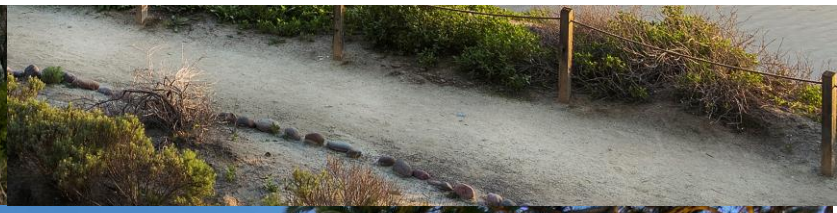
ENCINITAS GENERAL PLAN

SAFETY ELEMENT



CITY COUNCIL ADOPTED DRAFT

CITY OF ENCINITAS

SAFETY ELEMENT

ADOPTED BY CITY COUNCIL ON

August 9, 2023

CITY OF ENCINITAS

SAFETY ELEMENT

REVISED 2023

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I. EXECUTIVE SUMMARY

A. CONDITIONS IN ENCINITAS AND FOCUS OF THE SAFETY ELEMENT

The City of Encinitas is located in northern San Diego County and incorporated in 1986 to bring together the five unique communities of Cardiff-by-the-Sea, Leucadia, New Encinitas, Old Encinitas, and Olivenhain. The City is situated upon a rugged coastal terrace, that is bisected by a low-lying coastal ridge, and contains geographic features such as coastal beaches, cliffs, flat-topped coastal areas, steep mesa-like bluffs, and rolling hills. To the north, the City rises in elevation and the land is comprised of coastal bluffs and is surrounded by Batiquitos Lagoon, while to the south, the elevation drops to sea level, and the City is bordered by San Elijo Lagoon. These unique land features create a variety of natural conditions which can impact the community. Like most Southern California communities, Encinitas also lies in a seismically active area.

The City faces serious risks which can adversely impact the overall community safety, which includes, though are not limited to: earthquakes, geological instability leading to landslides, wildland and urban fires, flooding from storms and tidal events, and drought. The City has experienced these events since its official incorporation. These naturally occurring hazards are expected to be impacted by climate change and could increase in frequency and intensity. As temperatures increase, creating hotter and drier weather, so too does the risk for fires and potentially extended droughts, which can impact water supplies. Winter storms are anticipated to increase in intensity, leading to inundation and flooding of areas that typically do not experience these hazards, leading to slope instability along the bluffs and cliffs. Sea-level rise could also cause flooding in portions of the City at sea level.

The focus of the Safety Element is to identify public safety risks and create a unique set of goals, policies, and implementation actions that address hazards applicable to the City. The Safety Element will allow the City to address and prepare for these hazards, thereby reducing the impact of these hazards upon the community. The Safety Element is one component of the Encinitas General Plan and strives to align itself with the other mandatory elements, as required by California law, including: (1) Mobility (Circulation), (2) Housing, (3) Land Use, (4) Noise, (5) Recreation, and (6) Resource Management. Encinitas also participated in the San Diego County Multi-Jurisdictional Hazard Mitigation Plan, which was originally adopted by the City on April 14, 2004, revised and adopted on June 21, 2023. This plan allows the City to apply for federal grant funding eligibility to mitigate many of the naturally occurring hazards identified in the City.

B. PURPOSE OF SAFETY ELEMENT

The Safety Element is one of seven mandatory elements of the General Plan. The principal purpose of the element is the identification of potential risks within the city that pose a threat to the community's welfare, public health, and overall safety. Recurrent updates to the Safety Element ensure that the goals, policies, and implementation actions remain relevant and responsive to the community's changing needs. **Table S-1** displays what state law, specifically California Government Code Section 65302(g)(1), identifies as the list of safety risks that should be examined in each Safety Element.

Table–S-1: Required Safety Element Hazards (CA Gov Code Section 65302(g)(1))	
Seismically Induced Surface Rupture	Subsidence
Ground Shaking*	Liquefaction (areas with shallow groundwater [<50 feet]) *
Ground Failure*	Other Seismic Hazards identified under Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code
Flooding*	Other Geologic Hazards known to the legislative body
Tsunami*	Wildland and Urban Fires*
Seiche	Climate Change*
Dam Failure*	Evacuation*
Slope Instability leading to Mudslides and Landslides*	
Hazards denoted by an (*) are potential hazards relevant to the City of Encinitas.	

Each Safety Element must also geographically identify each hazard's risk location and potential extent using a map, primarily those risks about flooding, seismicity, fires, and evacuation.

C. MOVING FORWARD

The City of Encinitas reaffirms the importance of protecting the community from potential natural hazard risks. The City's location and history with hazards make it likely that Encinitas will experience risks from seismic, flooding, and wildfire events in the future. Encinitas can also expect some of these risks to be impacted as climate change accelerates. The Safety Element, in conjunction with the San Diego County MJHMP, is the best avenue to understand and address natural hazard risks within the community of Encinitas.

Wildfire in the Encinitas Area

II. INTRODUCTION

A. PURPOSE

The City of Encinitas takes great pride in its responsibility to safeguard the well-being of its community members. Among other things, this includes adequately anticipating potential emergencies caused by natural and human-made hazards and planning response strategies in the event of emergencies and disasters. This element provides the necessary context to understand the hazards that threaten the community and outlines policies and practices that take tangible steps toward ensuring the community's continued prosperity.

B. SCOPE

The Encinitas Safety Element addresses the relevant planning hazards mandated by California Government Code Section 65302(g). Under state planning law, this element identifies and discusses the following hazards as they relate to the City:

- Seismic and geologic hazards such as seismic shaking, liquefaction, landslides, and mudslides caused by slope instability
- Fire hazards, including both wildland and urban fires
- Flood hazards
- Climate adaptation and resiliency strategies
- Shoreline protection, including tsunami and coastal erosion

The element also identifies and addresses the following safety issues, as permitted by law:

- Dam failure
- Disaster and emergency preparedness, including evacuation
- Hazardous materials and waste

C. ELEMENT ORGANIZATION

This element is organized to be consistent with the other General Plan Elements. The goals, policies, and implementation programs provide declarative statements about the City's approach to safety-related issues. A definition of these key terms is provided below:

Goal: A general statement of the desired community outcome. It is denoted as *Goal S-X* in this element.

Policy: Policies are actions a community will undertake to meet its goals. They are denoted as *Policy S-X.X* in this element.

Implementation Action/Programs: A list of recommended programs and future actions necessary to achieve the declared element goals and policies; implementing actions are discussed in Section IV.

Many of the previous elements' policies have been incorporated into this element either as a new policy or an implementation action. Some of the previous goals and policies have been modified from the previous text language to ensure new goals, policies, and implementation actions meet City needs and best practice standards. Together, the goals, policies, and implementation actions/programs in this element provide a framework for decision-making related to the general safety of the Encinitas community.

D. CONSISTENCY WITH OTHER ELEMENTS

Integrating safety considerations throughout the General Plan creates a consistent framework that prioritizes the community's well-being. The Encinitas Safety Element is an essential component of the General Plan and works in tandem with other elements to guide these efforts.

Circulation

Coordination between the Mobility (Circulation) Element and the Safety Element is an important component of comprehensive planning. The Mobility (Circulation) Element can influence public health and safety by addressing traffic congestion on roads designated as evacuation routes during emergencies, railroad right of way safety guidelines, and by redefining truck routes to avoid residential and other heavily populated areas.

Housing

The Housing Element is more closely associated with land use and incorporates many safety considerations into its goals and objectives. Building practices and codes addressed in the Housing Element contribute to community safety by improving the built environment's resiliency to natural and human-caused hazards. Additionally, the Housing Element can help identify vulnerable populations and inform the Safety Element to ensure proper protections are in place.

Land Use

The Land Use Element is particularly responsive to natural hazards. Understanding the natural and human-caused hazards that threaten a community can help reduce the possibility of disaster by avoiding the designation of sensitive land uses in hazard-prone areas. Several goals within

the Land Use Element are focused on protecting and enhancing the community as part of the development and entitlement process.

Noise

The Noise Element seeks to limit the community's exposure to excessive noise levels by identifying sources and acceptable thresholds for noise and establishing policies to ensure compatibility between land uses and the community's noise environment. It also provides a basis for comprehensive local programs to control and abate environmental noise and protect residents from excessive exposure.

Recreation

The Recreation Element focuses on preserving the city's parks and recreational facilities. It is specifically concerned with expanding the City's existing recreational facilities inventory and broadening the range of services. These assets enhance the character of the City, help to create a unique and pleasant atmosphere for City residents and visitors and provide a valuable physical fitness resource for the community.

Resource Management

The Resource Management Element is concerned with identifying goals and policies designed to preserve significant natural and cultural resources in the City and its surrounding area. This focuses on open space protection and ecosystem services for flood risk reduction and habitat and natural steep slope and bluff preservations. The City's open space resources possess important aesthetic and recreational value and provide vital wildlife and vegetative habitats. The City strives to carefully balance maintaining the open space while utilizing progressive open space management techniques to help mitigate wildfire and landslide hazards, thereby reducing the need for additional City services.

E. CONSISTENCY WITH LOCAL HAZARD MITIGATION PLAN

The San Diego County Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) serves three primary purposes: 1) it provides a comprehensive analysis of the natural and human-caused hazards that threaten the City, with a focus on mitigation; 2) it keeps the City of Encinitas eligible to receive additional federal and state funding to assist with emergency response and recovery, as permitted by the federal Disaster Mitigation Act (DMA) of 2000 and California Government Code Sections 8685.9 and 65302.6; and 3) it complements the efforts undertaken by the Safety Element. The San Diego County MJHMP complies with all requirements set forth under the federal Disaster Mitigation Act of 2000 and received approval from the Federal Emergency Management Agency (FEMA) in 2017. Sections of the Safety Element are supplemented by the MJHMP, incorporated

by reference in this element, as allowed by California Government Code Section 65302(g). To access the MJHMP, visit the City's website (https://www.encinitasca.gov/government/departments/public-safety/emergency-preparedness).

F. CONSISTENCY WITH THE LOCAL COASTAL PROGRAM

The Encinitas Local Coastal Program (LCP) was adopted on April 12, 1995, by City Council Resolution No. 95-032. On May 11, 1995, the LCP was certified by the California Coastal Commission to be consistent with the California Coastal Act, thereby allowing the City to take over coastal permit authority and regulate development within the City's coastal zone beginning May 15, 1995. The City's LCP is not a distinct, separate document but instead consists of a mix of certain general plan elements, specific plans, municipal code sections, and informational guidelines. Specific goals and policies of the Safety Element are included as a component of the LCP (labeled separately). The Safety Element is intended to be consistent with and to help aid the implementation of the objectives and policies of the Shoreline Preservation Strategy. Detailed actions and programs which may be pursued within Encinitas and immediately offshore to implement the Strategy must be monitored and checked for consistency with the goals and policies of this General Plan, inclusive of the Safety Element, and LCP.

G. REGULATORY ENVIRONMENT

California Government Code 65302(g)(1)

California Government Code Section 65302(g)(1) establishes the legislative framework for California's safety elements. This framework consolidates the requirements from relevant federal and state agencies, ensuring that all cities comply with the numerous statutory mandates. These mandates include:

- As applicable, protect against significant risks related to earthquakes, tsunamis, seiches, dam failure, landslides, subsidence, flooding, and fires.
- Including maps of known seismic and other geologic hazards.
- Where applicable, address evacuation routes, military installations, peak-load water supply requirements, and minimum road widths and clearances around structures related to fire and geologic hazards.
- Identifying areas subject to flooding and wildfires.
- Avoid locating critical facilities within areas of high risk.
- Assessing the community's vulnerability to climate change.
- Include adaptation and resilience goals, policies, objectives, and implementation measures.

California Government Code Sections 8685.9 and 65302.6

California Government Code Section 8685.9 (also known as Assembly Bill 2140 or AB 2140) limits California's share of disaster relief funds paid out to local governments to 75 percent of the funds not paid for by federal disaster relief efforts. However, if the jurisdiction has adopted a valid hazard mitigation plan consistent with DMA 2000 and has incorporated the hazard mitigation plan into the jurisdiction's General Plan, the State may cover more than 75 percent of the remaining disaster relief costs. All cities and counties in California must prepare a General Plan, including a Safety Element that addresses various hazard conditions and other public safety issues. The Safety Element may be a standalone chapter or incorporated into another section as the community wishes. California Government Code Section 65302.6 indicates that a community may adopt an LHMP into its Safety Element as long as the LHMP meets applicable state requirements. This allows communities to use the LHMP to satisfy state requirements for Safety Elements. As the General Plan is an overarching long-term plan for community growth and development, incorporating the MJHMP into it creates a stronger mechanism for implementing the MJHMP.

California Government Code 65302(g)(3) adopted through SB 1241 (2012)

California Government Code Section 65302(g)(3) requires the Safety Element to identify and update mapping, information, goals, and policies to address wildfire hazards. As part of this requirement, any jurisdiction that includes State Responsibility Areas or Very High Fire Hazard Severity Zones in the Local Responsibility Areas (LRA), as defined by the California Board of Forestry and Fire Protection (Board), is required to transmit the updated element to the Board for review and approval.

California Government Code 65302(g)(4) adopted through SB 379 (2015)

California Government Code Section 65302(g)(4) requires the Safety Element to address potential impacts of climate change and develop potential strategies to adapt/mitigate these hazards. Analysis of these potential effects should rely on a jurisdiction's Local Hazard Mitigation Plan or an analysis that includes data and analysis from the State of California's Cal-Adapt website.

California Government Code 65302(g)(5) adopted through SB 99 (2019)

California Government Code Section 65302(g)(5) requires the Safety Element to identify evacuation constraints associated with residential developments, specifically focused on areas served by a single roadway.

California Government Code 65302.15(a) adopted through AB 747 (2020) and AB 1409 (2021)

California Government Code 65302.15(a) requires upon the next revision of a Local Hazard Mitigation Plan on or after January 1, 2022, or beginning on or before January 1, 2022, if a local jurisdiction has not adopted a local hazard mitigation plan, the safety element to be reviewed and updated as necessary to identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios. The bill would authorize a city or county that has adopted a local hazard mitigation plan, emergency operations plan, or other document that fulfills commensurate goals and objectives to use that information in the safety element to comply with this requirement by summarizing and incorporating by reference that other plan or document in the safety element.

National Flood Insurance Program

The National Flood Insurance Program (NFIP) was created in 1968 to help communities adopt more effective floodplain management programs and regulations. The Federal Emergency Management Agency is responsible for implementing the NFIP and approves the floodplain management plans for participating cities and counties. The City of Encinitas participates in the NFIP and uses Title 20, Chapter 20.08 of the Encinitas Municipal Code to administer flood/stormwater management regulations throughout the City.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act (California Public Resources Code [PRC], Chapter 7.5, Section 2621-2699.6) was intended to reduce the risks associated with surface faults and requires that the designated State Geologist identify and map "Earthquake Fault Zones" around known active faults. Per PRC Section 2623 a, cities and counties shall require a geologic report defining and delineating any hazard of surface fault rupture before the approval of a project. If the jurisdiction finds no undue hazard of that kind exists, the geologic report on the hazard may be waived with the State Geologist's approval. For a list of project types, please refer to PRC Section 2621.6. No Alquist-Priolo Earthquake Fault Zones run through Encinitas; therefore, it is not a topic of concern addressed in this document.

Seismic Hazards Mapping Act

The Seismic Hazards Mapping Act (California Public Resources Code, Chapter 7.8, Section 2690-2699.6) created a statewide seismic hazard mapping and technical advisory program in 1990 to help cities and counties more effectively address the effects of geologic and seismic hazards caused by earthquakes. Under PRC 2697, cities and counties shall require a geotechnical report defining and delineating any seismic hazard before approving a project located in a seismic hazard zone. If the jurisdiction finds that no undue hazard of this kind exists based on information resulting from studies conducted on sites near the project and of similar soil composition to the project site, the geotechnical report may be waived. After a report has been

approved or a waiver granted, subsequent geotechnical reports shall not be required, provided that new geologic datum, or data, warranting further investigation is not recorded. Each jurisdiction shall submit one copy of each approved geotechnical report, including the mitigation measures to be taken, if any, to the State Geologist within 30 days of its approval of the report. For a list of project types, please refer to PRC Section 2693.

Cortese List

Government Code Section 65962.5 (typically referred to as the "Cortese List") identifies sites that require additional oversight during the local permitting process as well as compliance with the California Environmental Quality Act (CEQA). The list is generally a compilation of properties and businesses that generate, store, and/or have been impacted by the presence of hazardous materials/wastes. Many properties identified on this list may be undergoing corrective action, cleanup, or abandoned and in need of these activities. The City of Encinitas regularly checks federal and state agencies that maintain this list to verify any locations within the City that contain these sites.

III. HAZARDS / TRENDS

A. EMERGENCY PREPAREDNESS

The ability to anticipate, evaluate, and mitigate potential risks posed by natural and human-caused hazards is paramount to a City's longevity. Although this element specifically addresses natural and human-caused hazards, emergency preparedness involves many more considerations beyond identifying the hazards themselves. The Emergency Preparedness section consolidates and briefly describes the City of Encinitas' hazard prevention and response strategies.

Police Services

The City of Encinitas contracts for law enforcement services with the San Diego County Sheriff. The North Coastal Sheriff Station is located in Encinitas at 175 North El Camino Real. The station provides services for the cities of Encinitas, Solana Beach, Del Mar, and the unincorporated area of Rancho Santa Fe. In addition to patrol and traffic enforcement, the station has a Community Oriented Policing and Problem Solving (COPPS) team and a Crime Suppression Team, both of which work on specific community needs. As a contract city, Encinitas has access to Sheriff's resources (i.e., SWAT, helicopters, etc.).

Fire Services

The Encinitas Fire and Marine Safety Department provides a wide array of public safety services. These services include fire protection, emergency response, medical aid, fire prevention, disaster preparedness, search and rescue, lifeguard services, and community education programs. The Department has 71 full-time employees and five divisions: Fire Operations and Support Services, Fire Administration, Loss Prevention and Planning (Fire Prevention), Disaster Preparedness, and Marine Safety Services. Operating out of six fire stations they are responsible for responding to a variety of emergencies in a 20-square-mile area. The Department's Executive Team also manages the fire departments for the Cities of Del Mar and Solana Beach. Combined, they cover an area of approximately 25 square miles, with a total of 9 companies and eight fire stations. The Department coordinates with the San Dieguito Ambulance District for ambulance services. The unincorporated areas of San Diego County fire protection services are provided in a joint effort by San Diego County Fire Authority (SDCFA) and CAL FIRE, while all federal lands are provided fire protection services by the U.S. Forest Service.

Emergency Management

Emergency management is provided by the Emergency Preparedness Division of the Encinitas Fire and Marine Safety Department. This division provides all aspects of emergency management, including disaster mitigation, preparedness, response, and recovery activities.

Preparedness (Emergency Operations Plan)

The Emergency Operations Plan (EOP) is primarily responsible for informing the City of Encinitas' emergency management strategies. The EOP incorporates detailed response plans for emergency events such as fires, earthquakes, floods, train derailment, pandemics, and terrorist activities. These strategies are typically organized under four categories: mitigation, preparedness, response, and recovery. Preparedness activities focus on ensuring City Departments are adequately trained and prepared for future hazard events. City preparedness activities predominantly focus on ensuring the City's Emergency Operations Center (EOC) is adequately supplied and staffed by trained personnel in the event of an emergency.

Public Works Response to a Fallen Tree

Response

Emergency response activities typically focus on actions necessary to save lives and prevent further property damage during an emergency/disaster. Many of these activities are conducted in tandem with the San Diego Sheriff's Department and the Encinitas Fire and Marine Safety Departments' standard emergency response procedures. To guide response activities, the City will rely on the EOP and work closely with volunteer organizations such as the Community Emergency Response Team (CERT), which helps orchestrate internal and external communications, logistics, and assistance during large-scale emergencies. If City resources become overwhelmed, the City will request support through the Operational Area using automatic aid and mutual aid agreements currently in place. However, the City recognizes that mutual aid resources depend on availability and may be limited during a large regional incident. Therefore, consideration for strengthening self-sufficiency is a priority.

Recovery

Recovery activities typically occur after an emergency/disaster event. These activities focus on reestablishing services to any impacted areas, repairing and/or reconstructing damaged buildings and infrastructure, and aiding residents and businesses with permitting and approvals of building plans as part of the reconstruction process. Depending on the scale and type of incident, recovery could occur in specific community locations and/or require specialized expertise to address the issues created. Cleanup of hazardous wastes shall be considered part of the recovery from a major disaster event (fire, flood, landslide, tsunami).

Public Works Response to Mud/Debris Incidents

Public Works Response to Flooding

Mitigation

The EOP, in conjunction with the San Diego County MJHMP, identifies and assesses the natural and human-caused hazards that threaten the City and recommends proactive policy and procedural actions that reduce the risks associated with these hazards. This preemptive planning is intended to decrease the probability of emergency situations and minimize the effects should one occur. Examples of hazard mitigation and prevention can be found in many city policies, but

they are most prominently displayed in the numerous codes regulating construction and development.

Evacuation

As part of the City's preparedness initiatives, an Evacuation Analysis has been prepared that identifies the routes used for evacuation purposes. **Figure S-1** depicts the potential evacuation routes that could be used during a hazard event. These roadways are intended to meet evacuation needs; however, the City recognizes that some constraints may affect evacuation, namely narrow roadways, bridges, and railroad crossings. These locations may be vulnerable if failure or blockage occurs. Figure S-1 also identifies both constrained roadways (single ingress/egress conditions) and parcels that use these roadways (constrained parcels). These constrained locations are required to be identified by California Government Code Section 65302(g)(5) [SB99].

GOAL S-1A: PROMOTE A CULTURE OF EMERGENCY PREPAREDNESS IN ENCINITAS THROUGH COMPREHENSIVE EMERGENCY MANAGEMENT AND PLANNING.

Policies / Implementation Actions

S-1.1	**The public safety system shall provide standards and levels of service guidelines that assure quality of life and protection of life and property from preventable losses.** **S-1.1a** – Maintain adequate staffing levels, materials, and equipment to ensure timely response to public safety service demands. **S-1.1b** – Periodically update the City's priorities for future emergency service needs within the City.
S-1.2	**New development shall be responsible for meeting the initial cost and ongoing maintenance for public safety services and/or equipment associated with that development.**
S-1.3	**Coordinate citywide emergency management and disaster planning and response through the integration of City departments into the preparedness and decision-making (EOP reference).** a. Ensure operational readiness of the City's Emergency Operation Center (EOC). b. Emergency equipment response routes and evacuation procedures shall be defined and provided for. c. Implement an emergency preparedness program to ensure that emergency shelters and emergency evacuation and response routes are provided and clearly identified. d. The public safety program shall provide a response plan that strives to reduce life and property losses through technology, education, training, facilities, and equipment. e. Monitor and periodically update as necessary the Encinitas Emergency Operations Plan.
S-1.4	**Regional Response Capabilities. Work with local, regional, state, federal agencies, and private entities to increase regional response capabilities.** a. Conduct trainings and exercises with neighboring jurisdictions and the operational area. b. Promote regional planning initiatives that address emergency management priorities.
S-1.5	**Create and enhance an all-hazards outreach and education program prioritizing at-risk populations. Priority issues addressed should include:** a. Emergency Preparedness and Evacuation; b. Seismic and Geologic Hazards; c. Flood and Dam Failure Hazards; d. Wildfire Hazards; e. Human-Caused Hazards; f. Climate Adaptation; and g. Coastal Resources.

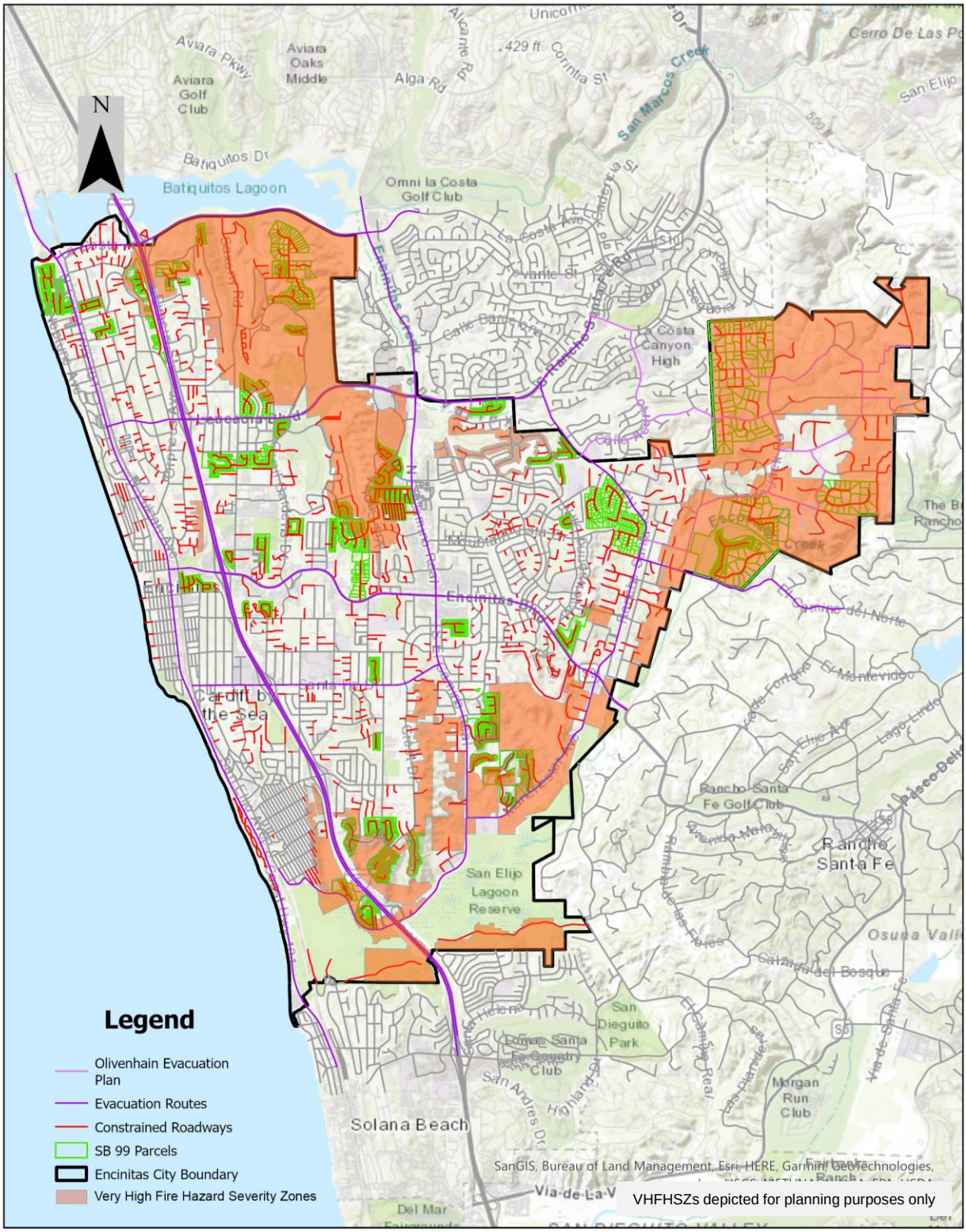
S-1.6	**Continue to participate in the San Diego County Multi-Jurisdictional Hazard Mitigation Plan.**

GOAL S-1B: A COMMUNITY THAT CAN EASILY EVACUATE.

Policies / Implementation Actions

S-1.7	**Ensure adequate evacuation capacity and infrastructure is available for existing and new development.** **S-1.7a** – Implement evacuation measures locally as outlined within the San Diego County Emergency Operations Plan (EOP) Annex Q titled, Evacuations. **S-1.7b** – Develop Evacuation Master Plan that identifies routes, potential hazard incidents, and criteria regarding capacity, safety, and viability.
S-1.8	**In areas with inadequate access or without at least two evacuation routes, provide adequate mitigation actions to address the deficiencies required by the Fire Code and State law.**
S-1.9	**For residential developments in hazard areas that do not have at least two emergency evacuation routes, identify alternate evacuation options, implement earlier evacuation notifications, and develop protocols for future evacuations that consider the constraints associated with these areas.**

FIGURE S-1 – Evacuation Routes – SB99 (Impaired Access Roads, Single Ingress/Egress)



B. SEISMIC AND GEOLOGIC HAZARDS

Seismic and geologic hazards are traditionally addressed together because they both involve the movement of the Earth's surface. Although some geologic events (landslide, subsidence, erosion, etc.) can and do happen independently, the primary catalyst for their occurrence is often a seismic event, commonly referred to as an earthquake. This section identifies four common seismic and geologic hazards that threaten the City of Encinitas and establishes policies and procedures meant to protect the community when an event occurs. A key consideration for seismic and geologic hazards is the potential for cascading effects resulting from an event. When an earthquake occurs, the seismic shaking can cause natural gas and water/sewer pipelines to rupture, which can cause other impacts like flooding, erosion, or fires. The goals, policies, and actions throughout this element are designed to work together to reduce both the individual and collective risk of these hazards.

Seismic Hazards

Southern California is a seismically active region, which experiences earthquakes on a regular basis. Encinitas is prone to seismic hazards due to its location and proximity to active earthquake faults. These hazards can be characterized as follows:

Surface Rupture

The Earth is covered in tectonic plates, which are large sections of the Earth's crust that are constantly shifting and moving closer together, further apart, or past one another. The movement of two plates past one another frequently causes friction resulting in plates that "stick." When this occurs, the same forces that push the plates past each other are now concentrated in certain areas. In time, friction can no longer hold the plates together, and the plates suddenly shift, releasing the massive build-up of energy (i.e., earthquake). This rapid movement and release of energy can cause the Earth to fracture and displace the land around it, resulting in an earthquake fault. Some faults are buried beneath the surface, while others are located at the surface of the Earth. Surface rupture of a fault is especially dangerous if structures are built on top of the fault or infrastructure crosses the fault as these facilities could be damaged by fault movement. If a surface rupture occurs, the movement could break pipelines, and damage roads and bridges, rendering them useless after the event. Areas of known surface rupture hazard in California are identified in Alquist-Priolo Special Study Zones. Encinitas does not currently have any Alquist-Priolo Special Study Zones, reducing the concern associated with surface rupture.

Seismic Shaking

Seismic shaking is the recognizable movement caused by the energy released from an earthquake. The same mechanism that creates a surface rupture is also responsible for seismic shaking and can produce an equally devastating effect. Earthquakes may occur without surface

rupture, which can still cause a significant amount of damage to buildings and other structures. Infrastructure such as roads, railways, pipelines, and power lines are also susceptible to damage and pose additional safety concerns. Unlike surface rupture, seismic shaking consequences are not restricted to the area immediately surrounding the fault. Energy resonating through the ground can travel hundreds of miles and cause damage in many locations simultaneously. The closer to the earthquake's source (epicenter), the stronger the shaking will be. Seismic shaking is of particular concern for the City of Encinitas due to the proximity to active faults that can generate significant earthquakes. The Rose Canyon Fault lies offshore (2.5 miles west of the city at its closest point) and is capable of generating a magnitude 6.2 to 7.2 earthquake that could potentially damage buildings and infrastructure throughout the city. A magnitude 6.9 earthquake on the Rose Canyon Fault could result in a peak ground acceleration of 0.40g within downtown Encinitas and the Coast Highway 101 corridor. These areas of the City are more likely to suffer heavier damage and greater human losses than other parts of the City because of the presence of older buildings, a higher relative population density, and softer soils more susceptible to liquefaction. Another fault system of concern is the Elsinore Fault Zone, which lies east of the City, approximately 35 miles at its closest point. **Figure S-2** depicts the locations of the closest faults to the city, which are located just east of the City limits.

Liquefaction

Liquefaction is a phenomenon that occurs when intense vibrations from an earthquake cause saturated soil to lose stability and act more like a liquid than a solid. This poses significant problems for buildings and other structures in areas where liquefaction can occur, as the ground may give way under the weight of the structure and its foundation. In addition, underground structures are vulnerable to liquefaction. Most of the City lies within a low liquefaction risk zone; however, locations along the coastline, including both Batiquitos and San Elijo Lagoons and along Escondido Creek, are in a high liquefaction potential area. The conditions necessary for liquefaction to occur require the presence of water (surface or shallow groundwater) and loose fine-grained soils (sands and silts), and strong seismic shaking, which can lose structural integrity during an earthquake. **Figure S-3** depicts the areas of the City potentially susceptible to liquefaction.

Geologic Hazards

Although seismic events, such as earthquakes, often trigger geologic hazards, this is not always the case. Therefore, understanding and preparing for these hazards as standalone events is equally important.

Landslides and Mudslides

A landslide is the movement of earth material down slopes and areas of steep topography. Although earthquakes often cause them, landslides can occur when a sloped surface can no longer support the material contained within or sitting above it.

Mudslide in Encinitas

The instability can be caused by the sheer weight of the material or can be rendered instable by other events such as heavy rain. When rain causes a slope to fail, the movement of earth materials is typically referred to as a mudslide.

Surficial Slope Failure Caused by Heavy Rain

Both landslides and mudslides can move with great force and pose a significant danger to buildings and other structures. In some circumstances, these events may cause bodily harm if bystanders cannot move out of their path in time. Anticipating the risk of landslides in the areas identified in **Figure S-4** will be essential for protecting the community members who reside there. The parts of Encinitas at greatest risk of landslides are primarily along the coastal sandstone bluffs, where the underlying sedimentary foundations contain weak claystone beds and are more susceptible to sliding.

FIGURE S-2 – Geologic Hazards (Seismic)

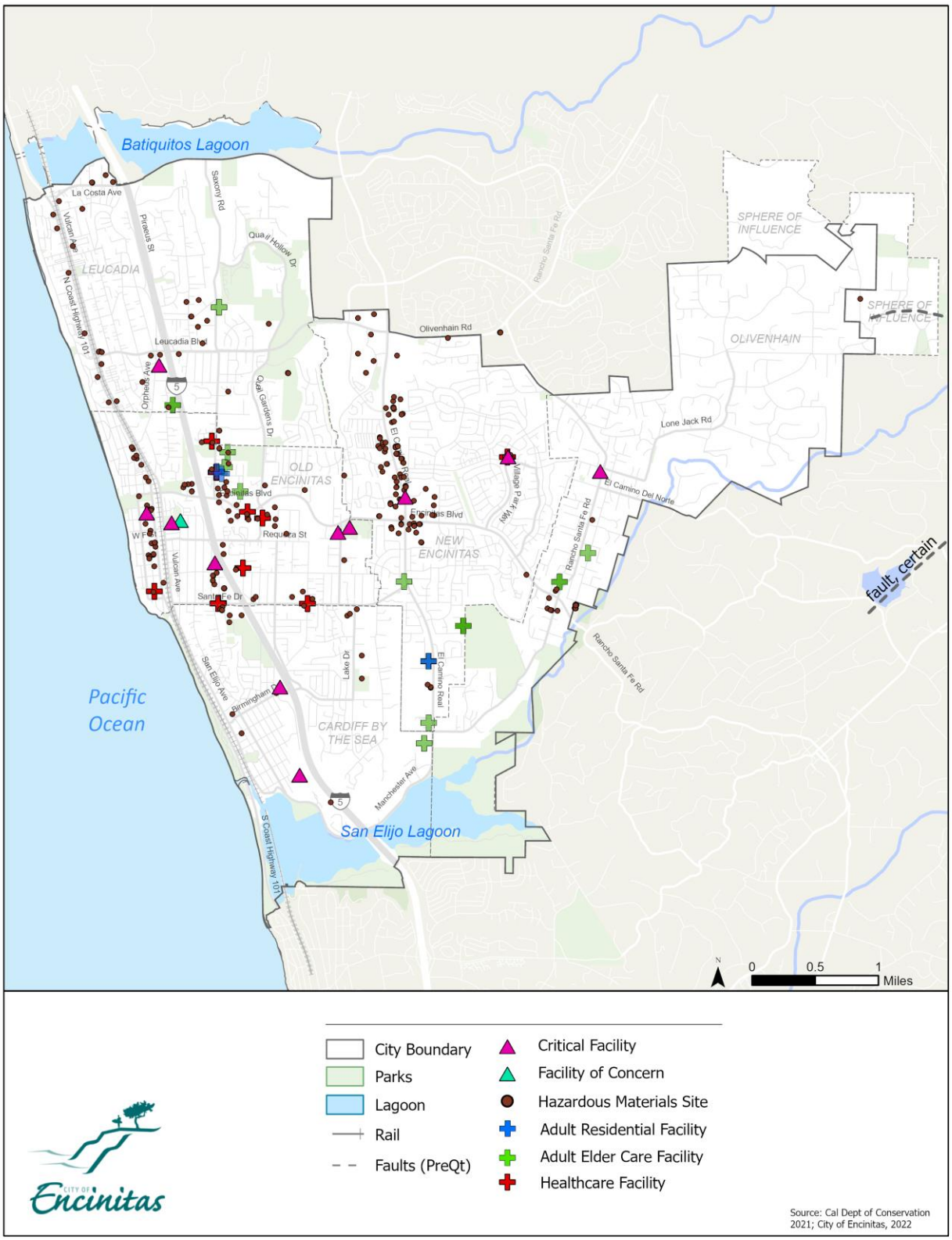


FIGURE S-3 – Geologic Hazards (Liquefaction)

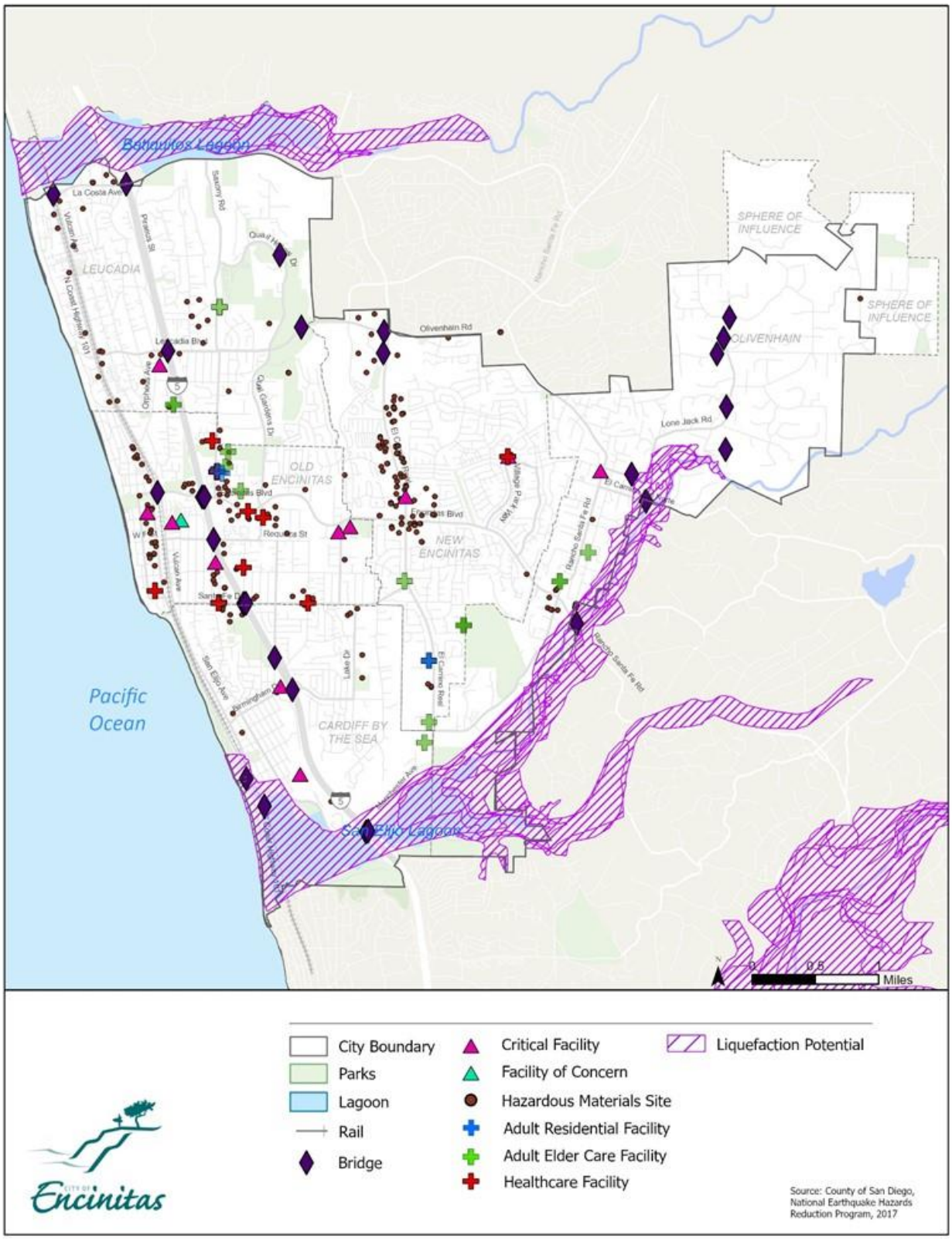
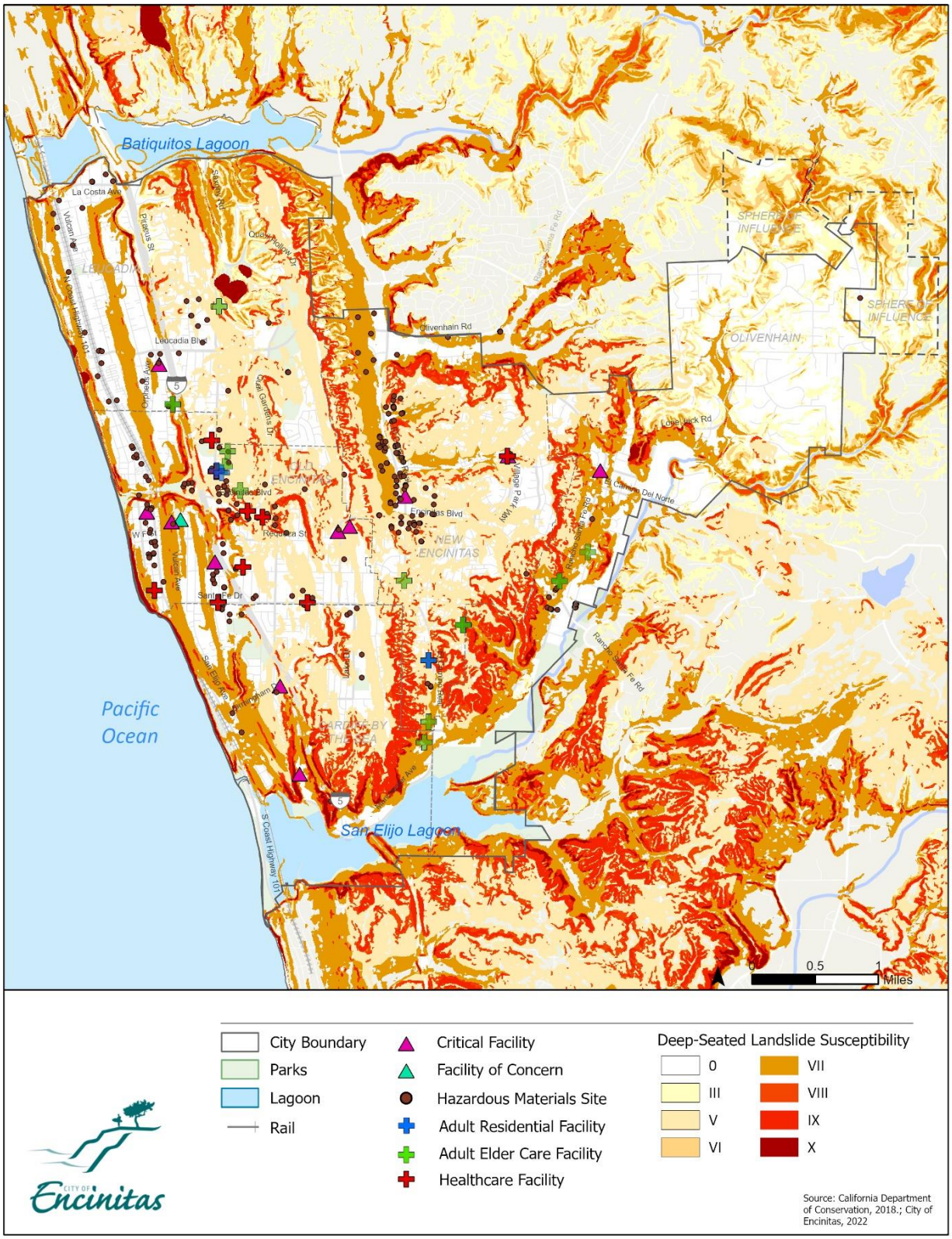


FIGURE S-4 – Geologic Hazards (Landslide)



GOAL S-2: A COMMUNITY MORE RESILIENT TO SEISMIC AND GEOLOGIC HAZARDS.

Policies / Implementation Actions

S-2.1	**Ensure new development and redevelopments minimize injury, loss of life, property damage, and economic and social disruption caused by seismic and geologic hazards.**
S-2.2	**Require that new development be designed and built per the most recent California Building Code.** **S-2.2a** - Develop an inventory of seismically vulnerable structures (unreinforced masonry, soft story construction, and non-ductile concrete). **S-2.2b** - Develop a retrofit program and potential funding sources for seismically vulnerable structures.
S-2.3	**Encourage utility service providers to continue upgrading their facilities and infrastructure throughout the City to improve seismic/geologic resilience and survivability.**
S-2.4	**Locate essential and critical facilities (i.e., fire stations, hospitals, police stations, schools, and utility infrastructure), in areas of low seismic and geologic hazard risk, to the greatest extent feasible.**
S-2.5	**Require an assessment of liquefaction potential for all projects proposed in areas identified with liquefaction susceptibility.**
S-2.6	**Mitigate potentially unstable hillside areas where City property or public right-of-way is threatened or considered urgent by the City.** **S-2.6a -** Monitor developed areas with high landslide susceptibility or where previous slope failures have occurred.
S-2.7	**Encourage hillside stabilization through the replanting and/or maintenance of deep rooting vegetation and groundcover.** **S-2.7a –** Develop a deep-rooted plant list for slopes to increase slope stability conditions. **S-2.7b -** Prohibit the use of heavy and shallow rooted plants on slopes.

C. FLOOD HAZARDS

Flooding along a Drainage in Encinitas

Flooding is caused by the accumulation of water on the ground surface. This typically occurs after heavy rainfall but can also result from water delivery/storage infrastructure failures such as pipes, storage containers, and dams/reservoirs. Worsening drought conditions caused by climate change may exacerbate the effects of flooding, as surfaces that typically absorb water can quickly dry out and become less permeable. Flooding presents dangers to people and structures alike. Standing water may be deep enough to cause drowning; even shallow water can easily damage buildings and property. Fast-moving water is hazardous, as it may sweep people or cars downstream or cause damage to structures.

Localized Flooding in Encinitas

Inland Flooding

Inland floods are a common result of coastal storms; they can also occur after rain falls for many days in a row. Often inland flooding can result from brief periods of intense precipitation that overwhelm infrastructure or result from damaged infrastructure (levee failure or storm drain overflows). When the volume of water on land overcomes the capacity of natural and built drainage systems to carry it away, inland flooding can result. Localized ponding can occur in low lying areas within the City, especially if storm drain infrastructure or private drainages aren't properly maintained or sized large enough to convey the runoff.

Coastal Flooding

Coastal flooding normally occurs when low-lying land is submerged by seawater. The extent of coastal flooding is based on the floodwater elevation and the topography of the adjacent coastal land. Encinitas is bordered by tidal lagoons that are subjected to coastal flooding. **Figure S-5** depicts the FEMA flood hazard zones mapped within the City. A majority of these areas are located along the Batiquitos and San Elijo Lagoons and the drainages upstream from these water bodies, such as Escondido Creek.

Dam Inundation

When dams that are designed to hold water fail, the body of water suddenly and abruptly moves downstream. These downstream areas can become inundated depending on how much water is behind the dam and the topography of these areas. The specific areas of land that would become

flooded and covered with water resulting from a dam break is considered an "inundation zone." These downstream areas are typically much larger than the areas identified on flood maps because the volume of water released will often overwhelm any stormwater infrastructure in these areas. Two dams (San Dieguito and Olivenhain) are located east of the City and their failures would impact the southern portions of the City along the drainages, such as Escondido Creek, that outlet into the San Elijo Lagoon. **Figure S-6** depicts the potential inundation zones from these two dams.

GOAL S-3: A COMMUNITY MORE RESILIENT TO INUNDATION RESULTING FROM FLOOD AND DAM FAILURE.

Policies / Implementation Actions

S-3.1	**Respect community character and maintain natural or natural appearing- drainage courses whenever feasible.** **S-3.1a** – Establish and implement standards based on the 50- or 100-year storm for flood control and drainage improvements.
S-3.2	**Development or filling shall only be permitted within the 100-year floodplain consistent with Policy S-8.1.**
S-3.3	**Ensure data and information for flood hazards is readily available and up to date.** **S-3.3a –** Monitor and periodically evaluate the community flood protection and evacuation plans to assist persons and property owners and protect properties from 100-year flood threats and dam inundation. **S-3.3b –** Monitor and periodically update as required the following mapping and plans to maintain flood and dam inundation hazard resilience within the City: a. Flood Insurance Rate Maps (FIRM) prepared by Federal Emergency Management Agency (FEMA). b. Local Hazard Mitigation Plan (HMP) to include accurate information and data for all potential Flood Hazards. c. Drainage Master Plan that incorporates Army Corps of Engineers data and analysis and localized flood maps showing areas subject to flooding and a history of repeated flood damage. **S-3.3c -** Update local floodplain management ordinance as necessary to ensure compliance with National Flood Insurance Program (NFIP) requirements pursuant to Title 44 of the Code of Federal Regulations (CFR).
S-3.4	**Locate new essential public/critical facilities outside FEMA flood hazard zones and dam inundation zones to the greatest extent feasible.**
S-3.5	**Require mitigation for any developments within the 100-year flood and dam inundation zones.**
S-3.6	**Ensure localized flooding is effectively addressed in areas of the City where storm drain infrastructure is inadequate.** **S-3.6a –** Monitor and upgrade infrastructure in areas where localized flooding frequently occurs. **S-3.6b –** Educate private property owners on their responsibilities for flood management and maintenance of drainage courses.

FIGURE S-5 – Flood Hazards

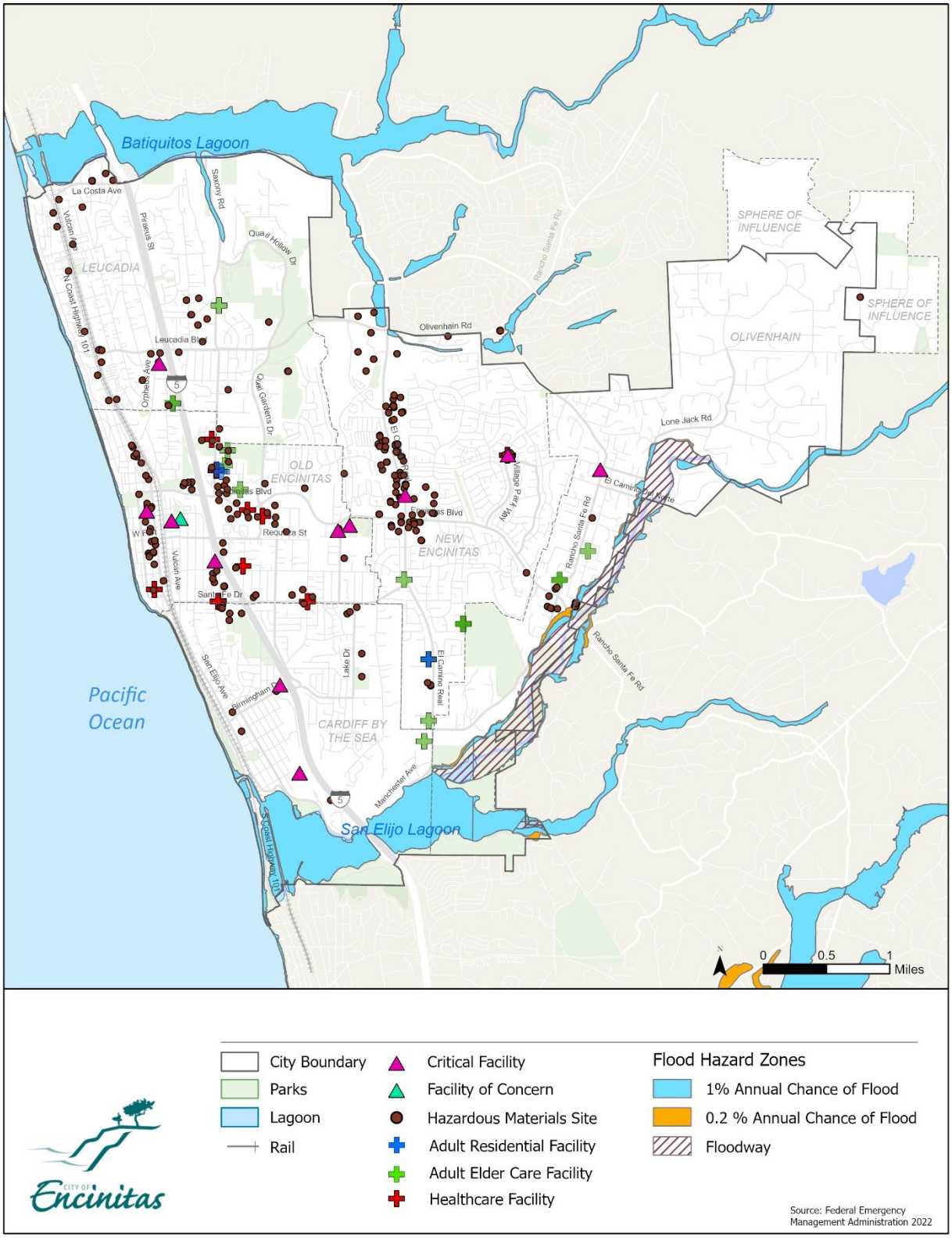
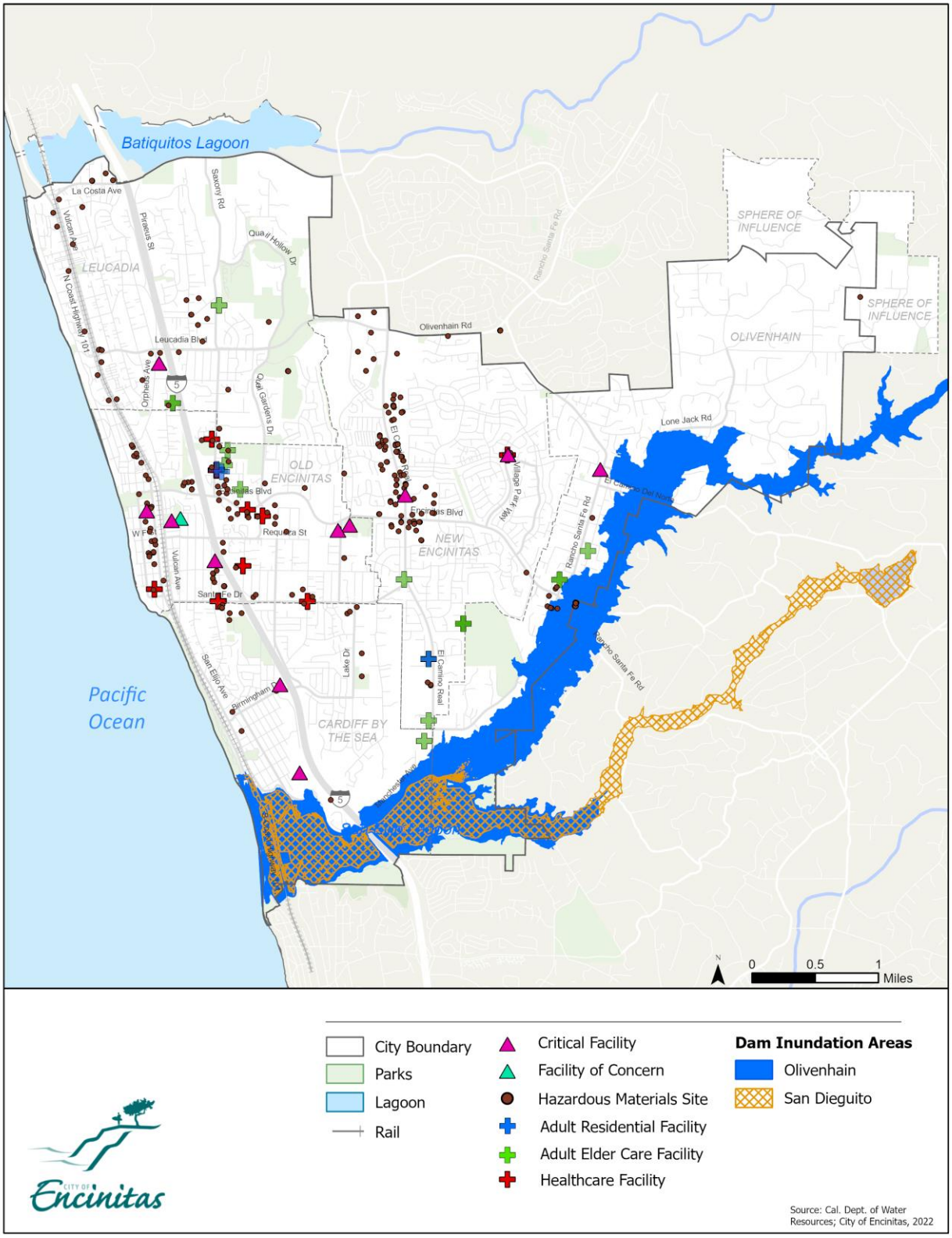


FIGURE S-6 – Dam Inundation Zones



D. FIRE HAZARDS

Wildfires

Wildfire incident in hillside portion of the City

The most common type of natural hazard in California is wildfire, which can burn large areas of undeveloped or natural land quickly. They often begin as smaller fires caused by lightning strikes, downed power lines, mechanical equipment use, or unattended campfires but may rapidly expand in size if conditions are dry and/or windy. The recent trend toward more prolonged periods of drought increases the likelihood of a wildfire. Typically, wildfires pose minimal threat to people and buildings in urban areas but increasing human encroachment and development into natural areas increases the likelihood that bodily harm or structural damage will occur. This encroachment occurs in areas called the wildland-urban interface (WUI), which is considered an area within a fire hazard severity zone, as defined by the California Department of Forestry and Fire Protection (CAL FIRE). Significant wildfires have occurred in Encinitas and San Diego County in the past and pose a significant threat to people and property. **Figure S-7** depicts the Very High Fire Hazard Severity Zones (VHFHSZs) mapped throughout Encinitas and surrounding areas. Generally speaking, the main areas of concern are Saxony Canyon, South El Camino Real/Crest Drive, and the community of Olivenhain. Properties located here and in some other smaller areas are susceptible to the threat of wildfires as they are generally located near open space areas and canyons containing dense vegetation. In addition to these fire zones, this map also identifies the WUI areas and the locations of historic fires within Encinitas and County unincorporated areas. In 1996, the 8,600-acre Harmony Grove wildfire in Encinitas resulted in the loss of three homes and the evacuation and sheltering of hundreds of Encinitas residents. Aside from the Harmony Grove fire, three additional historic fires have occurred in the City since 1943.

Wildland Fire Response in Encinitas

Urban Fires

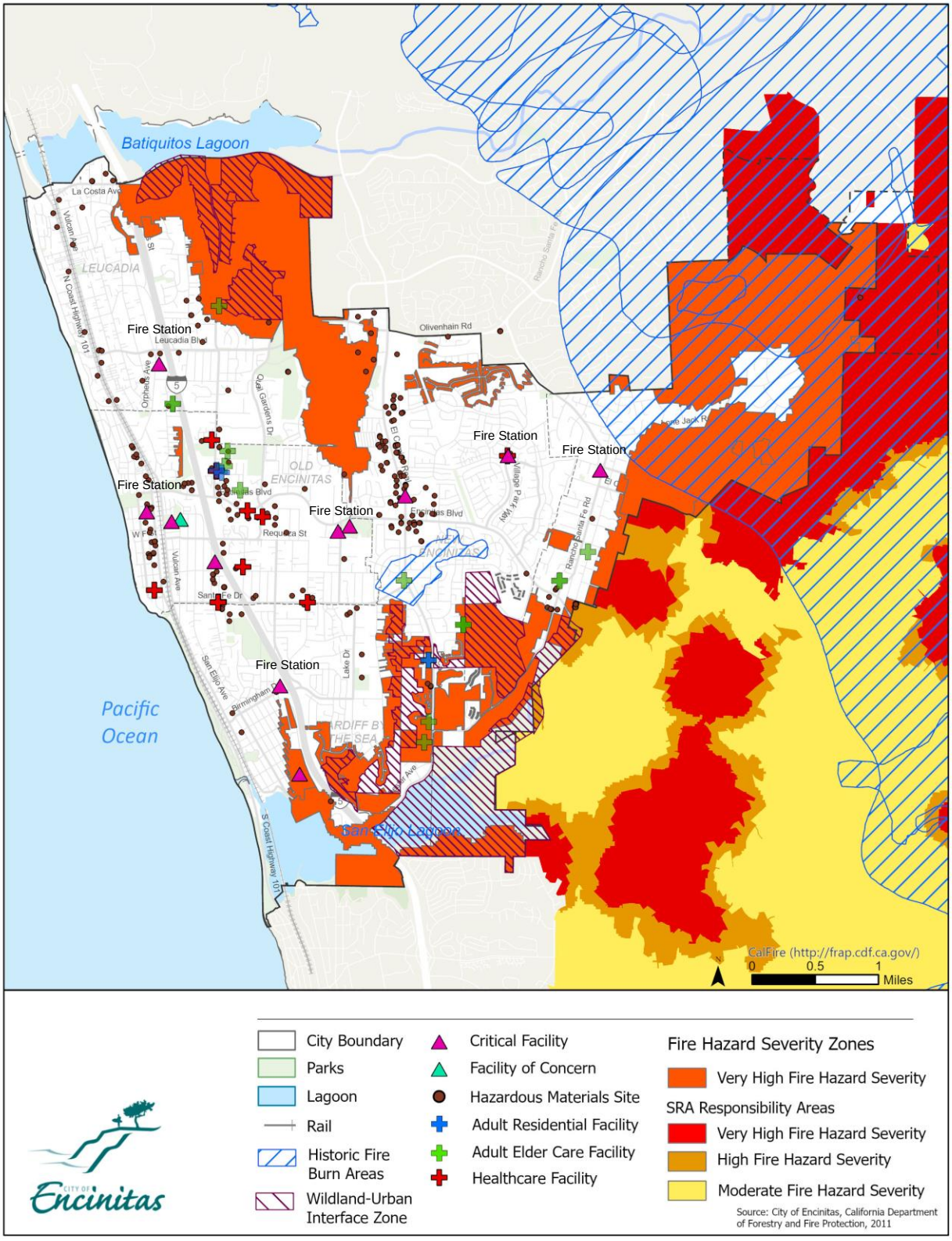
Encinitas Home Fire

The possibility of an urban fire confronts every city. Many urban fires begin as isolated incidents caused by a faulty electrical appliance, cooking mishap, improper storage of chemicals, or industrial malfunction, but can spread to other buildings if conditions permit. Many factors contribute to an urban fires severity and extent, but modern building codes and practices have helped reduce their effects. Despite these improvements, it is important to acknowledge the risks associated with fires in urban areas. No matter its size, any fire can be fatal or cause people severe harm and can damage buildings and other structures.

Water Supply

Water service in Encinitas is provided by the San Dieguito Water District (serving the communities of Leucadia, Old Encinitas, and portions of New Encinitas) and Olivenhain Municipal Water District (serving the rest of the city). According to both Districts' Urban Water Management Plans, adequate water supplies are available to meet customer demands within the city. This is especially important for ensuring adequate supplies are available for fire suppression needs within the city. As a standard practice, new developments and major remodels are required to conduct water pressure/flow testing, and mitigate issues if the supply is deemed inadequate.

FIGURE S-7 – Wildfire Hazards



GOAL S-4A: REDUCED THREAT FROM WILDLAND AND URBAN FIRE HAZARDS FOR ENCINITAS RESIDENTS, BUSINESSES, AND VISITORS.

Policies / Implementation Actions

S-4.1	**Require smoke detectors, carbon monoxide alarms, and fire sprinkler systems in all new residential developments.**
S-4.2	**Protect communities from unreasonable wildfire risk within very high fire hazard severity zones.** a. Assess site constraints when considering land use designations near wildlands to avoid or minimize wildfire hazards as part of land use update or amendment. b. Identify building and site design methods or other methods to minimize damage if new structures are located in fire hazard severity zones on undeveloped land and when rebuilding after a fire. c. Require ongoing brush management to minimize the risk of structural damage or loss due to wildfires. d. Provide and maintain water supply systems for structural fire suppression. e. Provide adequate fire protection f. Require that development standards meet or exceed latest version of California Fire safe regulations, and California Building Code. **S-4.2a** – Establish ongoing maintenance and funding for vegetation management and defensible space along city-maintained roads, open space areas, and fire breaks. **S-4.2b** – Implement brush management along City maintained roads in very high fire hazard severity zones adjacent to open space and canyon areas.
S-4.3	**Promote development outside of wildfire hazard areas to the greatest extent feasible. If development in wildfire-prone areas occurs, incorporate fire safe design and adhere to the latest fire safe regulations adopted by the State and City.**
S-4.4	**Require development to be located, designed, and constructed to provide adequate defensibility and minimize the risk of structural loss and life safety.**
S-4.5	**Require development located near ridgelines, top of slopes, saddles, or topography prone to wildfire hazards to be located and designed to account for the increased risk.**
S-4.6	**Design developments to minimize pockets, peninsulas, or islands of flammable vegetation to reduce fire susceptibility.**
S-4.7	**Maintain up-to-date maps depicting fire hazard severity zones and historical wildfire data and ensure that information is readily accessible to the public.**
S-4.8	**Require new developments, and existing non-conforming development, to conform to contemporary fire safe standards related to road standards and vegetative hazards.** **S-4.8a -** Develop, implement, and maintain a public outreach program educating the community about contemporary fire safe standards, and wildland fire preparedness. **S-4.8b** - Support the identification and use of potential funding opportunities that assist with retrofitting existing structures threatened by wildfires
S-4.9	**Require all redevelopment after a fire to meet current Fire Code requirements.**

S-4.10	**Incorporate fire safe design into new development and major remodels within very high fire hazard severity zones, which should include but not be limited to:** a. Locate, design and construct development to provide adequate defensibility and minimize the risk of structural and human loss from wildland fires. b. Design development on hillsides and canyons to reduce the increased risk of fires from topography features (i.e., steep slopes, bluffs, and ridge slopes). c. Administer state vegetation management requirements for new and existing developments d. Design and maintain public and private streets for adequate fire apparatus vehicle access (ingress and egress). Install visible street signs and necessary water supply for structural fire suppression. e. Provide and maintain adequate fire breaks where feasible or identify other methods to slow the movement of a wildfire in very high fire hazard severity zones. f. Ensure long term maintenance of vegetation management activities is accounted for in budgeting and planning throughout development within the City. g. For properties located in the VHFHSZ, provide construction standards to reduce structural susceptibility and increase protection. In addition, require automatic fire sprinkler systems to be installed. h. Encourage owners of non-sprinklered properties in wildland interface areas and fire hazard severity zones to retrofit their buildings and include internal fire sprinklers. i. As appropriate, site and design new development to avoid the need to extend fuel modification zones into sensitive habitat. j. Adopt, amend or maintain the Very High Fire Hazard Severity Zone Map and applicable Wildland Urban Interface Code Standards through periodic updates. k. Require development to provide additional access roads when necessary to provide for safe access of emergency equipment and civilian evacuation concurrently. l. Ensure that existing development located within fire threat areas implement measures that reduce the risk of structural and human loss due to wildfire. m. Require all new, remodeled, or rebuilt structures to meet current ignition resistance construction codes and establish and enforce reasonable and prudent standards that support retrofitting of existing structures in high fire threat areas. **Incorporate all of the following requirements into any new or updated Fire Protection Plans consistent with Policy 4.13**
S-4.11	**Maintain access (ingress and egress) for fire apparatus vehicles along public streets in very high fire hazard severity zones for emergency equipment and evacuation.**
S-4.12	**Locate, when feasible, new essential public facilities outside of very high fire hazard severity zones or identify construction methods to minimize risk to these facilities.**
S-4.13	**New development located within a Very High Fire Hazard Severity Zone shall provide a Fire Protection Plan which meets the minimum standards as required by the State of California, County of San Diego, and Encinitas Fire Department.**

GOAL S-4.B: A COMMUNITY THAT PROACTIVELY MANAGES VEGETATION AND MINIMIZES FIRE VULNERABILITY.

Policies / Implementation Actions

S-4.14	**Coordinate with neighboring jurisdictions to develop strategic fire plans focusing on fuel management/modification within established defensible spaces, balancing structure protection with native vegetation, and sensitive habitat preservation.**
S-4.15 LCP Component	**Require brush clearance around structures consistent with the Encinitas Fire Code and California Fire Safe Regulations. New development near or within environmentally sensitive habitat areas and habitat buffers shall be sized, sited, and designed to minimize the impacts of fuel modification and brush clearance activities to the extent feasible in conformance with Resource Management Policy 10.1.**
S-4.16	**Coordinate with CAL FIRE, San Diego County Fire Authority, U.S. Forest Service, local fire districts, and wildfire agencies on vegetation management projects, prioritizing mitigation for impacts to sensitive habitats and species.**
S-4.17	**Encourage the removal of dead, dying, and diseased trees on developed properties.**
S-4.18	**Educate property owners about defensible space and brush clearing requirements.**
S-4.19	**Require all new development and newly constructed building(s) as defined in Encinitas Municipal Code[1] [23.12.030.B.8 Section 202 (Ordinance 2022-12)] within the wildland urban interface (VHFHSZs) to incorporate fuel modification, fire resistive construction and/or defensible space management strategies consistent with California Fire Code requirements and Policy S-4.15.**

GOAL S-4.C: A COMMUNITY THAT PRIORITIZES COORDINATION AMONGST LOCAL, REGIONAL, STATE, AND FEDERAL FIRE PROTECTION AGENCIES.

Policies / Implementation Actions

S-4.20	**Advocate and support regional coordination among fire protection and emergency service providers.**
S-4.21	**Encourage agreements between fire service providers to improve fire protection and maximize service levels in a fair, efficient, and cost-effective manner.**
S-4.22	**Reassess fire hazards after wildfire events to adjust short- and long-term fire prevention and suppression needs.**
S-4.23	**Coordinate with CAL FIRE, San Diego County Fire Authority, U.S. Forest Service, local fire districts, and wildfire protection agencies with respect to fire suppression, rescue, mitigation, training, and education.** a. Coordinate with the County of San Diego in providing inter-jurisdictional coordination for developing the Multi-Jurisdictional Hazard Mitigation Plan and update periodically as required by the lead agency.

[1] https://library.qcode.us/lib/encinitas_ca/pub/municipal_code

	b. Coordinate with local, state, and federal agencies to update emergency, evacuation, and hazard mitigation plans, as necessary. c. Coordinate with local, state, and federal agencies to develop emergency services training and education goals, policies, and standards. d. Coordinate with local, state, and federal agencies to ensure adequate training is provided to first responders and emergency services personnel

GOAL S-4.D: A COMMUNITY THAT MAINTAINS ADEQUATE LEVELS OF EMERGENCY SERVICES.

Policies / Implementation Actions

S-4.24	**Require and maintain adequate setbacks, easements, and accesses, to ensure that emergency services can function.**
S-4.25	**Ensure planned development has adequate fire and emergency services.**
S-4.26	**Coordinate with the San Dieguito Water District and the Olivenhain Municipal Water District, to ensure adequate water supplies and infrastructure are available for current and future development and fire suppression needs.**
S-4.27	**Coordinate with fire services providers to improve fire protection services for multi-story construction.**
S-4.28	**Require development to contribute its fair share towards emergency services funding necessary to adequately serve the proposed project.**
S-4.29	**Require new development to demonstrate adequate levels of service and response times consistent with City standards.**
S-4.30	**Ensure adequate emergency services staffing, facilities, and equipment is available to serve existing and future development.** **S-4.30a** - Develop and periodically update an Emergency Services Master Plan that details staffing, facilities, and equipment needs. Updates should periodically assess future emergency services needs for the City.
S-4.31	**Coordinate and ensure adequate infrastructure for new development related to:** a. Water supply and fire flow. b. Location of anticipated water supply. c. Maintenance and long-term integrity of water supplies. d. Evacuation and emergency vehicle access. e. Fuel modification and defensible space. f. Vegetation clearance maintenance on public and private roads. g. Visible home and street addressing and signage.

E. HAZARDOUS MATERIALS

Natural hazards are not the only threat to a community's safety. Human-caused dangers, such as various hazardous materials and wastes, are often found throughout a community and can pose significant risks. Some of these materials may be transported through the City via Interstate 5 or the rail corridor between San Diego and Orange County. Generally speaking, hazardous materials are identified as toxic, flammable, explosive, corrosive, infectious, radioactive, or a combination of these characteristics. Hazardous wastes are categorized similarly but are identified separately from materials because they no longer serve a meaningful use.

In the Community

Although common household chemicals pose little threat to the community, hazardous materials and wastes used by business and industry present a greater risk. Mechanical dealerships, repair shops, gasoline, diesel fuel stations, and dry cleaners are examples of businesses that regularly use and store chemicals or other hazardous materials. Pipelines and tanks within the city also transport and store chemicals that could pose a risk if a failure occurs. These releases are anticipated to be isolated to properties where storage occurs. Releases also tend to involve transporting raw materials and their byproducts by pipeline, rail or truck. Regulation of the use, storage, and transportation of hazardous materials and wastes rests on state and federal agencies; however, cities play a large role in minimizing the risks and impacts of exposure through careful planning and preparation. The city's primary risk to hazardous material spills comes from Interstate 5, a railroad right of way, and a major liquefied petroleum transmission pipeline which passes through the community and allows for the transport of potentially harmful chemicals and materials into and out of Encinitas.

In the Home

Exposure to hazardous materials is not uncommon, as many household cleaning products contain chemicals that can harm both humans and the environment. However, proper use can largely avoid the health risks associated with these hazardous materials. Properly storing household cleaning products and other common hazardous materials, such as those used in automotive and home repair, is also an important component of responsible management. Following the manufacturer's instructions on the packaging and keeping products out of the reach of children are two simple steps that can help reduce the risk of exposure.

Air Pollution

Air pollutants are substances in the atmosphere that affect our health. They include smoke, particles, and gases from human-made and natural sources. People generate air pollution in many ways — through cars they drive, the stoves they cook on, and the fuel burned to produce heat and electricity. Air pollution from these sources may harm our hearts or lungs and reduce

our resistance to disease. Air pollutants may cause diseases, especially those to the respiratory system. When certain air pollutants are breathed in, the airways to the lungs can become irritated. Continued exposure to air pollution may also cause a decrease in lung function. This is especially a problem in children whose lungs are still growing.

Railroad Right of Way

Along the western border of the City, the North County Transit District (NCTD) operates a commuter train service (The Coaster) along the existing rail right-of-way paralleling Highway 101 and Interstate 5 with service stops at the Encinitas Station for passenger service. The Amtrak Pacific Surfliner (APS) also travels through the City ten times a day on its daily commuter service. While the APS doesn't stop in the City, it does travel through at a high rate of speed. The railway is owned by Burlington Northern and Santa Fe (BNSF Railway) and is a vital component for both freight and commuter transportation into and out of the City. The railway runs along the entirety of the Encinitas coastline as it passes through the City, crossing Leucadia Blvd, West D Street, East E Street, and Chesterfield Dr, and grade-separated crossings at both La Costa Ave and Encinitas Blvd.

These tracks provide mass transportation options to residents and visitors, while simultaneously serving as an integral railway for the conveyance of freight/cargo through the City. The main types of cargo that are shipped by rail freight transport include hazardous materials, special cargo, and consumer goods. This dual use of the railway tracks also increases the possibility of accidents involving pedestrians, vehicles, bicycles, or freight (possibly containing hazardous materials) occurring within the City. Fatal accidents involving pedestrians, bicycles and/or vehicles have occurred along multiple sections within Encinitas, some as recently as 2022. The risk of train derailment while carrying passengers, or the accidental release of hazardous materials into the City and environment while being transported through Encinitas is a concern. In the past ten years there have been 43 reported train accidents in San Diego County, 19 of which involved derailment of cars (no fatalities), and nine impacts with vehicles. The tracks themselves can also become a physical barrier dividing the western and eastern sides of the City. During an emergency evacuation scenario, the tracks could become a hindrance to evacuation capacity and efficiency, and limit the effectiveness of emergency services, vehicles, and personnel.

The North Coast Corridor (NCC), in cooperation with the San Diego Association of Governments (SANDAG), have begun the LOSSAN Rail Corridor Improvements project. The LOSSAN Rail Corridor extends 351 miles from San Luis Obispo to San Diego. The 60-mile San Diego County segment extends from the San Diego/Orange County border, through Encinitas, to the Santa Fe Depot in Downtown San Diego. Approximately 50 trains operate daily along this section of track. During the next 20 years, nearly $1 billion in improvements along this corridor are expected to be constructed by SANDAG. The main improvement includes the construction of double track from Orange County to Downtown San Diego, two-thirds of which have been completed. Other plans

involve improvements to existing infrastructure and new construction, including bridge and track replacements, new platforms, pedestrian undercrossings, and other safety and operational enhancements. This is especially important as this could effectively double the operating capacity of the segment within the City, further increasing the potential for accidents and conflicts.

For additional discussion regarding rail transit, refer to the Encinitas Mobility (Circulation) Element, which includes goals and policies to help address mobility and circulation issues.

GOAL S-5: A COMMUNITY PROTECTED FROM EXPOSURE TO HAZARDOUS MATERIALS AND WASTES.

Policies / Implementation Actions

S-5.1	**Cooperate with the enforcement of disclosure laws requiring all users, producers, and transporters of hazardous materials and wastes to clearly identify such materials at the site and to notify the appropriate local County, State and/or Federal agencies in the event of a violation.**
S-5.2	**Restrict the transport of hazardous materials to identified truck routes throughout the City.**
S-5.3	**Coordinate with railroad operators to ensure hazardous materials are transported through the City safely and do not present a threat to life or property.**
S-5.4	**Commercial and industrial facilities shall be required to participate in a hazardous material and waste mitigation and response program.**
S-5.5	**Control the development of hazardous waste facilities pursuant to Chapter 30.57 of the Municipal Code.** **S-5.5a** - Participate in San Diego County hazardous waste reduction programs consistent with the San Diego County Hazardous Waste Management Plan.
S-5.6	**Promote the use of non-toxic alternatives for cleaning and pest management in the home and yard.**

F. LAND USE AND PUBLIC SAFETY

How properties are used can affect the safety of residents and businesses within Encinitas. Conformance to land use regulations and municipal code requirements are intended to contribute to safer conditions within a community and reduce conflicts between uses that may be incompatible or deemed unsafe. Since safe neighborhoods are the key to improving and maintaining a high quality of life within Encinitas, the City regularly updates regulations and requirements to enhance community safety. This coupled with monitoring and oversight by City staff (Planning, Code Enforcement) and Law Enforcement are intended to reduce potential issues associated with improper use of properties or non-compliance with regulations. To ensure greater safety, Encinitas strives to coordinate with the County and other state and Federal agencies on the regulation of uses that ensures greater risk reduction and potentially eliminates land use conflicts that could contribute to future hazard events.

GOAL S-6: ENSURING SAFETY IS INCORPORATED INTO FUTURE LAND USE DECISIONS.

Policies / Implementation Actions

S-6.1	**Consider and/or institute an early warning system for potential natural and human-caused events that affect the City.**
S-6.2 LCP Component	**Land uses involved in the production, storage, transportation, handling, or disposal of hazardous materials will be located at a safe distance from land uses that may be adversely impacted by such activities.** *(Coastal Act/30250)*
S-6.3	**Cooperate with the efforts of the County Department of Health, Hazardous Waste Management Division to inventory and properly regulate land uses involving hazardous wastes and materials, including closed landfills.**

G. CLIMATE ADAPTATION

Climate Effects on Encinitas

Although climate change is not a hazard, variations in environmental conditions can impact some of the natural hazards affecting Encinitas. Projections of future conditions include increased temperatures, increased extreme heat days, changes in precipitation, sea level rise, more prolonged droughts, and changes in the size and frequency of wildfire incidents. **Table S-2** identifies the current/historical conditions and projected future conditions associated with climate change that could occur in Encinitas. Additional detail regarding potential climate change effects is located in the Encinitas Climate Adaptation Vulnerability Assessment.

Table S-2: Potential Climate Change effects for Encinitas	
Historic/ Current Conditions	**Future Conditions**
Annual Mean Temperature (1961-1990)	Annual Mean Temperature (2070-2099)
74.1° F	**78.6° to 81.6° F**
Extreme Heat Days (94.4° F)	Extreme Heat Days (2070-2099)
3 days per year	**12 to 28 days per year**
Annual Mean Precipitation	Annual Mean Precipitation (2070-2099)
11.9 inches	**10.9 to 11.5 inches**
Annual Average Area Burned	Annual Average Area Burned (2070-2099)
89.3 acres	**19.9 to 22.1 acres**

Source: https://cal-adapt.org/tools/local-climate-change-snapshot

Climate Related Hazards

Temperature

Increasing temperatures associated with climate change can act as a hazard multiplier. By the end of the century, annual mean temperatures are projected to increase between four and seven and a half degrees, impacting city residents and businesses. These increases are also anticipated to increase the number of extreme heat days, increasing from three days to between 12-28 days per year. These potential temperature increases may impact residents living in poorly insulated structures, or structures that do not have air conditioning. For residents living in these structures temperatures above 85 may cause discomfort. By the end of the century the number of days over this temperature threshold could be nearly four times what the City typically experiences.

While climate change is projected to exacerbate many of the hazards already affecting the City, many of these hazards may interact with each other. Increased temperatures can affect both water supplies and vegetation growth. With drier conditions, vegetation growth may be reduced, which can reduce wildfire vulnerability; however, if dry conditions persist for long periods, the reduced vegetation may be drier than normal. These two conditions may change the wildfire risks within the City or cause areas that have not burned historically to be at greater risk of ignition.

Precipitation

While temperatures are anticipated to increase in the coming decades, climate change projections suggest that annual mean precipitation may decrease slightly. While an annual decrease is projected, it is anticipated that future rain events may be more intense than what is currently experienced within the City, which could increase flooding. Recent events have generated rain totals of more than five inches in a five-day period with over three of these inches occurring in a

24-hour period. With changes in future precipitation, it is expected that changes to local vegetation may also occur, which could impact drainages and increase the need for wildfire management activities and drainage infrastructure in some areas.

Increased rainfall could increase the amount of flooding within the community or introduce flooding into areas that have not experienced flooding before. With greater and more intense precipitation, the City could also experience an increase in landslides/mudslides. Extreme precipitation events could destabilize hillsides, bluffs, and drainages, resulting in more erosion along drainage courses resulting in landslides/mudslides. This sediment transport could also impact both lagoons within the City and coastal areas, changing these ecosystems and the many species supported by them.

With future temperature increases coupled with relatively similar precipitation amounts experienced today, future wildfire impact is projected to decrease by the end of the century. This projection is based on the overall reduction in small and moderate precipitation events in place of large or extreme events, suggesting that vegetation growth will experience an overall reduction. A reduction in vegetation could reduce future wildfire vulnerability due to reduced fuel loads and changes in fuel types and densities. Based on historic fires that have occurred, the City has experienced an annual average of 89.3 acres burned (total acreage burned divided by the number of years analyzed), which is projected to decrease to 22 acres or less by the end of the century.

GOAL S-7: A COMMUNITY PREPARED FOR FUTURE CLIMATE-RELATED IMPACTS.

Policies / Implementation Actions

S-7.1	**Collaborate with local, regional, state, and/or federal jurisdictions and agencies on climate resiliency and adaptation strategies.** **S-7.1a** – Develop a climate resiliency plan that integrates and builds upon the strategies identified in the General Plan, Climate Action Plan, Vulnerability Assessment, San Diego County MJHMP, and Emergency Operations Plan. **S-7.1b** – Monitor climate change-related effects with local, regional, state, and/or federal partners to provide information about the effectiveness of existing infrastructure and programs. **S-7.1c** – Coordinate with regional, state, and federal agencies to monitor the indicators and impacts of climate change. **S-7.1d** – Monitor and periodically update as required the following City plans and mapping to maintain information on climate adaptation resiliency within the City: a. The Encinitas Climate Action Plan focuses on climate mitigation and generally addresses climate adaptation. b. The Encinitas Vulnerability Assessment that integrates climate adaptation and hazard mitigation information and analysis. c. The Multi-jurisdictional Hazard Mitigation Plan to incorporate new information related to climate change, as necessary.

H. COASTAL RESOURCES (LCP COMPONENT OF SAFETY ELEMENT)

Coastal Erosion

Coastal Erosion along Encinitas Shoreline

Coastal erosion is typically driven by the action of waves and currents. Significant episodes of coastal erosion are often associated with extreme weather events (coastal storms, surges, king tides, and flooding) but also from tsunamis, because the waves and currents have greater intensity, and the associated storm surge or tsunami inundation can allow waves and currents to attack landforms which are normally out of their reach. On coastal cliffs, such processes can lead to the undercutting and/or steeper slopes. In addition, heavy rainfall can enhance the saturation of soils, with high saturation leading to a reduction in the soil's shear strength and a corresponding increase in the chance of slope failure (landslides). Coastal erosion is a natural process that occurs when material transported away from the shoreline is not balanced by new material being deposited onto the shoreline.

Bluff Failure

Collapsing coastal bluffs are a threat wherever waves, earthquakes, and intense rainstorms can destabilize steep seaside terrain. While this risk already exists within the City, rising sea levels are anticipated to increase this risk. It is a pronounced risk throughout many areas along the Pacific coast of North America, especially in Southern California. Generally, two main processes cause the failure of coastal bluffs:

Example of Bluff Failure in Encinitas

- The relentless erosion of the lower layers of rock by crashing waves
- The gradual wearing away of the upper layers of soil by rainstorms and seeping groundwater.

Both can undermine, sometimes subtly, the stability of a cliff. The geographic extent of the hazard is limited primarily to the Encinitas coastal sandstone bluffs. After the El Nino storms of 1982-1983, Encinitas beaches were stripped of vertical sand up to 20 feet deep, putting the coastal bluffs and homes in jeopardy of collapsing into the sea. Various degrees of coastal bluff erosion

occur annually, and coastal bluff failures have resulted in loss of life, as recently as 2019. Regular failures causing City action (closing off the coastline) occur every couple of years, with many occurring along old landslides or other areas of slope instability. Furthermore, many shoreline segments are extremely vulnerable to coastal inundation from future sea level rise including Moonlight Beach and coastal Cardiff.

Sand Replenishment

Beach Nourishment

Also called beach nourishment, describes a process by which sediment, usually sand, lost through longshore drift or erosion is replaced from other sources. A wider beach can reduce storm damage to coastal structures by dissipating energy across the surf zone and protecting upland structures and infrastructure from storm surges, tsunamis, and unusually high tides. Beach nourishment is typically part of a larger integrated coastal zone management aimed at coastal defense. Nourishment is typically repetitive since it does not remove the physical forces that cause erosion but simply mitigates their effects. The new federally funded *Encinitas-Solana Beach Coastal Storm Damage Reduction Project (2022)* aims to protect coastal bluffs and infrastructure by raising and widening the shorelines through sand replenishment. Over a 50-year period, 340,000 cubic yards of sand will be placed along 7,800 feet of beach initially and approximately 220,000 cubic yards will be placed subsequently every five years. In Solana Beach, 700,000 cubic yards of sand will be placed along 7,200 feet of beach in Solana Beach initially and approximately 290,000 cubic yards will be placed subsequently every 10 years.

The City also holds program-level permits that collectively comprise the Opportunistic Beach Fill Program (OBFP). This program allows a streamlined process to make use of available sand from upland sources as beach nourishment. The City has successfully utilized this program to contribute over 150,000 cubic yards of beach quality sediment across Moonlight, Cardiff, Leucadia, and Batiquitos Beach, and is continually seeking new opportunistic sand sources.

Sea Level Rise

Sea level is the base level for measuring elevation. Hence, sea level rise is a climate change phenomenon through which the ocean water volume increases. Sea level rise is caused primarily by two contributing factors related to global warming: the addition of water from melting ice sheets

King tide along Encinitas coastline.

and glaciers and the thermal expansion of seawater as it warms. Higher sea levels mean that deadly and destructive storm surges can push farther inland than storms were able to before, leading to a potential increase in the frequency of nuisance flooding. Sea level around the globe is increasing as a result of human-caused global warming activities, with recent rates being unprecedented over the past 2,000-plus years. With continued ocean and atmospheric warming, sea levels will likely rise for centuries at rates higher than the current century. **Figures S-8 and S-9** identify potential sea level rise scenarios within Encinitas associated with chronic inundation and storm surge, respectively.

Tsunami

Tsunamis are giant waves caused by earthquakes, landslides, or volcanic eruptions under the water or along the shore. A large and sudden change in atmospheric pressure can also trigger a rare type of tsunami called a meteotsunami. Out in the depths of the ocean, tsunami waves do not dramatically increase in height. But as the waves travel inland, they increase in height as the depth of the ocean decreases. The speed of tsunami waves depends on ocean depth rather than the distance from the source of the wave. Tsunami waves may travel as fast as jet planes over deep waters, only slowing down when reaching shallow waters.

Part of the danger of tsunamis is that they can cause damage far away from the event that triggers them. Although tsunamis weaken as they travel and typically do the most significant damage near the displacement event, large ones can retain enough energy to be destructive hundreds or thousands of miles away. According to tsunami inundation mapping completed by the California Department of Conservation, the entire coastline bordering the city is vulnerable to tsunami inundation, especially at both the San Elijo and Batiquitos Lagoons, where the waters can inundate inland areas of the City. **Figure S-10** depicts the City's tsunami inundation zone and potential inundation areas.

FIGURE S-8 – Sea Level Rise (Chronic Inundation)

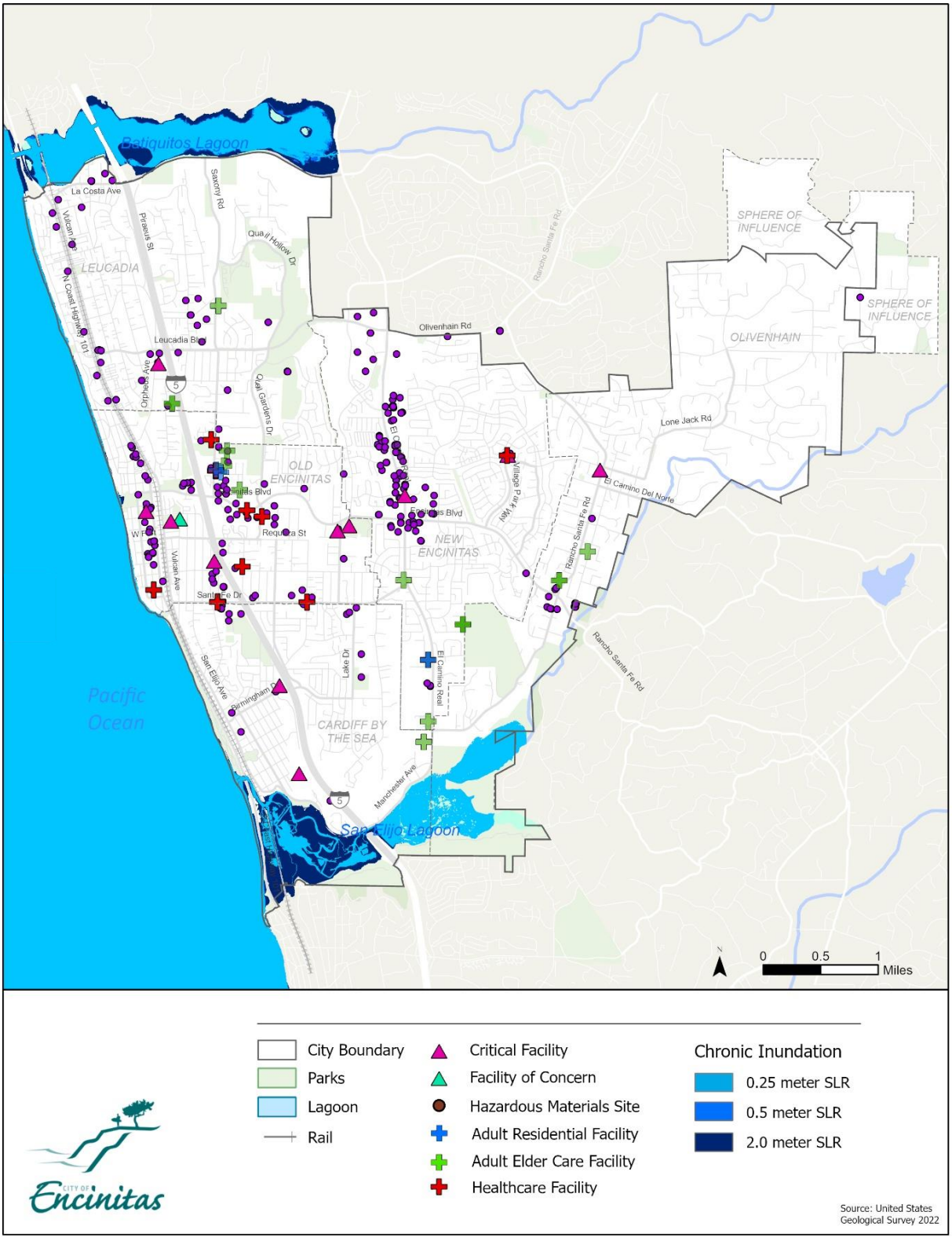


FIGURE S-9 – Sea Level Rise (Storm Surge)

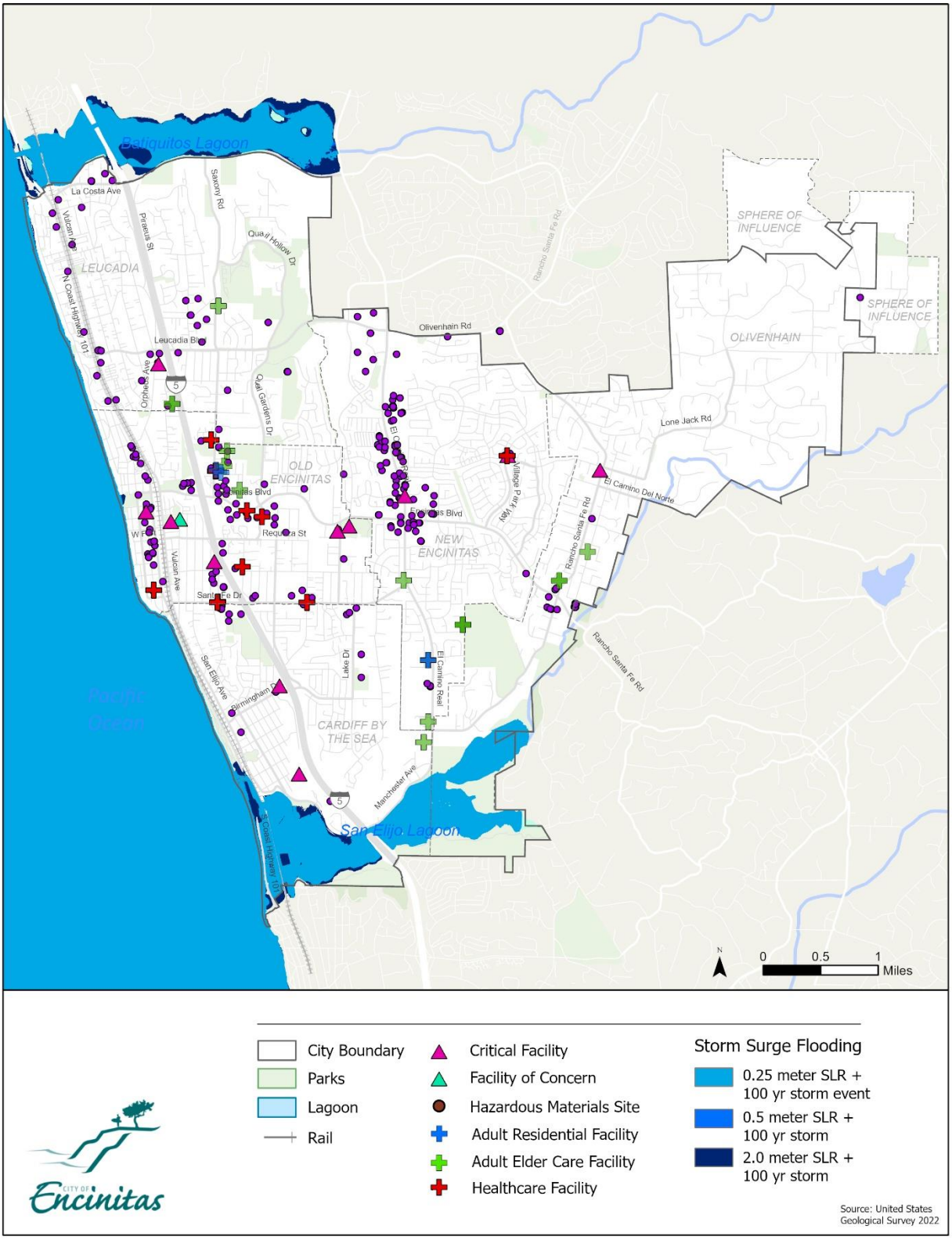
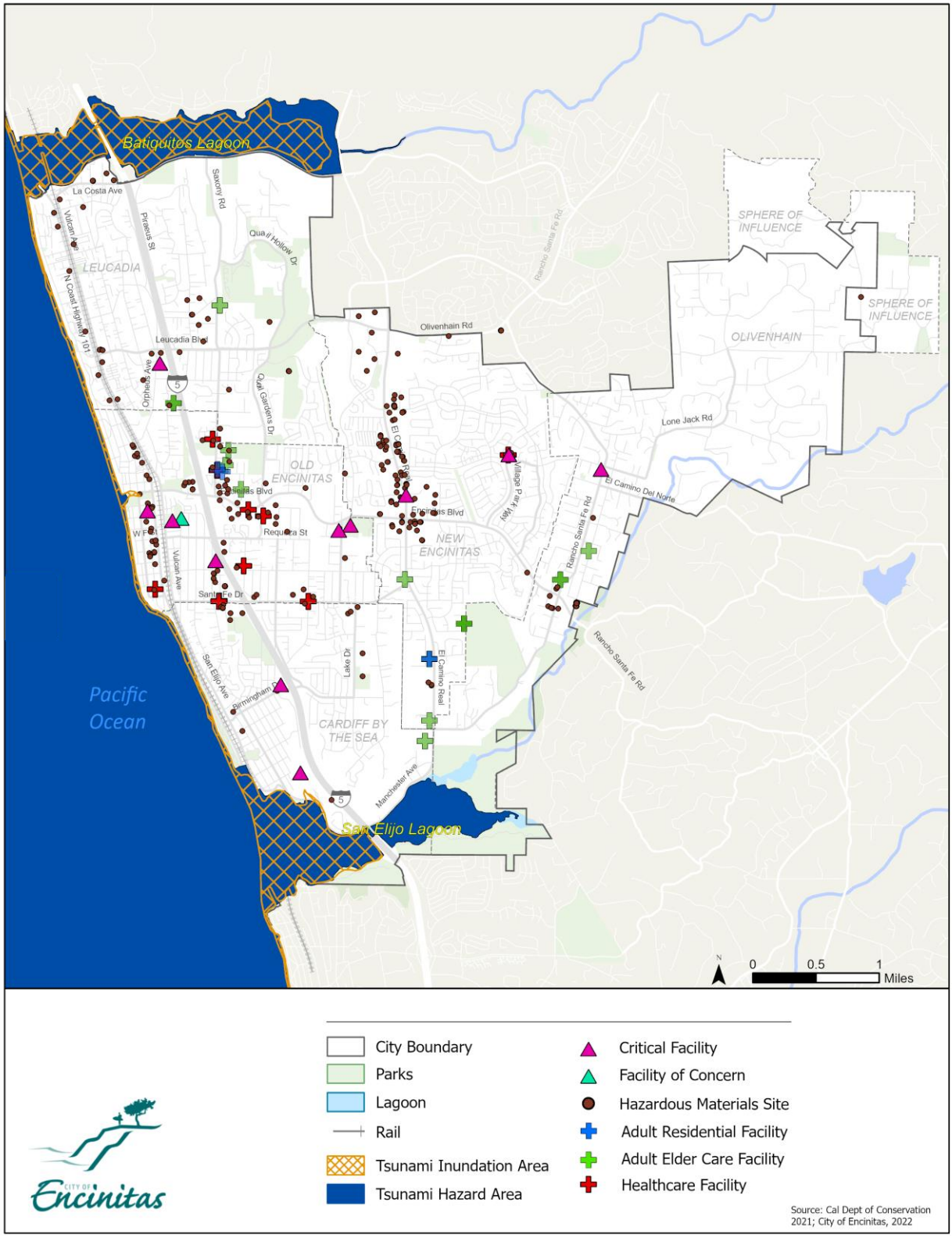


FIGURE S-10 – TSUNAMI INUNDATION AREAS



Water Pollution

Water pollution is the contamination of water resources that compromises the beneficial uses of the water including drinking, recreation, irrigation, and other activities. Pollutants may include chemicals, trash, bacteria, and sediment.

As a coastal community, the interaction of land uses and transportation infrastructure can significantly threaten local water resources, if spills were to occur. The protection of public health and safety relies upon implementation of regulations that protect the quality of surface water runoff and the local waterways that provide this critical resource.

GOAL S-8: PUBLIC HEALTH AND SAFETY WILL BE CONSIDERED IN FUTURE LAND USE PLANNING (COASTAL ACT/30253). LCP GOALS AND POLICIES

Policies / Implementation Actions

S-8.1 LCP Component	**Development and grading or filling in drainage courses, floodways, and floodplains shall be prohibited except as provided by Land Use Element Policy 8.2. An exception may be made upon the finding that strict application of this policy would preclude any reasonable use of a property (one dwelling unit per legal parcel.) Exceptions may also be made for the development of circulation element roads; necessary water supply projects; flood control projects where no other method for protecting existing structures in the floodplain is feasible and where such protection is necessary for public safety or to protect existing development; developments where the primary function is the improvement of fish and wildlife habitat; and other vital public facilities, but only to the extent that no other feasible alternatives exist, and minimum disruption to the natural floodplain, floodway or drainage course is made. When flood/drainage improvements are warranted, require developers to mitigate flood hazards in those areas identified as being subject to periodic flooding prior to actual development.**
S-8.2 LCP Component	**Restrict development in those areas where the slope exceeds 25% as specified in the Hillside/Inland Bluff overlay zone regulations of the zoning code. Encroachment into slopes as detailed in the Hillside/Inland Bluff overlay may range from 0 percent to a maximum of 20 percent, based on a sliding scale of encroachment allowances reflective of the amount of the property within steep slopes, upon the discretionary judgment that there is no feasible alternative siting or design which eliminates or substantially reduces the need for such encroachment, and it is found that the bulk and scale of the proposed structure has been minimized to the greatest extent feasible and such encroachment is necessary for minimum site development and that the maximum contiguous area of sensitive slopes shall be preserved. Within the Coastal Zone and for the purposes of this section, "encroachment" shall constitute any activity that involves grading, construction, placement of structures or materials, paving, removal of native vegetation, including clear-cutting for brush management purposes, or other operations which would render the area incapable of supporting native vegetation or being used as wildlife habitat. Modification from this policy may be made upon the finding that strict application of this policy would preclude any reasonable use of a property (one dwelling unit per legal**

	parcel). Exceptions may also be made for the development of circulation element roads, local public streets, or private roads and driveways, which are necessary for access to the more developable portions of a site on slopes of less than 25% grade, and other vital public facilities, but only to the extent that no other feasible alternatives exist, and minimum disruption to the natural slope is made. *Previous Policy 1.2 amended 5/11/95 (Reso. 95-32)*
S-8.3 LCP Component	**The City will rely on the Coastal Bluff and Hillside/Inland Bluff Overlay Zones to prevent future development or redevelopment that will represent a hazard to its owners or occupants and may require structural measures to prevent destructive erosion or collapse.** *(Coastal Act/30240/30251/30253)*
S-8.4 LCP Component	**Develop a master plan for drainage and flood control.** *(Coastal Act/30236)*
S-8.5 LCP Component	**Where significant irrigated slopes are included in industrial, commercial, and higher-density residential development, a landscape maintenance assessment district shall fund their required maintenance.** *(Coastal Act/30251/30240)*
S-8.6 LCP Component	**The City shall provide for the reduction of unnatural causes of bluff erosion, as detailed in the Zoning Code, by:** a. Only permitting public access stairways and no new private stairways, and otherwise discouraging climbing upon and defacement of the bluff face; b. Improving local drainage systems to divert surface water away from the bluff; c. Studying the underground water system and looking for a potential solution to bluff instability/erosion caused by such water; d. Reducing the infusion of groundwater from domestic sources through, among other actions, requiring the removal of existing irrigation systems within forty feet of the bluff edge and prohibiting the installation of such systems in new development; e. Permitting pursuant to the Coastal Bluff Overlay Zone, bluff repair and erosion control measures on the face and at the top of the bluff that is necessary to repair human-caused damage to the bluff and to retard erosion that may be caused or accelerated by land-based forces such as surface drainage or groundwater seepage, providing that no alteration of the natural character of the bluff shall result from such measures, where such measures are designed to minimize encroachment onto beach areas through an alignment at and parallel to the toe of the coastal bluff, where such measures receive coloring and other exterior treatments and provided that such measures shall be permitted only when required to serve coastal dependent uses or to protect existing principal structures or public beaches in danger from erosion, and when designed to eliminate or mitigate adverse impacts on local shoreline sand supply; and f. Requiring new structures and improvements to existing structures to be set back 25 feet from the inland blufftop edge and 40 feet from the coastal blufftop edge with exceptions to allow a minimum coastal blufftop setback of

	no less than 25 feet. A site-specific geotechnical report shall be required for all development proposed on coastal blufftops. The report shall indicate that the coastal blufftop setback will not risk foundation damage resulting from bluff erosion or retreat to the principal structure within its economic life and with other engineering evidence to justify the coastal blufftop setback. On coastal bluffs, exceptions to allow a minimum setback of no less than 25 feet shall be limited to additions or expansions to existing principal structures which are already located seaward of the 40-foot coastal blufftop setback, provided the proposed addition or expansion is located no further seaward than the existing principal structure, is set back a minimum of 25 feet from the coastal blufftop edge, and the applicant agrees to remove the proposed addition or expansion, either in part or entirely, should it become threatened in the future. In all cases, all new construction shall be specifically designed and constructed so that it can be removed in the event of endangerment. The applicant shall agree to participate in any comprehensive plan adopted by the City to address coastal bluff recession and shoreline erosion problems in the City. This does not apply to minor structures that do not require a building permit, except that no structures, including walkways, patios, patio covers, cabanas, windscreens, sundecks, lighting standards, walls, temporary accessory buildings not exceeding 200 square feet in area, and similar structures shall be allowed within five feet from the bluff top edge; and g. Permanently conserving the bluff face within an open space easement or other suitable instrument. **Standards for the justification of preemptive erosion control devices and limits on the location of shoreline devices shall be as detailed in the Zoning Code.** *(Coastal Act/30210/30235/30240/30251/30253)* *Previous Policy 1.6 amended 5/11/95 (Reso. 95-32)*
S-8.7 LCP Component	**The City shall develop and adopt a comprehensive plan, based on the Beach Bluff Erosion Technical Report (prepared by Zeiser Kling Consultants Inc., dated January 24, 1994), to address the coastal bluff recession and shoreline erosion problems in the City. Said plan shall include, at minimum, components that deal with all the factors affecting the bluffs in Encinitas. These include, but are not limited to, minimum blufftop setback requirements for new development/redevelopment; alternatives to shore/bluff protection such as beach sand replenishment; removal of threatened portions of a residence or the entire residence or underpinning existing structures; addressing bluff stability and the need for protective measures over the entire bluff (lower, mid and upper); impacts of shoreline structures on beach and sand areas as well as mitigation for such impacts; impacts of groundwater and irrigation on bluff stability; and, visual impacts of necessary/required protective structures.** **If a comprehensive plan is not submitted to, reviewed and approved by the Coastal Commission as an amendment to this land use plan by November 17, 1995, then no additions or expansions to existing structures shall be permitted on coastal blufftop lots except for minor additions or expansions that comprise no greater than a 10 percent increase above the existing gross floor area or 250 square feet whichever is greater, provided such additions/expansions are located at least 40 feet from the coastal blufftop edge, the addition/expansion is**

	constructed in a manner so that it could be removed in its entirety, and the applicant agrees, in writing, to participate in any comprehensive plan adopted by the City to address coastal bluff recession and shoreline erosion problems in the City. In addition, until such a comprehensive plan is approved by the City of Encinitas and the Coastal Commission as an amendment to the LCP, the City shall not permit the construction of seawalls, revetments, breakwaters, cribbing, or similar structures for coastal erosion except under circumstances where an existing principal structure is imminently threatened and, based on a thorough alternatives analysis, an emergency coastal development permit is issued and all emergency measures authorized by the emergency coastal development permit are designed to eliminate or mitigate adverse impacts on local shoreline sand supply. *Previous Policy 1.7 amended 5/11/95 (Reso. 95-32)*
S-8.8	**Prioritize the creation and improvement of natural drainage channels to promote beach sand nourishment/replenishment along the City of Encinitas coastline.**
S-8.9	**Ensure a better understanding of king tide impacts and coastal inundation is available to make better decisions regarding coastal impacts.** **S-8.9a -** Annually monitor coastal inundation (king tide) and average high tide measurements to track inundation patterns. **S-8.9b -** If coastal inundation migrates further inland, identify thresholds for requiring new analyses and potential mitigation actions.
S-8.10	**Ensure planning, preparedness, and emergency response capabilities can accommodate tsunami hazard events.**
S-8.11	**Expand/enhance the Sand Compatibility and Opportunistic Use Program to accommodate exported soils from development projects within the City. Ensure the expanded program accommodates the following:** • Criteria for projects to comply with the program • Updated research on nourishment volumes/thresholds • Updated targets to maintain and expand beach width consistent with state, regional, and local studies.

IV. IMPLEMENTATION PROGRAMS / ACTIONS

The implementation programs and actions provide the City with flexibility to consider staffing levels, economic conditions, funding constraints, capital improvement projects, and humanmade or natural physical events. Some of the programs and actions are ongoing and may recommend further analyses be conducted. The City must continue to monitor the relevance of these programs and actions regarding their implementation progress and to set new safety objectives based upon changing conditions, new information, and revised City priorities.

Number	Implementation Action
EMERGENCY PREPAREDNESS AND EVACUATION	
S-1.1a	Maintain adequate staffing levels, materials, and equipment to ensure timely response to public safety service demands.
S-1.1b	Periodically update the City's priorities for future emergency service needs within the City.
S-1.7a	Implement evacuation measures locally as outlined within the San Diego County Emergency Operations Plan (EOP) Annex Q titled, Evacuations.
S-1.7b	Develop Evacuation Master Plan that identifies routes, potential hazard incidents, and criteria regarding capacity, safety, and viability.
SEISMIC AND GEOLOGIC HAZARDS	
S-2.2a	Develop an inventory of seismically vulnerable structures (unreinforced masonry, soft story construction, and non-ductile concrete).
S-2.2b	Develop a retrofit program and potential funding sources for seismically vulnerable structures.
S-2.7a	Develop a deep-rooted plant list for slopes to increase slope stability conditions.
S-2.7b	Prohibit the use of heavy and shallow rooted plants on slopes.
FLOOD HAZARDS	
S-3.1a	Establish and implement standards based on the 50 or 100-year storm for flood control and drainage improvements.
S-3.3a	Monitor and periodically evaluate the community flood protection and evacuation plans to assist persons and property owners and protect properties from 100-year flood threats and dam inundation.
S-3.3b	Monitor and periodically update as required the following mapping and plans to maintain flood and dam inundation hazard resilience within the City: a. Flood Insurance Rate Maps (FIRM) prepared by Federal Emergency Management Agency (FEMA). b. Local Hazard Mitigation Plan (HMP) to include accurate information and data for all potential Flood Hazards. c. Drainage Master Plan that incorporates Army Corps of Engineers data and analysis and localized flood maps showing areas subject to flooding and a history of repeated flood damage.

S-3.3c	Update local floodplain management ordinance as necessary to ensure compliance with National Flood Insurance Program (NFIP) requirements pursuant to Title 44 of the Code of Federal Regulations (CFR).
S-3.6a	Monitor and upgrade infrastructure in areas where localized flooding frequently occurs.
S-3.6b	Educate private property owners on their responsibilities for flood management and maintenance of drainage courses.
FIRE HAZARDS	
S-4.2a	Establish ongoing maintenance and funding for vegetation management and defensible space along city-maintained roads, open space areas, and fire breaks.
S-4.2b	Implement brush management along City maintained roads in very high fire hazard severity zones adjacent to open space and canyon areas.
S-4.8a	Develop, implement, and maintain a public outreach program educating the community about contemporary fire safe standards, and wildland fire preparedness.
S-4.8b	Support the identification and use of potential funding opportunities that assist with retrofitting existing structures threatened by wildfires
S-4.30a	Develop and periodically update an Emergency Services Master Plan that details staffing, facilities, and equipment needs. Updates should periodically assess future emergency services needs for the City.
OTHER HAZARDS	
S-5.5a	Participate in San Diego County hazardous waste reduction programs consistent with the San Diego County Hazardous Waste Management Plan.
CLIMATE ADAPTATION	
S-7.1a	Develop a climate resiliency plan that integrates and builds upon the strategies identified in the General Plan, Climate Action Plan, Vulnerability Assessment, San Diego County MJHMP, and Emergency Operations Plan.
S-7.1b	Monitor climate change-related effects with local, regional, state, and/or federal partners to provide information about the effectiveness of existing infrastructure and programs.
S-7.1c	Coordinate with regional, state, and federal agencies to monitor the indicators and impacts of climate change.
S-7.1d	Monitor and periodically update as required the following City plans and mapping to maintain information on climate adaptation resiliency within the City: d. The Encinitas Climate Action Plan focuses on climate mitigation and generally addresses climate adaptation. e. The Encinitas Vulnerability Assessment that integrates climate adaptation and hazard mitigation information and analysis. f. The Multi-jurisdictional Hazard Mitigation Plan to incorporate new information related to climate change, as necessary.
COASTAL RESOURCES	
S-8.9a	Annually monitor coastal inundation (king tide) and average high tide measurements to track inundation patterns.
S-8.9b	If coastal inundation migrates further inland, identify thresholds for requiring new analyses and potential mitigation actions.