participation throughout the course of this project, including at the following public meetings:

MEETING	DESCRIPTION
Public Safety Committee Tuesday, September 10, 2013 at 2 p.m.	Kickoff and project overview

Public Safety Committee Tuesday, October 8, 2013 at 2 p.m.	Review/discuss goals and policies
Public Safety Committee Tuesday, December 10, 2013 at 2 p.m.	Progress update/review draft
Public Safety Committee Tuesday, January 14, 2014 at 2 p.m.	Recommendation to City Council
City Council (Public Hearing) Wednesday, January 22, 2014 at 2 p.m.	Consideration of adoption

In addition, this project will require California Environmental Quality Act (CEQA) compliance, including preparation of an Initial Study and Negative Declaration. The Negative Declaration will be circulated for public review and comment over a 30-day period tentatively scheduled for December 2013/January 2014.

Fiscal Impact

Costs associated with the General Plan Safety Element Update (\$55,000 estimate) will be reimbursed by the State of California's Disaster Recovery Initiative.

Conclusion

The General Plan Safety Element is a critical and State-mandated long-term plan to reduce the potentially detrimental impacts of local hazards. This project leverages grant funding to complete a comprehensive update of the City's Safety Element.

Attachment: Draft Safety Element



INTRODUCTION

The City of Laguna Woods strives to maintain a safe environment for all residents, businesses, and government functions. California Government Code Section 65300 requires that each city adopt a General Plan to guide the long-term physical development of the city. The General Plan reflects the community's intentions about land use and its relationship to pedestrian and vehicular circulation, housing, conservation, open space, noise, and safety. This element identifies priority public safety issues in Laguna Woods and sets forth long-range City policies and programs to protect people and property from harm resulting from natural and human-caused hazards and criminal activity.

PURPOSE AND SCOPE

State law requires that General Plans include a Safety Element, as follows:

Government Code Section 65302(g): [The General Plan must include a] safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, peak load water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.

As required by State law, the Safety Element identifies forces of nature and events resulting from human action that have the potential to cause harm to life and property in the city. Identifying the source of such threats allows decision-makers to take preemptory action to minimize the damage, particularly as it relates to new development

SAFETY ELEMENT

projects. In addition to state-mandated components, the Safety Element recognizes a heightened awareness of personal safety issues.

This element presents existing conditions relative to public safety within the city, and is organized to address the following six priority issues required by State law and identified by the City Council and Public Safety Committee:

- Fire hazards
- Flood hazards
- Geologic and seismic hazards
- Human-caused and other hazards
- Emergency readiness
- Crime prevention

Goals, Policy Objectives, and Implementation Actions

This element is organized to be consistent with the other elements of the Laguna Woods General Plan. Goals, policy objectives, and implementation actions are the essence of the element, providing declarative statements setting forth the City's approach to the each of the priority issues.

Goals: General statements of desired community outcomes.

Policy Objectives: Specific commitments to support decisions and actions consistent with a stated goal. Policy objectives provide guidance to the City Council, City Council-appointed standing advisory committees, and City staff when reviewing development applications and making other decisions that affect future growth, conservation, and development.

Implementation Actions: Recommended actions to achieve goals and policy objectives.

The goals, policy objectives, and implementation actions identified in this element are generally based on the City's Local Hazard Mitigation Plan with certain additions and modifications to align with the statutory requirements and purview of General Plan Safety Elements.

Goals, policy objectives, and implementation actions are presented following the definition of each priority issue in this element.

Relationship to Other General Plan Elements

Accomplishing the goals and policy objectives of the Safety Element requires coordination with other related components of the General Plan. For example, implications of public safety policies and programs for the Land Use Element include identification of areas prone to natural hazards. Recommended evacuation routes in the Safety Element impact the Circulation Element. In turn, traffic-calming goals and policies within the Circulation Element may affect emergency response.

EXISTING RELATED PLANS, POLICIES, AND ORDINANCES

LOCAL HAZARD MITIGATION PLAN

The City's LHMP forms the foundation for the City's long-term strategy to reduce disaster losses and break the cycle of disaster damage, reconstruction, and repeated damage. The LHMP fulfills the requirements of Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. 5165, as amended by the Disaster Mitigation Act of 2000, and also serves as the City's Local Energy Assurance Plan (LEAP) consistent with the State's Energy Assurance Plan and the California Energy Commission's California Local Energy Assurance Planning (CaLEAP) planning framework. The LHMP is incorporated into this element by reference and should be consulted when addressing known hazards to ensure the general health, safety, and public welfare of individuals within the city. Safety Element goals, policy objectives, and implementation actions support and are consistent with the LHMP.

EMERGENCY OPERATIONS PLAN

The City's Emergency Operations Plan (EOP) is a response document intended to initiate, manage, and sustain an effective local response to extraordinary emergency situations. The goals of the EOP are to 1) prevent emergencies, 2) mitigate vulnerabilities to potential hazards, 3) enable emergency response, and 4) facilitate short-term recovery efforts. Safety Element goals, policy objectives, and implementation actions support and are consistent with the EOP.

NATIONAL FLOOD INSURANCE PROGRAM

The City joined the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program (NFIP) in 2004. Under the NFIP, the City adopts, updates, and enforces certain ordinances designed to reduce the risk of flooding. In exchange, federally backed NFIP flood insurance policies are available to the City's homeowners, renters, and business owners. NFIP policies protect against flood-related losses not covered by standard homeowners insurance. Safety Element goals, policy objectives, and implementation actions support and are consistent with the NFIP.

LAGUNA WOODS MUNICIPAL CODE

Numerous provisions of the Laguna Woods Municipal Code relate to public safety, including:

- **Floodplain Management (Chapter 10.04):** Promotes public health, safety, and general welfare, and minimizes public and private losses due to flood conditions in specific areas, by 1) restricting or prohibiting dangerous or damaging uses, 2) requiring that vulnerable uses be protected from possible damage at the time of initial construction, and 3) controlling the alteration of areas with the potential to increase flood risk.

SAFETY ELEMENT

- **California Fire Code (Chapter 10.12):** Safeguards life and property by minimizing fire and explosion hazards arising from conditions in the occupancy of buildings and premises, as well as conditions related to hazardous substances, materials, and devices. California Fire Code requirements include provisions for emergency access by fire apparatus, water supply, fire protection systems, and the use of fire-resistant building materials.
- **Fire Hazard Severity Zones (Chapter 10.13):** Establishes fire hazard severity zones in accordance with California Government Code Section 51179. Zones are designated based on an assessment of local fire conditions and require the application of certain escalated fire-related regulations intended to minimize the impact of fire hazards.

OTHER EXISTING CONDITIONS

PUBLIC SAFETY AGENCIES AND ORGANIZATIONS

A variety of agencies and organizations – both public and private – provide public safety services to the City. In addition to the City’s organization, the Orange County Sheriff’s Department, Orange County Fire Authority, El Toro Water District, and Orange County Flood Control District/OC Flood are among the most involved with the priority issues identified in this element; however, the City recognizes that numerous other agencies and organizations play vital and appreciable roles.

City’s Public Safety Department

The City’s Public Safety Department oversees police, fire, emergency management, building, code enforcement, and animal control operations, including the City’s contract with the Orange County Sheriff’s Department. The Public Safety Department also coordinates with the Orange County Fire Authority, El Toro Water District, Orange County Flood Control District, and other governmental and non-governmental agencies and organizations with public safety-related responsibilities.

City/Traffic Engineer’s Office

The City/Traffic Engineer’s Office oversees capital improvement projects, including design, plan check, construction management, and inspection. City-owned flood control projects are within the purview of this Office, as are certain matters of public and private development review.

Orange County Sheriff’s Department

The City began contractual law enforcement services with the Orange County Sheriff’s Department (OCSD) in July 1999. Prior to that date and the City’s incorporation, law enforcement services were provided by OCSD under the auspice of the Orange County Board of Supervisors. OCSD provides a full suite of law enforcement services to the City and numerous other Orange County jurisdictions, including patrol, traffic enforcement, criminal investigation, and crime prevention.

Orange County Fire Authority

The Orange County Fire Authority (OCFA) is a regional fire service agency that serves 23 cities in Orange County and all unincorporated areas. The City entered into a joint powers agreement with OCFA in June 2000 and funds services through a structural fire fund administered by the County of Orange. OCFA provides a full suite of fire safety and suppression services and maintains a single fire station in the City with supplemental services available regionally.

El Toro Water District

The El Toro Water District (ETWD) supplies water and wastewater services to the entire city and portions of the cities of Aliso Viejo, Laguna Hills, Lake Forest, and Mission Viejo. The mission of ETWD is to provide customers safe, adequate, and reliable water supply and wastewater service in an environmentally and economically responsible way. ETWD relies 100 percent on water imported primarily from the Sacramento-San Joaquin River Delta in Northern California and the Colorado River. That water is treated in nearby Yorba Linda by the Metropolitan Water District of Southern California and supplied to ETWD via a pipeline. To partially offset its reliance on imported water, ETWD provides recycled water for appropriate uses such as landscape irrigation. Given the scarcity of water in Orange County, ETWD engages in strategic planning to develop a diverse portfolio of high quality water resources, expand recycled water deliveries for beneficial reuse, and promote conservation and water use efficiency. In the event of an imported water supply disruption, ETWD maintains a reservoir with enough capacity to meet its service areas' water needs for three to four weeks, depending on the time of year, level of landscape irrigation, and other factors.

ETWD vigilantly safeguards the quality of water supply and delivers water that meets or exceeds the quality standards required by federal and state regulatory agencies. ETWD produces a *Water Quality Report* each year that provides information about the sources of the water supply and the extensive testing and monitoring programs that ensure the high quality of the water.

Orange County Flood Control District/OC Flood

The Orange County Flood Control District (OCFCD) was established in 1927, pursuant to State law, in part to provide regional control and protection from flood and storm waters. OCFCD owns and operates several facilities in the city related to flood control and drainage. OCFCD is administered by the OC Flood Division of the County of Orange's Public Works Department.

EVACUATION PLANNING

The City's EOP addresses issues related to emergency evacuations of both individuals and pets, including evacuation orders, notifications, warnings, routes, resources, access control, security, shelter, and re-entry. Particularly in light of local demographics, the EOP emphasizes considerations related to the evacuation of individuals with disabilities, access, and functional needs (e.g., limited English language proficiency, non-English

SAFETY ELEMENT

speaking, transportation disadvantaged, and older adults). Evacuation planning is an ongoing effort and is currently being expanded to include specific scenarios associated with the City's fire hazard severity zones.

PRIORITY ISSUES

FIRE HAZARDS

The city is exposed to two types of fire hazards – wildfires in the wildland-urban interface area that borders the westernmost edge of the city and urban fires. Either could cause loss of life, personal injury, and extensive property damage. Economic processes may be disrupted due to road closures and degraded air quality. Fires are considered to pose a very significant risk to the city.

In 2012, the City Council took action to designate three fire hazard severity zones (very high, high, and moderate) within the wildland-urban interface area as shown in Figure S-1. The Very High Fire Hazard Severity Zone was identified by the California Department of Forestry and Fire Protection (Cal FIRE), while the High and Moderate Fire Hazard Severity Zones were identified by the OCFA based on an assessment of vegetation, slope, fire history, weather patterns, and impact of flames, heat, and flying embers. Collectively, these areas and the 2,564 residential dwelling units within them face the highest risk of wildfire impacts.

Urban fires may occur throughout the city as a result of accidental ignition, arson, earthquakes, hazardous materials incidents, or other hazards. The significant amount of residential multi-family and infill development in the city increases the probability and impact of urban fires.

Very High Fire Hazard Severity Zone

The City's Very High Fire Hazard Severity Zone was identified by Cal FIRE pursuant to California Government Code Section 51178. It is generally located between Santa Maria Avenue and El Toro Road, west of Algarrobo, Calle Azul, Monte Hermosa, and Avenida Sosiega, and south of Calle Corta, including the Woods End Wilderness Preserve. 856 dwelling units (19 single-family and 837 multi-family) are located in the zone, as well as the El Toro Water District's (ETWD) Pump Station P-3/Reservoir R-3 and Southern California Edison electrical transmission lines.

High Fire Hazard Severity Zone

The High Fire Hazard Severity Zone was identified by OCFA to be at significant risk from wildfires and within the responsible area of the City for fire protection and services. It includes the Laguna Laurel open space and portions generally north of Santa Maria Avenue in the vicinity of Cantante, Avenida Del Sol, Pina, Moya, Brazo, Tero, Ovalo, Jardin, Elvira, Duenas, and Avenida Despacio; portions generally north of El Toro Road, Calle Corta, and Monte Hermosa, west of San Amadeo and Avenida Sosiega, and east of Calle Azul, and Algarrobo. 861 dwelling units (215 single-family, 646 multi-family) are located in this zone, as well as ETWD's Westline Sewer Lift Station.

Moderate Fire Hazard Severity Zone

The Moderate Fire Hazard Severity Zone was identified by OCFA to be at significant risk from wildfires and within the responsible area of the City for fire protection and services. It includes portions generally north of El Toro Road and south of San Amadeo; portions generally south of Calle Sonora Este; portions generally west of Avenida Sosiega in the vicinity of Bahia Blanca and Punta Alta; portions generally north of Santa Maria Avenue west of Santa Vittoria in the vicinity of Avenida Despacio, Duverney, Belmez, Duenas, Calzado, Miembro, and Elvira. Portions of this zone are discontinuous with the balance of the zone. 847 dwelling units (102 single-family, 745 multi-family) are located in this zone, as well as ETWD's Pump Station P-4/Reservoir R-4.

Adequacy of Road Widths for Fire Response

OCFA responds frequently to emergency calls for service where time is of the essence. During the preparation of this element, OCFA confirmed that neither its apparatus nor personnel are hindered by parked cars or existing roadway widths. New roadway construction will be subject to applicable provisions of the California Building Code, California Fire Code, and other design regulations.

Adequacy of Peak Load Water Supplies for Fire Response

While there is no standard water flow rate for fire response, ETWD collaborates with the City and project applicants to ensure that required flows for new and significantly redeveloped projects, as determined by OCFA, are met. The City requires adequate flows as a condition of project approval.



Figure S-1

FEMA Special Flood Hazard Areas

LEGEND

Laguna Woods Boundary

Municipal Boundaries

Local Roads

FEMA Special Flood Hazard Area

100 Year Floodplain
(1% Annual Chance)

500 Year Floodplain
(0.2% Annual Chance)

Sources:

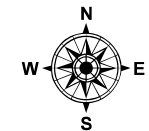
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Municipal Boundary -
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Local Roads -
City of Laguna Woods GIS,
merge of centerline files

Imagery - ESRI Basemap, ArcGIS 10

FEMA SFHA -
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City of Laguna Woods
Safety Element



Fire History

According to OCFA, there was only one reported wildfire incident in the city between 2003 and 2012. That incident, which occurred in 2005, involved a 0.5 acre fire amongst trees in a residential neighborhood on Avenida Majorca. The fire was believed to have been caused by fireworks.

Wildfires occurring elsewhere in Orange County in 1993 and 2008 also affected the city.

The Laguna Fire occurred in late October and early November 1993 and burned 16,682 acres in Laguna Beach and nearby unincorporated areas. Much of the affected land was close to the city's westernmost boundary in the wildland areas comprising what is today part of the Laguna Coast Wilderness Park. While the fire did not ultimately burn the city or result in evacuations, there was substantial community concern and heavy smoke inundation.

The Freeway Complex Fire occurred in November 2008 and burned 30,305 acres in portions of Orange and Riverside counties. 314 residences, four commercial buildings, and 43 outbuildings were destroyed. While the city was not burned by the fire, air quality was significantly degraded and there was some community concern regarding whether or not evacuation would be required. As a precautionary measure, the City briefly activated its emergency operations center.

Table S-1 includes an accounting of reported urban fires in the city between 2003 and 2012. During that period, the number of fires occurring within buildings averaged 16 per calendar year.

Table S-1 Urban Fire History 2003-2012

Calendar Year	Number of Fires within Buildings	Calendar Year	Number of Fires within Buildings
2003	12	2008	20
2004	17	2009	19
2005	18	2010	11
2006	22	2011	18
2007	10	2012	12

Source: Orange County Fire Authority

Goal, Policy Objectives, and Implementation Actions

Goal S-1. Protect residents, businesses, and government functions from fire hazards.

Policy Objectives and Implementation Actions

S-1.1. Adopt and enforce regulations pertaining to new and existing structures.

- A. Review, update, and enforce fire-related regulations, including:

SAFETY ELEMENT

- Regulations pertaining to building standards;
- Regulations pertaining to the maintenance of defensible space for wildfires;
- Regulations pertaining to minimum road widths for fire response; and
- Regulations pertaining to peak load water supply for fire response.

S-1.2. *Implement resource and property protection and improvement projects.*

A. Maintain defensible space for wildfires throughout City-owned wildland areas.

B. Maintain the following information for residents and businesses:

- Brush clearance criteria for each fire hazard severity zone;
- An inventory of properties within each fire hazard severity zone; and
- Public education information related to wildland-urban interface areas.

S-1.3. *Provide the highest level of fire services as are available and fiscally feasible.*

See “Emergency Readiness” priority issue (page S-22).

FLOOD HAZARDS

Flooding due to severe storms and/or failure of water system infrastructure could cause loss of life, personal injury, and property damage. If roads become impassable, economic activities processes could be disrupted. Flooding is considered to pose a moderate risk to the city.

Portions of the city are subject to inundation from flooding. FEMA produces Flood Insurance Rate Maps (FIRMs) that show the areas in the city that are subject to flooding and the risk associated with flood hazards. FIRMs are used to administer FEMA’s NFIP. As of October 2013, there were approximately one dozen active NFIP policies in the city and no NFIP-insured properties subject to repetitive damage. NFIP-designated Special Flood Hazard Areas (SFHAs) comprise approximately 26 acres of the city with an additional 2,115 acres designated as either minimal or moderate risk (Zone X). Figure S-2 depicts both the city’s SFHAs and Zone X areas.

Other areas that are subject to flooding in the city are identified by historic occurrences of flooding or storm inundation (e.g., Laguna Woods City Hall). In addition, the failure of any of the following El Toro Water District infrastructure could cause localized flooding within the city:

Water Tanks: Four reservoirs with a total maximum capacity of 10 million gallons of potable water. Two reservoirs are located northwest of the intersection of El Toro Road and Moulton Parkway, and two are located in the gated community of Laguna Woods Village.

Rossmoor #2: A dam/reservoir located southeast of the intersection of Moulton Parkway and Ridge Route Drive. Rossmoor #2 is located in a SFHA at risk of a 1 percent annual chance of flooding, but is not subject to State dam inundation mapping regulations.

Veeh Reservoir: Located in the City of Laguna Hills, this reservoir is in a SFHA at risk of a 1 percent annual chance of flooding.

The Moulton Niguel Water District owns and operates a water tank in the City of Aliso Viejo just south of the intersection of El Toro Road and Aliso Creek Road. Failure of that water tank could cause flooding on El Toro Road and in the lower portions of Woods End Wilderness Preserve.

The collapse of the bridge along Avenida Sevilla that crosses Aliso Creek, would impede movement and cause localized flooding on property within the gated community of Laguna Woods Village.

Flood History

Major flood events in the city occurred during the years of 1969, 1997, 2010, and 2011.

The February 1969 event was a three-day rain event in which the city was affected by one-half inch of rain one day, over five inches of rain the next day, and over six inches the next day.

The December 1997 event was triggered by an El Niño storm that resulted in eight inches of rain over several days. Dozens of residents were displaced from their homes and personal property was damaged. Damage to the gated community of Laguna Woods Village was estimated at \$700,000. Flooding also affected portions of El Toro Road and Moulton Parkway.

The January 2010 events were a series of severe storms that caused approximately \$50,000 worth of damage to City property, including undermining of a portion of El Toro Road that resulted in its closure while emergency repairs were made. Laguna Woods City Hall experienced water intrusion and flooding. Damage also occurred inside the gated community of Laguna Woods Village.

Between December 2010, and January 2011, the City was affected by a series of storms that caused approximately \$5,000 worth of damage to City property. All City-owned properties were affected.

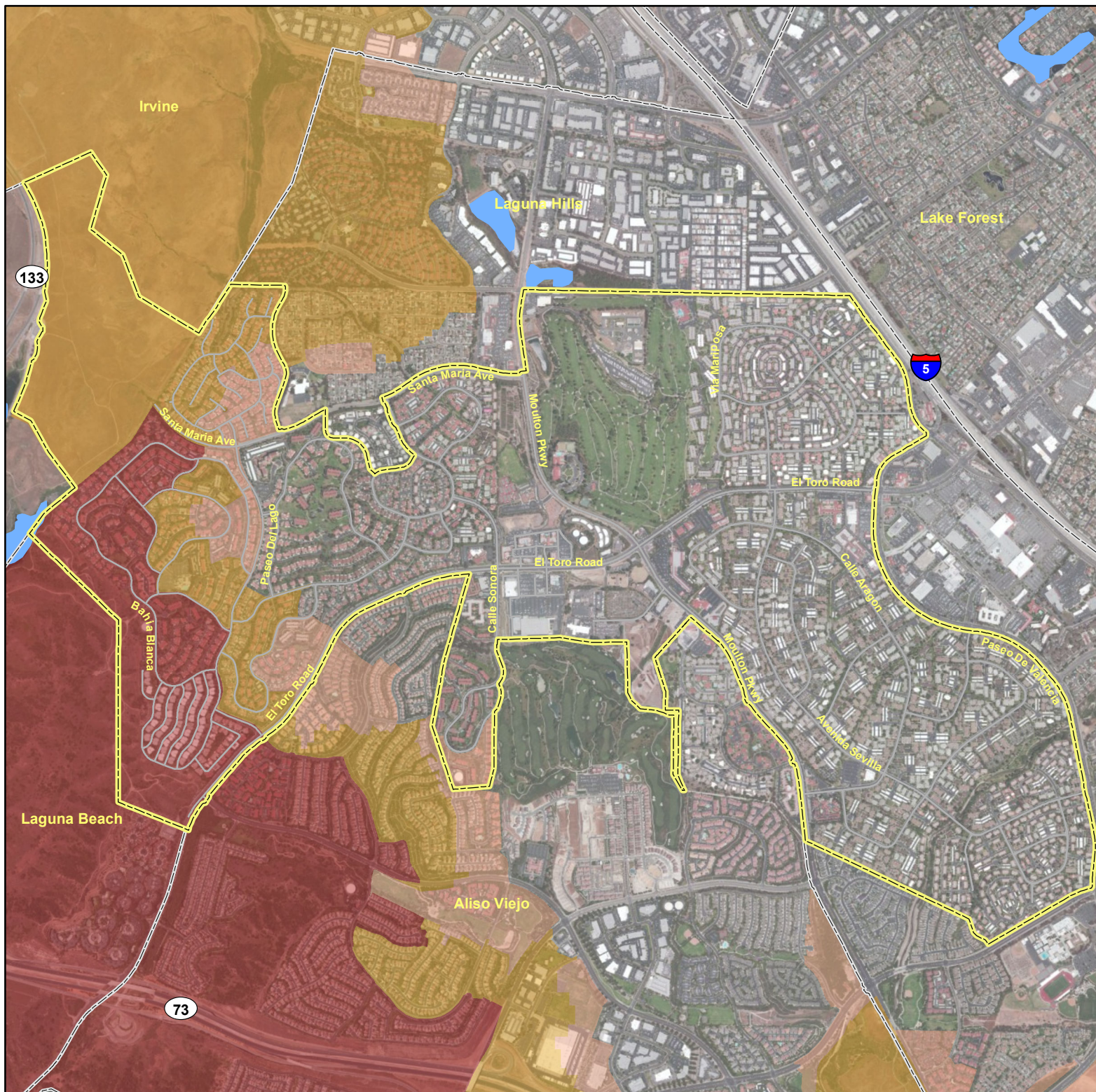


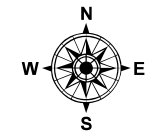
Figure S-2
Fire Hazard Severity Zones

LEGEND

- Laguna Woods Boundary
- Municipal Boundaries
- Major Lakes and Reservoirs
- Local Roads
- Fire Hazard Severity Zones**
 - Moderate
 - High
 - Very High

Sources:

Laguna Woods Boundary -
City of Laguna Woods GIS,
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Municipal Boundary -
Cal Atlas, Incorp12_1.shp
Major Lakes and Reservoirs -
Cal Atlas, CA_Lakes.shp
Local Roads -
City of Laguna Woods GIS,
merge of centerline files
Imagery - ESRI Basemap, ArcGIS 10
Fire Hazard Severity Zones -
City of Laguna Woods GIS,
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City of Laguna Woods
Safety Element



Goal, Policy Objectives, and Implementation Actions

Goal S-2. Protect residents, businesses, and government functions from flood hazards.

Policy Objectives and Implementation Actions

- S-2.1. Adopt and enforce regulations pertaining to new and existing structures.*
 - A. Review, update, and enforce flood-related regulations, including:
 - Regulations pertaining to building standards.
- S-2.2. Implement resource and property protection and improvement projects.*
 - A. Adopt and enforce regulations prohibiting invasive plant species within the city.
 - B. Identify flood mitigation projects for inclusion in the City's Capital Improvement Program.
 - C. Collaborate with other governmental agencies on flood issues related to Aliso Creek.
- S-2.3. Participate in the National Flood Insurance Program (NFIP).*
 - A. Comply with NFIP regulations.
 - B. Collaborate with other governmental agencies on NFIP improvements.

GEOLOGIC AND SEISMIC HAZARDS

Seismic activity along active and potentially active faults could result in substantial casualties and injury, disruption of economic processes, and extensive property damage. Primary hazards include fault rupture and seismic shaking. There are no mapped fault zones pursuant to the Alquist-Priolo Earthquake Fault Zoning Act that transect the city. Known faults nearest to the city, including the five major faults and fault zones of particular concern, are shown in Figure S-3.

Secondary hazards associated with seismic activity include liquefaction and landslides. In addition to the impacts identified for seismic activity, liquefaction and landslides could lead to cascading effects of utility infrastructure failure if transmission lines are damaged as a result. Figures S-4 and S-5 show the locations of earthquake-induced liquefaction and landslide hazard zones. In total, the State Department of Conservation considers approximately 256 acres of land within the city as prone to liquefaction and approximately 77 acres as prone to earthquake-induced liquefaction.

Landslides also pose a hazard to the city, independent of any seismic activity, with the potential to cause loss of life, personal injury, economic loss, and property damage.

Figure S-3

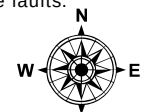
Major Fault Zones

LEGEND

- Alquist Priolo Fault Zones
- Fault Zones
- Laguna Woods Boundary
- County Boundaries
- Major Lakes and Reservoirs
- Highways

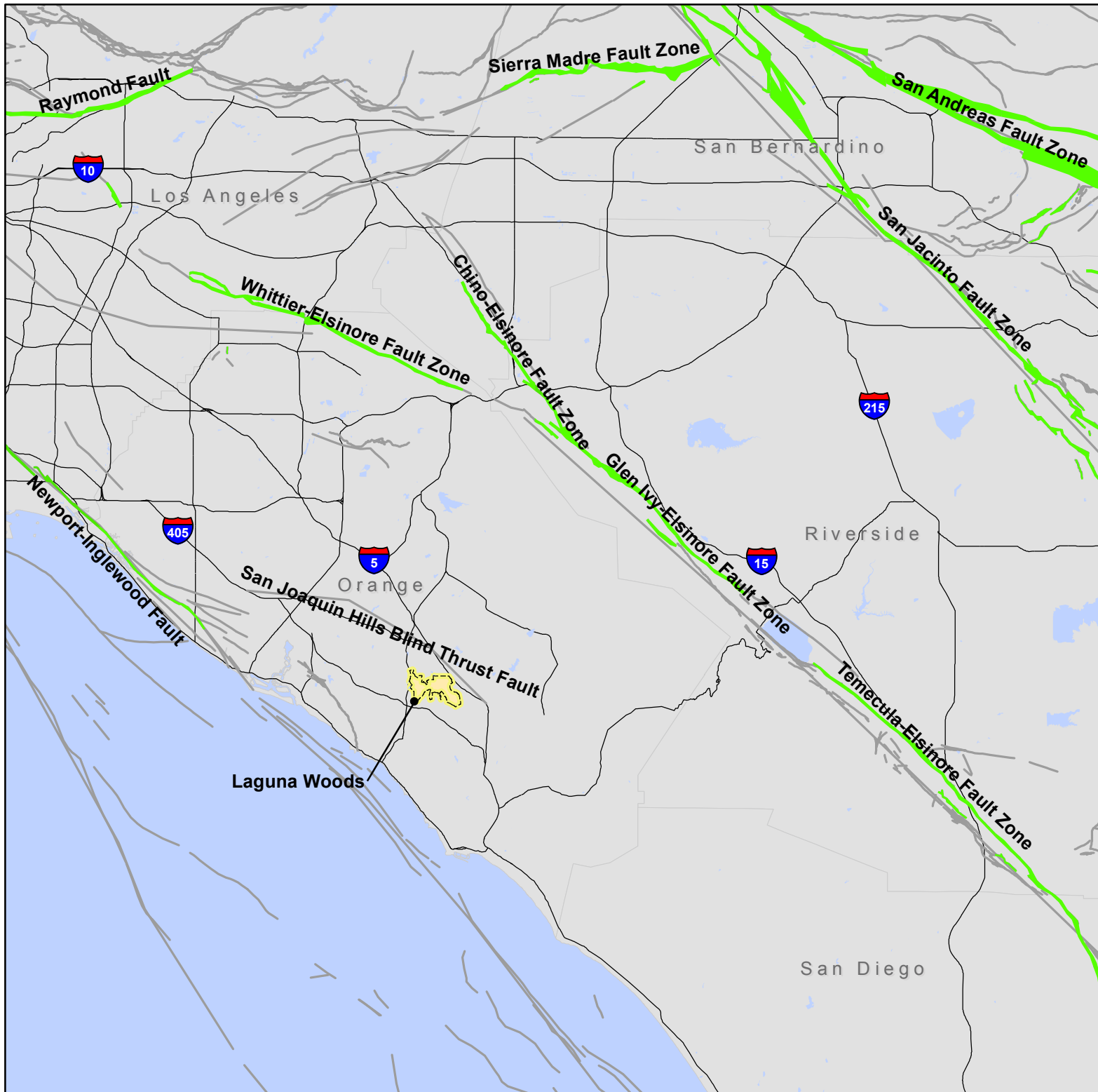
Sources:
 Laguna Woods Boundary -
 City of Laguna Woods GIS,
 City_Boundary.shp
 County Boundary -
 Cal Atlas, County.shp
 Major Lakes and Reservoirs -
 Cal Atlas, CA_Lakes.shp
 Major Highways -
 Streetmap USA 2005
 Fault Zones -
 USGS Fault and Fold Database,
 qfaultshapefiles.zip and
 FEMA HAZUS-MH 2,
 Hazus_2_0_eq_faults.shp
 AP Fault Zones -
 California Geological Survey,
 CGS Information Warehouse,
 Regulatory Maps,
 merge of 32 Quads

Note: This map depicts Alquist-Priolo Fault Zones, or Earthquake Zones of Required Investigation. These zones were established by the State Geologists required by the Alquist-Priolo Earthquake Fault Zoning Act. State, County, and Local agencies must regulate most development projects within these zones to prevent the construction of buildings for human occupancy on the surface trace of active faults.



0 5 10 Miles

City of Laguna Woods
 Safety Element



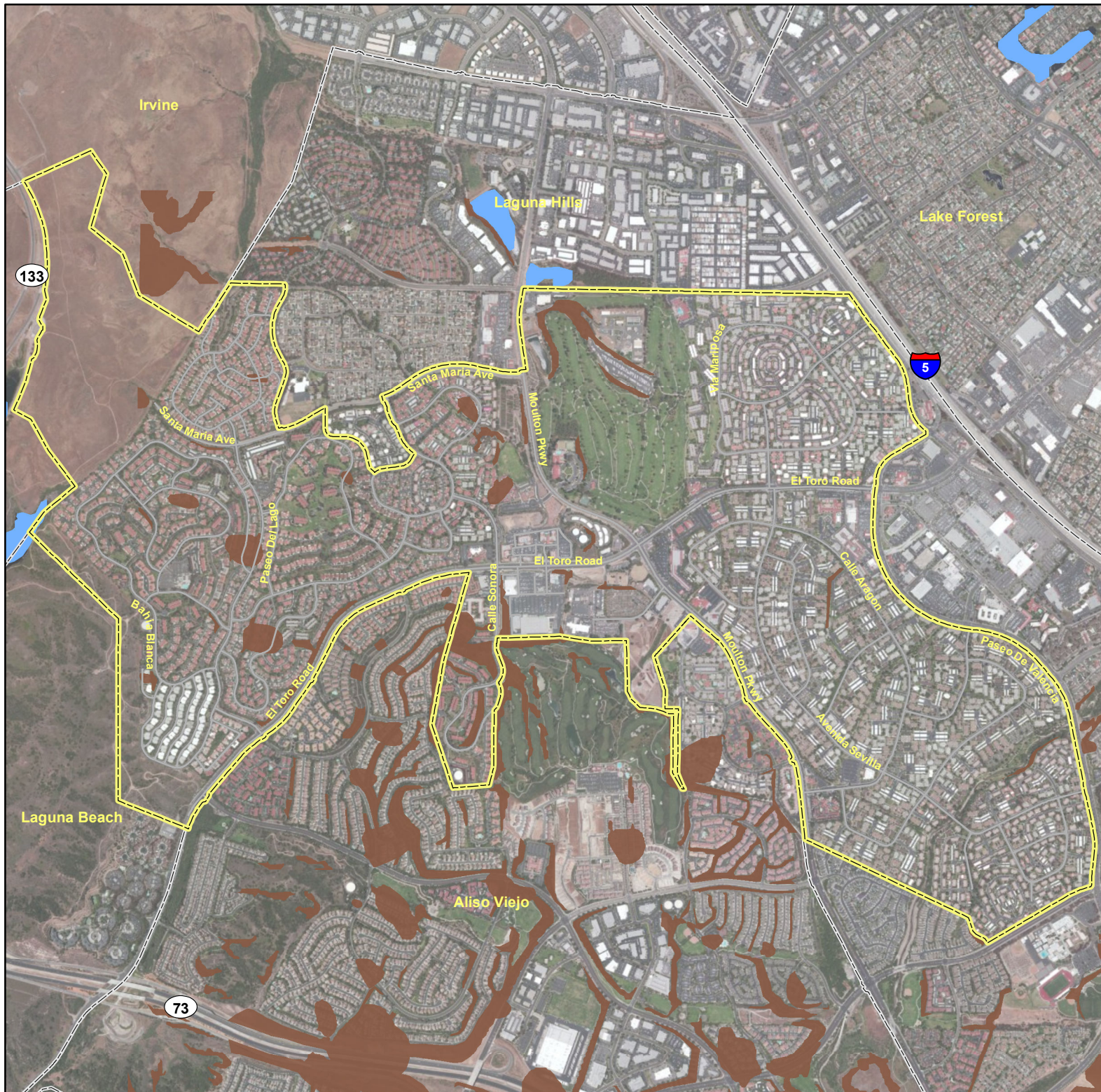


Figure S-4
Landslide Hazard Zones

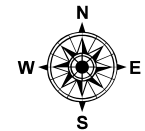
LEGEND

- Landslide Zone
- Laguna Woods Boundary
- Municipal Boundaries
- Major Lakes and Reservoirs
- Local Roads

Sources:

Laguna Woods Boundary -
City of Laguna Woods GIS,
City_Boundary.shp
Municipal Boundary -
Cal Atlas, Incorp12_1.shp
Major Lakes and Reservoirs -
Cal Atlas, CA_Lakes.shp
Local Roads -
City of Laguna Woods GIS,
merge of centerline files
Imagery - ESRI Basemap, ArcGIS 10
Landslide Zones -
California Geological Survey,
CGS Information Warehouse,
Regulatory Maps,
San Juan Capistrano Quad, sjc_Is.shp

Note: This map depicts the Zone of Required Investigation for earthquake-induced landslides. The Seismic Hazards Mapping Act of 1990 requires site-specific geotechnical investigations be conducted within these zones prior to permitting developments designed for human occupancy.



0 0.25 0.5
Miles

City of Laguna Woods
Safety Element



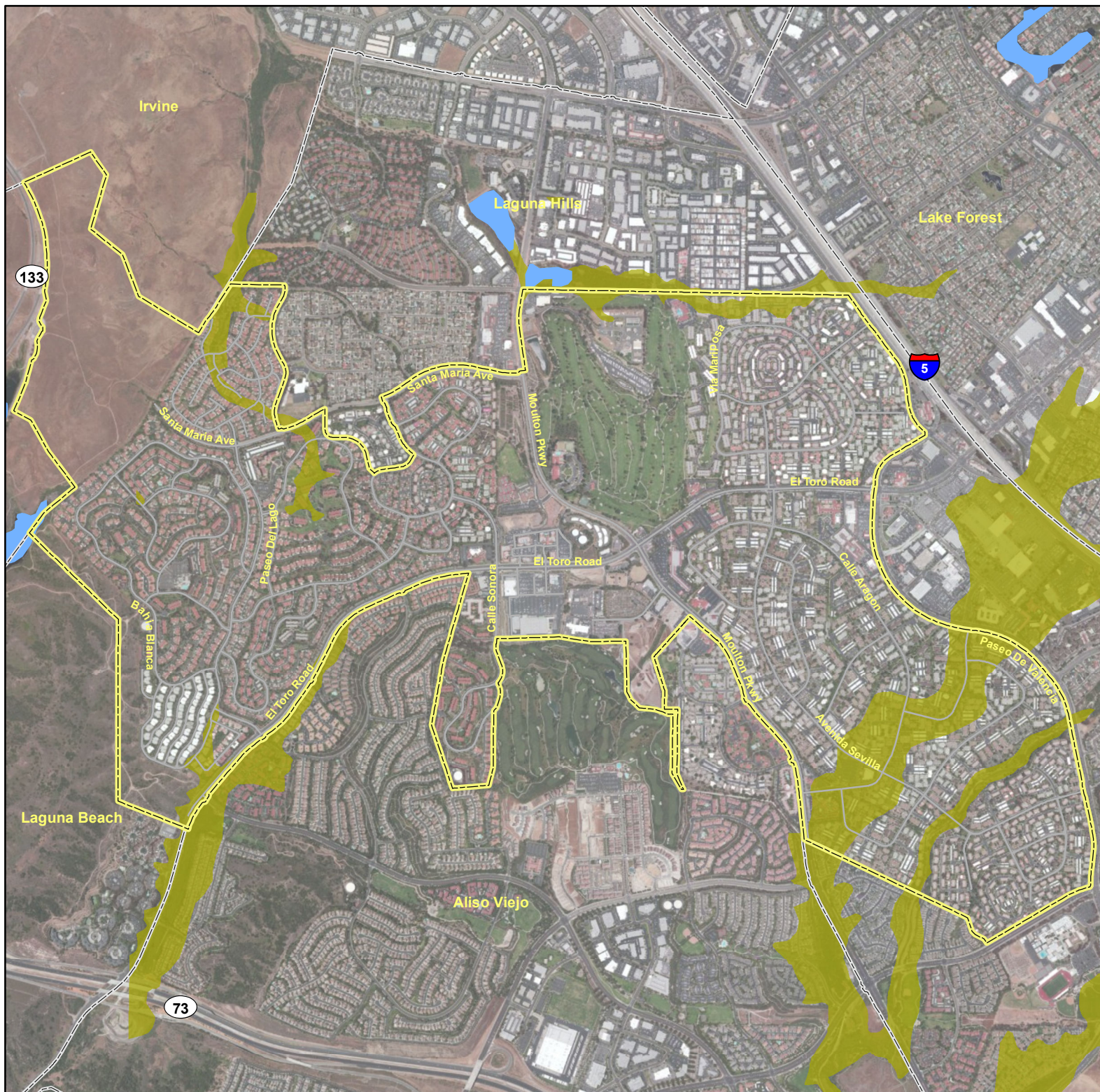


Figure S-5
Liquefaction Hazard Zones

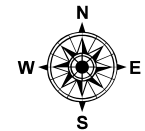
LEGEND

- Liquefaction Zones
- Laguna Woods Boundary
- Municipal Boundaries
- Major Lakes and Reservoirs
- Local Roads

Sources:

Laguna Woods Boundary -
City of Laguna Woods GIS,
City_Boundary.shp
Municipal Boundary -
Cal Atlas, Incorp12_1.shp
Major Lakes and Reservoirs -
Cal Atlas, CA_Lakes.shp
Local Roads -
City of Laguna Woods GIS,
merge of centerline files
Imagery - ESRI Basemap, ArcGIS 10
Liquefaction Zones -
California Geological Survey,
CGS Information Warehouse,
Regulatory Maps,
San Juan Capistrano Quad, sjc_lq.shp

Note: This map depicts the Zone of
Required Investigation for liquefaction. The
Seismic Hazards Mapping Act of 1990
requires site-specific geotechnical
investigations be conducted within these
zones prior to permitting developments
designed for human occupancy.



0 0.25 0.5
Miles

City of Laguna Woods
Safety Element



Earthquake, Liquefaction, and Landslide History

Thousands of earthquakes occur in Southern California each year; however, most are not felt by humans. The most recent significant earthquake to affect the city occurred in 2008 in Chino Hills, California and registered a magnitude of 5.4. According to research by the United States Geological Survey and California Geological Survey¹, the probability of an earthquake with a magnitude of 6.7 or greater occurring in Southern California by 2038 is 97%. Earthquakes with magnitudes of 7.0, 7.5, and 8.0 over the same period have estimated probabilities of 82%, 37%, and 3%, respectively.

The most significant landslide in the recorded history of the city occurred in 2004 when a slope between Calle Sonora (a private roadway owned by the Golden Rain Foundation of Laguna Woods) and the Home Depot Shopping Center east of El Toro Road failed. The landslide caused substantial property damage, including temporary disconnection of vehicle and pedestrian traffic into and out of the Laguna Woods Village Gate 14 neighborhood. An estimated 588 residents were affected.

Goal, Policy Objectives, and Implementation Actions

Goal S-3. Protect residents, businesses, and government functions from geologic and seismic hazards.

Policy Objectives and Implementation Actions

S-3.1. Adopt and enforce regulations pertaining to new and existing structures.

- A. Review, update, and enforce geologic/seismic-related regulations, including:
 - Regulations pertaining to building standards; and
 - Regulations requiring certification of seismic studies by an engineering geologist.

HUMAN-CAUSED AND OTHER HAZARDS

There are numerous human-caused and other hazards facing the city, including energy shortages, public health crises, radiological accidents, terrorism, extreme heat, water shortages, hazardous materials accidents, airplane accidents, civil disturbances, and natural gas pipeline failures.

Energy Shortages

Energy shortages are considered to pose a significant risk to the city, potentially causing loss of life, property damage, personal injury, and economic loss. For city residents, loss of power for personal medical devices (e.g., oxygen machines, ventilators, ventricular assist devices, dialysis machines, nebulizers, intravenous pumps) is of particular concern, compounded by local demography.

¹ The Uniform California Earthquake Rupture Forecast, V. 2 (2008)

SAFETY ELEMENT

Energy shortages occur on a regular basis for a variety of reasons, including as a result of excess demand, reductions in supply, and system interruptions. Southern California Edison provides all electrical power to the city and frequently conducts pre-planned local power outages to facilitate infrastructure repairs and upgrades. Unplanned local power outages also occur as a result of traffic accidents, storms, construction, natural disasters, and periods of high power demand.

Public Health Crises

Public health crises are considered to pose a significant risk to the city, potentially causing loss of life, personal injury, and economic loss. The Orange County Health Care Agency views influenza, foodborne illnesses, and West Nile virus as the most plausible outbreak, epidemic, and pandemic threats in Orange County. The City, in consultation with Laguna Beach Animal Services, views avian botulism, exotic Newcastle disease, and rabies virus as plausible diseases transmitted from animals that may affect humans. Other concerns include Hantavirus and equine herpes virus.

Air pollution can also be a public health hazard, particularly for elderly and infirm individuals who are exposed to protracted instances of concentrated pollution. The city is located within the South Coast Air Basin, a non-attainment area with air quality less than state and federal standards. Motor vehicles are the predominant source of regional emissions throughout the air basin.

Radiological Accidents

The city is located approximately 20 miles north of the San Onofre Nuclear Generating Station (SONGS). Based on the Nuclear Regulatory Commission's (NRC) technical expertise, radiological accidents at SONGS are considered to pose an unlikely, but potentially significant risk to the city, potentially resulting in loss of life, personal injury, economic loss, and property damage. In 2013, Southern California Edison announced plans to permanently decommission SONGS.

For purposes of emergency planning and response, three zones have been established surrounding SONGS. The city is located within the Public Education Zone (PEZ) and Ingestion Pathway Zone (IPZ), but not the Emergency Planning Zone (EPZ). The protective action that city residents would most likely be asked to take during a major radiological accident is sheltering-in-place. Food and water may also be contaminated, resulting in ingestion exposure.

Terrorism

Terrorism is considered to pose an unlikely, but potentially significant risk to the city, potentially resulting in loss of life, personal injury, economic loss, and property damage. Numerous potential terrorist targets exist throughout California and Orange County, including government facilities, schools, religious institutions, gathering places (e.g., shopping centers and entertainment venues), medical clinics, power plants, utility infrastructure, transportation infrastructure, water storage facilities, locations of high-profile individuals, and

financial institutions. The city contains many of those potential targets and is located near a multitude of others. The city may also be affected by regional acts of terrorism (e.g., situations similar to the anthrax attacks of 2001).

Extreme Heat

Extreme heat is considered to pose a moderate risk to the city, potentially resulting in loss of life, personal injury, economic loss, and property damage. Of particular concern for city residents are instances of extreme heat that exacerbate chronic diseases and heat related illnesses. Instances of extreme heat can also result in a variety of cascading effects such as energy and water shortages. Individuals with limited income or access to air conditioning may be disproportionately affected by instances of extreme heat due to their lessened ability to acclimatize.

Water Shortages

Water shortages are considered to pose a moderate risk to the city, potentially resulting in loss of life, personal injury, economic loss, and property damage. Drought conditions can be agricultural, meteorological, hydrological, socioeconomic, or regulatory in nature, and compounded by ETWD's reliance on imported water. Local droughts can be caused or made worse by conditions where imported water originates. Deteriorating and seismically inadequate infrastructure located in the Sacramento-San Joaquin River Delta is of particular concern, as any disruption in the conveyance of water from the Delta is likely to jeopardize the viability of local water supplies. Droughts can also result in cascading effects such as increased risk of wildfires.

Hazardous Materials Accidents

Hazardous materials accidents are considered to pose a low to moderate risk to the city, possibly resulting in loss of life, personal injury, economic loss, and property damage. The majority of the hazardous materials in the city are associated with relatively low-risk and small-scale operations such as vehicle fueling/service stations, pools, garment cleaners, maintenance yards, and power generators. Hazardous materials are also frequently transported by vehicle and truck on routes including Interstate 5 and State Route 73, both located short distances from the city. Hazardous materials accidents can also result in cascading effects such as fires and public health crises.

Airplane Accidents

Airplane accidents are considered to pose an unlikely and low risk to the city; however, occurrences could potentially result in loss of life, personal injury, economic loss, and property damage. The only airplane accident in the recorded history of the city occurred in 1967 while the Marine Corps Air Station - El Toro was still active. The Marie Corps Air Station was decommissioned in 1999 and the city is not a part of any regular commercial flight paths, thereby greatly limiting its risk.

Civil Disturbances

Civil disturbances are considered to pose an unlikely and low risk to the city; however, occurrences could potentially result in loss of life, personal injury, economic loss, and property damage. While there is no history of

SAFETY ELEMENT

civil disturbance in the city, local land uses such as government facilities, schools, religious institutions, gathering places, medical clinics, power plants, utility infrastructure, and financial institutions may be the location or motivating factor of future civil disturbances.

Natural Gas Pipeline Failures

Natural gas pipeline failures are considered to pose an unlikely and low risk to the city; however, occurrences could potentially result in economic loss as a result of service interruptions. There are no high-pressure distribution or transmission pipelines located in the vicinity of the city, thereby greatly limiting the risk of large scale explosions such as the 2010 San Bruno Pipeline Explosion.

Goal, Policy Objectives, and Implementation Actions

Goal S-4. Protect residents, businesses, and government functions from human-caused and other hazards.

Policy Objectives and Implementation Actions

S-4.1. *Implement resource and property protection and improvement projects.*

- A. Develop, implement, and support plans, projects, and programs that reduce energy use and meet critical energy supply needs during emergencies.
- B. Develop, implement, and support plans, projects, and programs that reduce water use and augment local water supplies.
- C. Adopt and enforce regulations requiring emergency backup generators for new and redeveloped fuel stations and cellular telephone towers.

S-4.2. *Provide opportunities for local hazard relief and intervention.*

- A. Designate a cooling center for use during extreme heat events and energy shortages.
- B. Designate a point of dispensing to deliver emergency prophylaxis during public health crises.

S-4.3. *Collaborate with federal, state, and local agencies regarding human-caused and other hazards to increase resiliency throughout the city.*

- A. Participate in and support efforts by federal, state, and local agencies and organizations to decrease air pollution emissions occurring within the South Coast Air Basin.
- B. Collaborate with electrical and natural gas utility providers to ensure appropriate scheduling and advance communication of planned local power outages.

EMERGENCY READINESS

Fires, floods, geologic, seismic, human-caused, and other hazards are largely unpredictable and can result in a variety of adverse impacts, including loss of life, personal injury, economic injury, and property damage. Therefore, it is imperative that the City ready itself for such emergencies.

City residents and businesses are encouraged to be as prepared as possible to independently care for themselves and others during emergencies. Effective emergency preparedness can dramatically reduce the potential impacts and severity of hazards, while also allowing governmental resources to focus on the areas of greatest need. In particular, residents with disabilities, access, and functional needs are encouraged to make arrangements unique to their specific circumstances and businesses are encouraged to plan for their continuity of operations and post-emergency recovery.

Goal, Policy Objectives, and Implementation Actions

Goal S-5. Ensure that residents, businesses, and government functions are ready for emergencies.

Policy Objectives and Implementation Actions

- S-5.1. Increase local understanding and awareness of hazard conditions and the importance of emergency preparedness.*
 - A. Develop and implement volunteer and community education programs and projects.
 - B. Maintain the following information for residents and businesses:
 - Information regarding local hazard conditions;
 - Specific-hazard prevention and safety information; and
 - Information regarding local safety-related resources.
- S-5.2. Increase and maintain the security, reliability, continuity, and functionality of critical City facilities.*
 - A. Retrofit critical City facilities for seismic safety.
 - B. Improve emergency power backup capabilities for critical City facilities.
 - C. Design and construct a permanent Emergency Operations Center.
- S-5.3. Implement rapid, reliable, and redundant communications systems for City use.*
 - A. Operate a mass notification system for rapid communication during emergencies.
 - B. Increase emergency communications capabilities between internal and external coordination points (e.g., reception centers, shelters, points of dispensing, and key service providers).
- S-5.4. Provide for continuity of the City's "day-to-day" operations.*
 - A. Develop and implement a Continuity of Operations Plan.
- S-5.5. Build the City's internal emergency services-related capabilities.*
 - A. Train staff in emergency services functions.

SAFETY ELEMENT

B. Develop and implement systems to access and manage critical information during emergencies.

C. Develop and implement emergency plans pertinent to local hazard conditions.

S-5.6. *Develop relationships between the City and private and nonprofit entities.*

A. Develop memoranda of understanding for emergency resources and provisions (e.g., reception centers, shelters, points of dispensing, supplies, and equipment).

S-5.7. *Provide the highest levels of public safety services as are available and fiscally feasible.*

A. Review fire response times to ensure that they meet or exceed industry standards.

B. Review police services response times to ensure that they meet or exceed industry standards.

C. Promote coordinated efforts with local, State, and federal agencies to increase public safety.

CRIME PREVENTION

Overall, the city experiences very low crime rates; however, instances of criminal activity do occur. In a general sense, violent crimes have historically occurred less frequently than non-violent crimes such as burglary and larceny-theft; however, the City and Orange County Sheriff's Department are committed to reducing both. Also of concern are motor vehicle-related violations of the California Vehicle Code and crimes targeting older adults such as fraud, identity theft, and elder abuse.

Crime Prevention through Environmental Design

Crime Prevention through Environmental Design (CPTED) is a multi-disciplinary approach to land use planning and development that considers opportunities provided by the built environment to deter criminal activity. CPTED is intended to reduce crime by conditioning development projects in a manner that maximizes the visibility of vulnerable areas, promotes access control, differentiates between public and private spaces, ensures property maintenance, and supports public safety.

Goal, Policy Objectives, and Implementation Actions

Goal S-6. Improve community safety and reduce opportunities for criminal activity.

Policy Objectives and Implementation Actions

S-6.1. *Provide the highest level of police services as are available and fiscally feasible.*

See "Emergency Readiness" priority issue (page S-22).

S-6.2. *Leverage the City's development review process to reduce opportunities for criminal activity.*

A. Ensure that new development, redevelopment, and City projects consider Crime Prevention through Environmental Design (CPTED) concepts during the planning and design phases.

City of Laguna Woods Agenda Report

DATE: December 10, 2013 Public Safety Committee Meeting

TO: Chair and Members of the Public Safety Committee

FROM: Christopher Macon, City Manager

AGENDA ITEM: Climate Adaptation Plan

Recommendation

Discuss and provide input.

Background

In 2011, the City was awarded a grant of \$250,000 from the State of California's Disaster Recovery Initiative (DRI) for a variety of disaster planning projects. One of those projects is the development of a Climate Adaptation Plan.

Discussion

Today's meeting is the public kickoff for the Climate Adaptation Plan project. The meeting will focus on introducing the concept of climate adaptation planning and discussing projected local climate change impacts and vulnerabilities. Impacts and vulnerabilities will be largely based on data drawn from the State of California's "CalAdapt" tool, which synthesizes existing downscaled climate change scenarios and climate impact research. Information will also be gathered from a variety of other agencies and organizations with related subject matter expertise.

The City's Climate Adaptation Plan will be developed using guidance provided by the California Natural Resources Agency and California Emergency Management Agency with the specific goal of developing a strategy for adapting to current and projected climate changes including, but not limited to, changes with the potential to impact wildfire risk, water supply, public health, public safety, ecosystem function, and economic continuity (e.g., warmer weather may increase fuel hazards and ignition risks leading to an increase in wildfire intensity). Although certain

greenhouse gas emission reduction strategies may be mutually beneficial, climate adaptation planning is focused on maintaining function, not reducing sources.

The City is providing numerous opportunities for public participation throughout the course of this project, including at the following public meetings:

MEETING	DESCRIPTION
Public Safety Committee Tuesday, December 10, 2013 at 2 p.m.	Kickoff/project overview/discussion
Public Safety Committee Tuesday, February 11, 2014 at 2 p.m.	Review/discussion
Public Safety Committee Tuesday, March 11, 2014 at 2 p.m.	Recommendation to City Council
City Council (Public Hearing) Wednesday, March 19, 2014 at 2 p.m.	Consideration of adoption

Fiscal Impact

Costs associated with the Climate Adaptation Plan project (\$80,000 estimate) will be reimbursed by the State of California's Disaster Recovery Initiative.

Conclusion

Development of a Climate Adaptation Plan will help guide the City's public safety, emergency management, and environmental efforts. This project is grant-funded.

Attachment: Key Climate Adaptation Plan Definitions

Introduction

This project will use definitions consistent with state guidance documents and the Intergovernmental Panel on Climate Change (IPCC). The IPCC is an international scientific body that reviews and assesses the most recent climate change related scientific, technical, and socio-economic information produced worldwide. The following is a list of key definitions as used in the field of climate change adaptation.

Key Adaptation Definitions

Adaptation – Adjustments in natural or human systems in response to actual or expected climate changes or their effects, which minimize harm or take advantage of beneficial opportunities (CNRA 2009).

Adaptive Capacity – The ability of a system to respond to climate change (including climate variability and extremes), to moderate potential damages, to take advantage of opportunities, and to cope with the consequences (CNRA 2009).

Climate Change – Any long-term change in average climate conditions in a place or region, whether due to natural causes or as a result of human activity (CNRA 2009).

Climate Variability – Variations in the mean state of the climate and other statistics (such as standard deviations or the occurrence of extremes) on all temporal and spatial scales beyond that of individual weather events (CNRA 2009).

Conservation – The preservation of natural resources in their natural, scenic, agricultural, historical, forested, or open space condition (California Civil Code).

Exposure – The climate change effects that a community will likely experience based on available data (Cal EMA 2012).

Extreme Weather Events – The occurrence of a value of a weather variable above or below a threshold value near the upper or lower ends of the range of observed values of the variable (IPCC 2012). For simplicity, this report will use “extreme weather events” in a descriptive, non-quantitative way to refer to events that are substantially more powerful or impactful than standard events.

Impact – An effect of climate change on the structure or function of a system (CNRA 2009).

Mitigation – In hazard mitigation planning, mitigation means “sustained action taken to reduce or eliminate the long-term risk to human life and property from natural, human-caused, and technological hazards and their effects. Note that this emphasis on long-term risk distinguishes mitigation from actions geared primarily to emergency preparedness and short-term recovery” (Cal OES 2013).

Onset – The time frame in which a climate change impact is likely to occur (Cal EMA 2012).

Resilience – The ability of a community, natural resource, or system to anticipate, absorb, accommodate, or recover from the effects of a potentially hazardous event in a timely and efficient manner, including through ensuring the preservation, restoration, or improvement of its essential basic structures and functions (IPCC 2012).

Risk – The possibility of interaction of physically defined hazards with the exposed systems. Risk is commonly considered to be the combination of the likelihood of an event and its consequences – i.e., risk equals the probability of climate change impact occurring multiplied by the consequences a given system may experience (CRNA 2009).

City of Laguna Woods

Climate Adaptation Plan

Key Adaptation Definitions

Sensitivity – A structure, function, or population that could be affected by climate change (Cal EMA 2012). The City’s Local Hazard Mitigation Plan defines it similarly, but uses the terms “property,” “service,” and “people” in place of “structure,” “function,” or “population.”

Sustainability – A process in which the exploitation of resources, the direction of investments, the orientation of technological development, and institutional change are all in harmony and enhance both current and future potential to meet human needs and aspiration; sustainability integrates the political, social, economic, and environmental (IPCC 2007). A more common and concise definition of sustainability is a system that, “meets the needs of the present without compromising the ability of future generations to meet their own needs” (WCED 1987).

System - A human population or ecosystem; or a group of natural resources, species, infrastructure, or other assets (CRNA 2009).

Vulnerability – A susceptibility to harm or change. More specifically, the degree to which a system is exposed to, susceptible to, and unable to cope with the adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, as well as of non-climatic characteristics of the system, including its adaptive capacity (CRNA 2009).

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