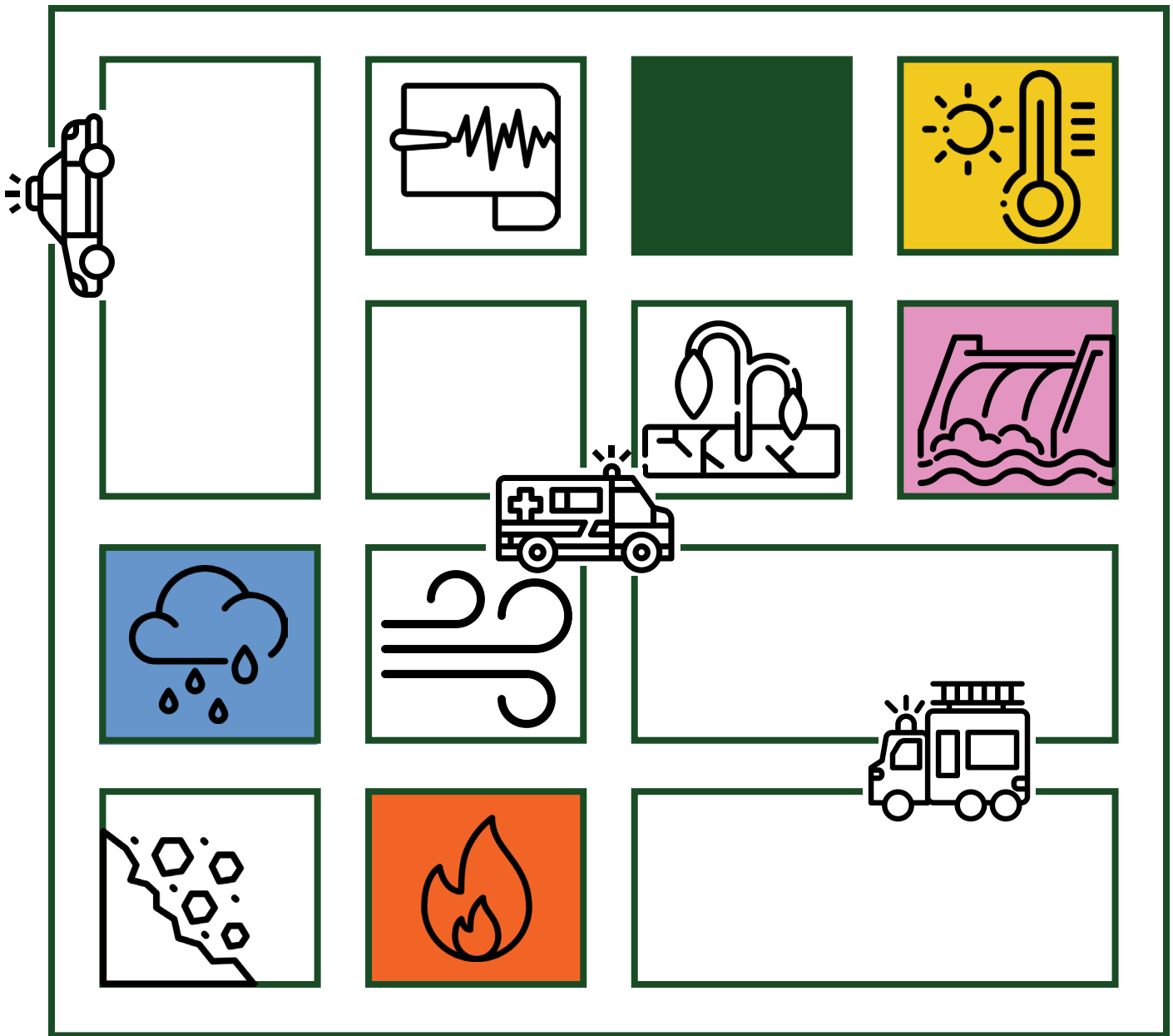




GLENDORA SAFETY ELEMENT

October 28, 2025

ACKNOWLEDGMENTS



City Council

David Fredendall, District 2, Mayor
Michael Allawos, District 1, Mayor Pro Tem
Shaunna Elias, District 3
Karen K. Davis, District 4
Mendell Thompson, District 5

Planning Commission

Brian Faber, Chair
Timothy Cremins, Vice Chair
Mark Davis
Wendy Jarvie
Paulette Koss

City of Glendora, California

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Elizabeth Loera, Project Administration
Julie Linger, Business Services Manager, Police

Prepared by

De Novo Planning Group

A Land Use Planning, Design, and Environmental Firm



RESOLUTION CC 2025-37

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF GLENDORA, CALIFORNIA, APPROVING A GENERAL PLAN AMENDMENT TO ADOPT THE UPDATED SAFETY ELEMENT, INCORPORATING THE MOST RECENT FEMA FLOOD INSURANCE RATE MAP

THE CITY COUNCIL City of Glendora, California

WHEREAS, the City of Glendora has adopted a General Plan, which includes all the elements mandated by California Government Code Section 65302; and

WHEREAS, Government Code Section 65583 requires that a city's General Plan Housing Element consists of an identification analysis of existing and projected housing needs; a statement of goals, policies, quantified objectives, financial resources, and scheduled programs for the preservation, improvement, and development of housing, and scheduled programs for the preservation, improvement, and development of housing; and the identification of adequate sites for housing; and

WHEREAS, Government Code Section 65302(g) requires cities to update their Safety Elements in conjunction with adopting a Housing Element; and

WHEREAS, the Safety Element was prepared in coordination with an update to the Local Hazard Mitigation Plan (LHMP); and

WHEREAS, the Federal Emergency Management Agency (FEMA) requires the City to adopt the most current Flood Insurance Rate Map (FIRM) in order to participate in the National Flood Insurance Program (NFIP); and

WHEREAS, the City participates in the National Flood Insurance Program (NFIP); and

WHEREAS, Government Code Section 65583(c)(7) requires that the local government make a diligent effort to achieve public participation, the City created a dedicated project webpage, community survey, booths at community events, and six focus group meetings for the Local Hazard Mitigation Plan, which helped inform the Safety Element; and

WHEREAS, the draft amended Safety Element was submitted to the Board of Forestry and Fire Protection on November 6, 2024, and received approval on December 10, 2024; and

WHEREAS, the Planning Commission held a duly noticed public hearing on October 7, 2025, and recommended approval of a Categorical Exemption pursuant to Section 15061(b)(3) of the California Environmental Quality Act (CEQA), as well as recommended approval of the updated Safety Element of the General Plan; and

WHEREAS, the City Council held a public hearing on October 28, 2025, after due notice was given as required by law, at which time oral and documentary evidence was introduced along with the recommendation of the Planning Commission.

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF GLENDORA, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

SECTION 1. The foregoing recitals are true and correct and are incorporated herein by this reference.

SECTION 2. The City Council hereby adopts a Categorical Exemption pursuant to Section 15061(b)(3) of the California Environmental Quality Act (CEQA). The City Council finds that the activity in question is exempt from CEQA review under the “common sense” exception in CEQA Guidelines Section 15061(b)(3) because it can be seen with certainty that there is no possibility that approval of the General Plan Amendment or this Resolution may have a significant effect on the environment. The General Plan Amendment consists of an update to the Safety Element.

SECTION 3. The City Council hereby approves a General Plan Amendment to adopt the Safety Element, which is attached hereto as “Exhibit A” and made a part hereof.

SECTION 4. The City Council hereby adopts the most recent Flood Insurance Rate Map updated by the Federal Emergency Management Agency (FEMA) on September 26, 2008, which is available online at the FEMA website, and all subsequent administrative or legislative amendments to the map.

SECTION 5. The City Council declares that should any provision, section, paragraph, sentence, or word of this Resolution be rendered or declared invalid by any court of competent jurisdiction or by reason of any preempting legislation, the remaining provisions, sections, paragraphs, sentences, and words of this Resolution shall remain in full force and effect.

SECTION 6. The City Clerk shall certify to the passage and adoption of this resolution and shall enter the same in the Book of Original Resolutions.

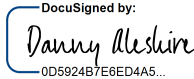
PASSED, APPROVED and ADOPTED by the City Council of the City of Glendora this 28th day of October, 2025.

BY: 

DAVID FREDENDALL
Mayor

Oct 30, 2025 | 9:00 AM PDT

APPROVED AS TO FORM:
Aleshire & Wynder, LLP



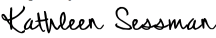
DANNY ALESHIRE
City Attorney
Oct 29, 2025 | 5:01 PM PDT
Resolution CC 2025-37

CERTIFICATION

I, do hereby certify that the foregoing Resolution was duly adopted by the City Council of the City of Glendora at a regular meeting held on the 28th day of October, 2025, by the following vote:

AYES:	MEMBERS:	Davis, Elias, Thompson, Allawos, Fredendall.
NOES:	MEMBERS:	None.
ABSENT:	MEMBERS:	None.
ABSTAIN:	MEMBERS:	None.

Dated: October 29, 2025

Signed by:

2252A9F44B69431...

KATHLEEN R. SESSMAN
City Clerk/Communications Director

Oct 30, 2025 | 1:01 PM PDT

Glendora Safety Element

1.0 INTRODUCTION

The Safety Element of the General Plan addresses natural and human-caused hazards in the City of Glendora and the potential short and long-term risks to human life, property, and economic and social dislocation resulting from fires, floods, droughts, earthquakes, landslides, and other hazards. This is one of seven elements required by State law (Government Code 65302). Since climate change affects and potentially exacerbates the impact of hazards, in accordance with Senate Bill 379, the Safety Element also addresses climate change and resiliency planning.

The Safety Element is organized to include an Existing Conditions section, which outlines each hazard facing Glendora, who these hazards affect, and how the City is currently addressing these hazards. The Safety Element also includes a Goals and Policies section, which provides the City's hazard mitigation and emergency response strategy. Furthermore, the Safety Element incorporates and augments mitigation policies contained in the Glendora Local Hazard Mitigation Plan (LHMP).¹

The Safety Element directly relates to topics in the Land Use, Circulation, Conservation, and Open Space and Recreation Elements of the General Plan. The Safety Element identifies hazards and hazard abatement provisions to guide land use decisions related to zoning, subdivisions, and entitlement permits. The Safety Element also addresses emergency response and evacuation routes, which informs the Circulation Element to ensure that streets are sized adequately for fire truck access and other needs of first responders.

The Safety Element is a long-term plan that includes policies to mitigate hazards through land use, design measures, and programs. As a part of the General Plan, the Safety Element provides direction that the City will implement through the Zoning Ordinance and other mechanisms. A similar but more nuanced plan is the Local Hazard Mitigation Plan (LHMP). The LHMP is a short-

LOCAL HAZARD MITIGATION PLAN (LHMP) – [Click to View](#)

The Glendora Local Hazard Mitigation Plan was last updated in 2024 in accordance with the Disaster Mitigation Act of 2000. Regular updates to the LHMP ensure access to Federal Emergency Management Agency (FEMA) Hazard Mitigation Grant Program (HMGP) funding.

CLIMATE ADAPTATION AND RESILIENCY STRATEGIES

SB 379 requires cities and counties in California to integrate climate adaptation into their general plans.

¹ City of Glendora, 2025 Local Hazard Mitigation Plan, 2025, <https://>, accessed on May 2, 2025.

term, 5-year strategic plan that also seeks to identify and mitigate natural hazards. The LHMP is distinct from the Safety Element in that it is created to directly respond to the requirements of the federal Disaster Mitigation Act (DMA) of 2000. By achieving certification from FEMA, the LHMP provides the City with access to two competitive FEMA grant programs: the Hazard Mitigation Grant Program (HMGP) and the Pre-Disaster Mitigation Program (PDM). To maintain eligibility for FEMA funding, the City must update the LHMP a minimum of once every five years. As of May 2024, the LHMP was being updated concurrent with the Safety Element. By integrating the LHMP with the Safety Element, the City will also achieve eligibility for additional post disaster funding from the State of California. Integration also allows the Safety Element's framework of goals and policies to be utilized and built upon by current and future LHMPs. Policy SAF-9.3 states the City's intent to implement the strategies and plans in the Local Hazard Mitigation Plan.



1.1 SUMMARY OF FINDINGS

Glendora and its people are susceptible to various hazards, both natural and human-caused. Below is a summary of findings for the main topics presented in this Safety Element.

Geologic Hazards

Glendora is in a seismically active region and has a major fault zone located within the city. The Sierra Madre Fault Zone runs along the southern edge of the San Gabriel Mountains and is related to the Cucamonga Fault and San Fernando Fault Zone. In addition to these faults, several other faults are located within the region that could have an impact on the city, most notably the San Andreas Fault. Buildings are likely to sustain only moderate damage from ground shaking as most of Glendora's structures were built under recent building codes. Liquefaction conditions may occur in areas along the canyon and wash areas located at the base of the foothills and in isolated areas of the city. The foothill areas of the city are considered to have a high potential for landslides.

Flood Hazards

The built areas of Glendora are not located within a 100-year flood plain. The city does face a potential hazard from dam inundation resulting from the failure of either of two dams: Big Dalton Dam and San Dimas Dam; however, it is considered unlikely that either dam would fail during a catastrophic event.

Wildfire

Glendora's location at the base of the San Gabriel Mountains creates a wildland-urban interface that makes Glendora more susceptible to wildfires than cities that do not border the foothills. Very high risk for wildfire is evident in areas having steep slopes that are covered with chaparral vegetation and where there is limited access for fire control equipment. Low hazard areas are developed urban areas where fire access is readily available and the terrain is relatively flat. Very High Fire Hazard Severity Zones (VHFHSZ) have been mapped within the city.

Climate Change

As a result of climate change, Glendora may experience more frequent and intense heat waves, drought, wildfires, flooding, and more severe storms and extreme weather events. The impacts of climate change pose an increasing and growing challenge to the safety and well-being of Glendora's residents.

Emergency Preparedness

Emergency preparation and response are important components in ensuring residents are ready for hazards and first responders can adequately serve residents in the event of a hazard unfolding. The Los Angeles County Fire Department and Glendora Police Department respond to small- and large-scale hazard events in Glendora. Currently, the City's response capacity meets the needs of the community; however, hard-to-reach populations with functional and medical needs may still face challenges evacuating.

2.0 AUTHORITY FOR THE ELEMENT

2.1 REGULATORY FRAMEWORK

California Government Code Section 65302(g)(1) requires that a General Plan include:

“A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of Division 2 of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wildland and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards.”

The following federal and state regulations provide the legal framework to the Safety Element. These programs provide minimum requirements/criteria that must be complied with; however, cities can adopt stricter requirements if desired.

TABLE SAF-1: REGULATORY FRAMEWORK

Federal or State Regulation	Description
Alquist-Priolo Earthquake Fault Zoning Act (1972)	The intent of the <i>Alquist-Priolo Act</i> is to reduce losses from surface fault rupture. California created this law following the destructive 1971 San Fernando earthquake (magnitude 6.6), which was associated with extensive surface fault ruptures that damaged numerous structures. Alquist-Priolo earthquake fault zones are regulatory zones surrounding the surface traces of active faults in California. A trace is a line on the earth's surface defining a fault. Wherever an active fault exists, if it has the potential for surface rupture, a structure for human occupancy cannot be placed over the fault and must be a minimum distance from the fault (generally fifty feet). An active fault, for the purposes of the Alquist-Priolo Act, is one that has ruptured in the last 11,000 years.
Seismic Hazards Mapping Act (1990)	The <i>Seismic Hazards Mapping Act</i> addresses non-surface fault rupture earthquake hazards, including strong ground shaking, liquefaction, and seismically induced landslides. The California Geological Survey (CGS) prepares and provides local governments with seismic hazard zone maps that identify areas susceptible to amplified shaking, liquefaction, earthquake-induced landslides, and other ground failures. The seismic hazard zones delineated by the CGS are referred to as “Zones of Required Investigation,” because

Federal or State Regulation	Description
	site-specific geological hazard investigations are required for construction projects located within these areas.
California Building Standards Code	Every three years, the State adopts new codes (known collectively as the <i>California Building Standards Code</i>) to establish uniform standards for the construction and maintenance of buildings, electrical systems, plumbing systems, mechanical systems, and fire and life safety systems. Sections 17922, 17958, and 18941.5 of the California Health and Safety Code require that the latest edition of the California Building Standards Code apply to local construction 180 days after publication. The <i>California Building Code (CBC)</i>, which is included in the California Building Standards Code, provides “minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures.” The most recent version of the California Building Standards Code is the 2022 edition, based on the 2007 edition of the Uniform Building Code. The City of Glendora has adopted the 2022 edition with local amendments.
Unreinforced Masonry Law (1986)	The <i>Unreinforced Masonry Law</i> requires all cities and counties in Seismic Zone 4 (CBC, 2022) to identify hazardous unreinforced masonry (URM) buildings in their jurisdictions. Owners of such buildings must be notified of the potential earthquake hazard, and mitigation must be performed. The mitigation method, which may include retrofitting or demolition, is left to the local jurisdiction. Chapter 19.03 of the Glendora Municipal Code pertains to seismic strengthening provisions for unreinforced masonry bearing wall buildings. All URM buildings within the city have been identified and upgraded to meet current requirements.
National Flood Insurance Act (1968) Flood Disaster Protection Act (1973)	The Federal Emergency Management Agency (FEMA) is mandated by the <i>National Flood Insurance Act</i> and the <i>Flood Disaster Protection Act</i> to evaluate flood hazards and provide Flood Insurance Rate Maps (FIRMs) for local and regional planners to promote sound land use and floodplain development. Further, the Flood Disaster Protection Act requires owners of all structures in identified Special Flood Hazard Areas to purchase and maintain flood insurance as a condition of receiving federal or federally related financial assistance, such as mortgage loans from federally insured lending institutions. The National Flood Insurance Reform Act (1994) further strengthened the National Flood Insurance Program (NFIP) by providing a grant program for state and community flood mitigation projects. The NFIP also established a system (Community Rating System – CRS) for crediting communities that implement measures to protect the natural and beneficial functions of their floodplains, as well as managing the erosion hazard. Glendora is a participant in the NFIP and manages its flood-prone areas through Chapter 9.58 of the Glendora Municipal Code.

Federal or State Regulation	Description
Fire Regulations	Assembly Bill 337 (1992) established a process to identify Very High Fire Hazard Severity Zones (VHFHSZs). Under Assembly Bill 3819 (1994), “Class A” roofing, minimum clearances of 30 feet around structures, and other fire defense improvements are required in VHFHSZs. Assembly Bill 6 (1997) requires that fire hazard areas be disclosed in real estate transactions. Civil Code Section 1103(c)(6) also requires real estate sellers to inform prospective buyers whether a property is located within a wildland area that could contain substantial fire risks and hazards. In 2012, the State Legislature adopted Senate Bill 1241 (SB 1241), which requires communities to protect themselves against wildland and urban fires by addressing the fire hazard in areas designated as VHFHSZs. In 2023, the City prepared a Climate Vulnerability Assessment (CVA) to inform City policies, plans, programs, and guidance to promote effective and integrated action to safeguard from conditions that could result from climate change, such as increased frequency and severity of wildland fires. The CVA is attached as Appendix A. Exhibit SAF-6 shows VHFHSZs within Glendora, which primarily cover the northern portion of the city. Public Resources Code Section 4290 requires minimum statewide fire safety standards pertaining to: ▪ Road standards for fire equipment access; ▪ Standards for signs identifying streets, roads, and buildings; ▪ Minimum private water supply reserves for emergency fire use; and ▪ Fuel breaks and greenbelts Wildland fire areas are also subject to Public Resources Code Sections 4291 through 4299, which require property owners in such areas to conduct maintenance to reduce the fire danger. Section 18.04.010 of the City’s Municipal Code adopts by reference the California Fire Code 2022 Edition.
Standardized Emergency Management System (SEMS)	The <i>Standardized Emergency Management System (SEMS)</i> is described by the Petris Bill (SB 1841), and is contained in Chapter 1 of Division 2 of Title 19 of the California Code of Regulations. It requires all jurisdictions within the State of California to participate in the establishment of a standardized statewide emergency management system. The California Emergency Services Act, Section 8568, states that “The State Emergency Plan shall be in effect in each political subdivision of the state, and the governing body of each political subdivision shall take such action as may be necessary to carry out the provisions thereof.” The act provides the basic authorities for conducting emergency operations following the proclamations of emergencies by the Governor or appropriate local authority, such as a city manager.

Federal or State Regulation	Description
California Environmental Quality Act (CEQA)	The <i>California Environmental Quality Act</i> (1970) insures that local governmental agencies consider and review the environmental impacts of development projects within their jurisdictions. CEQA requires that an Environmental Impact Report (EIR) be prepared for projects that may have significant effects on the environment. EIRs are required to identify geologic and seismic hazards, and to recommend potential mitigation measures, giving the local agency the authority to regulate private development projects in the early stages of planning.
Hazardous Materials Disclosure Program	In 1986, Congress passed the <i>Superfund Amendments and Reauthorization Act (SARA)</i> to help solve the problems of hazardous waste sites. SARA provides California residents with the resources needed to clean up hazardous waste sites, as well as emergency plans to follow in case of a dangerous substance release. Several California statutes require the emergency notification of a hazardous chemical release. These include: Health and Safety Code § 25270.7, § 25270.8, and § 25507; Vehicle Code § 23112.5; Public Utilities Code § 7673; Government Code § 51018 and § 8670.25.5(a); Water Code § 13271 and § 13272; and California Labor Code § 6409.1(b)10. The Safe Drinking Water and Toxic Enforcement Act (1986), better known as Proposition 65, and § 9030 of the California Labor Code also have specific reporting requirements.
Emergency Planning and Community Right-to-Know Act (EPCRA)	The <i>Emergency Planning and Community Right-to-Know Act</i> (1986) was authorized by Title III of the Superfund Amendments and Reauthorization Act to help communities plan for chemical emergencies. It requires industry to report on the storage, use, and releases of certain chemicals to federal, state, tribal, territorial, and/or local governments. It also requires these reports to be used to prepare for and protect their communities from potential risks.
Real Estate Disclosure Requirements	Pursuant to the Natural Hazards Disclosure Act (1998), sellers of real property and their agents are required to provide prospective buyers with a “Natural Hazard Disclosure (NHD) Statement” when the property being sold lies within one or more State mapped hazard areas, such as within an Alquist-Priolo Earthquake Fault Zone or a Seismic Hazard Zone.

2.2 CITY PLANS AND PROGRAMS

2.2.1 GLENDORA STRATEGIC PLAN

The City of Glendora prepares a multi-year Strategic Plan that builds upon progress made in previous years. The Strategic Plan is a tool to guide the City and community toward an envisioned future for Glendora. It includes setting goals and objectives to manage changes which may include community demographics, state and federal mandates, fiscal constraints, economic conditions, emerging technologies, and other issues that influence the City’s service delivery. The Strategic Plan incorporates the City’s Mission, Vision, and values which guide the City’s planning

efforts toward implementation of the Strategic Plan goals and objectives. Staff and officials consider the Strategic Plan when developing, implementing, or reviewing programs and services, and when considering requests for fiscal resources. As outlined in the *2023-2025 Strategic Plan*, Goal 1, Objective 2 mandates continuing the comprehensive General Plan Update by completing the Safety Element Update during the planning period.

In addition to setting the strategic goals, the City Council adopts the objectives within the Strategic Plan, which represent major initiatives aimed to further the strategic goals. City staff is responsible for the development of the tasks (major milestones) needed to complete these objectives. Periodically, staff reviews the tasks and makes necessary changes where applicable to ensure the objectives are met in a timely manner. Furthermore, changes to the tasks help ensure the process in which to achieve the objectives continues to be clearly articulated to the City Council and greater Glendora community.

2.2.2 EMERGENCY OPERATIONS PLAN

The Standardized Emergency Management System (SEMS), California Code of Regulations, Title 19, Division 2, Section 2443, requires compliance with the SEMS to “*be documented in the areas of planning, training, exercise, and performance.*” To comply, emergency plans must address five SEMS functions:

- Management;
- Operations;
- Planning/Intelligence;
- Logistics; and
- Finance/Administration

Glendora has prepared an Emergency Operations Plan (EOP) for emergency response within the city (revised March 1, 2013). The EOP meets the SEMS requirements of State law and also addresses mutual aid, operational areas, and multi/inter-agency coordination. The City also complies with the LA County Operational Area Emergency Operations Plan (<https://ceo.lacounty.gov/emergencydisaster-plans-and-annexes/>).

The EOP is divided into five parts:

- **Part One – Basic Plan**, provides the overall organizational and operational concepts relative to response and recovery, as well as an overview of potential hazards and a description of the emergency/disaster response organization.
- **Part Two – EOC Appendices and Annexes**, provides emergency action checklists and supporting documents for each function/position in the organizational structure.
- **Part Three – Other Annexes**, identifies all other hazard specific plans, operational plans, standard operating procedures, etc.

- **Part Four – Forms**
- **Part Five – Acronyms and Glossary**

Emergency response and threats are thoroughly described and outlined in the EOP. Key points of the plan include the identification of critical areas in the city that represent both dangers, as well as areas for meeting and staging in an emergency event, communications, and emergency evacuation.

The EOP addresses the City's planned response to emergencies associated with natural disasters and technological incidents. It provides an overview of operational concepts, identifies components of the City's emergency management organization within the SEMS, and describes the overall responsibilities of federal, state, and county entities and the City for protecting life and property and assuring the overall well-being of the population.

The City maintains an Emergency Operations Center (EOC) at the Bidwell Forum located on the second floor of the Glendora Public Library at 140 South Glendora Avenue and an alternate EOC located at the Youth Center (159 North Cullen Avenue) to coordinate City services during an emergency. During an emergency, the centralized command center houses personnel from the City, emergency responders, and other appropriate agencies.

2.2.3 LOCAL HAZARD MITIGATION PLAN

The Safety Element works in conjunction with the City's Local Hazard Mitigation Plan (LHMP), which was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA's Local Hazard Mitigation Plan guidance. The LHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short and long-term strategies, involve planning, policy changes, programs, projects, and other activities. The latest Local Hazard Mitigation Plan can be accessed by visiting the City's website.

The Local Hazard Mitigation Plan includes resources and information to assist Glendora residents, public and private sector organizations, and others interested in participating in planning for natural hazards. The LHMP provides a list of activities that may assist the City in reducing risk and preventing loss from future natural hazard events. The LHMP addresses multi-hazard issues, including earthquakes and other seismic events, flooding, wildfires, and windstorms.

The LHMP is organized into various sections and reflects the logical progression of activities undertaken to develop the plan and includes all relevant documentation required to meet the necessary criteria for FEMA approval. Key sections are briefly described below:



- **Section 3.0: Community Profile** provides the history, geography, and demographics of Glendora, including land use and development trends.
- **Section 4.0: Risk and Vulnerability Assessment** identifies and profiles the natural hazards affecting the city, including their history, risk of future occurrence, and any effects climate change has on their frequency and intensity, where applicable. The selection of hazards is also discussed. This section also identifies the vulnerability and risk to the community and critical facilities associated with each hazard.
- **Section 5.0: Hazard Mitigation Strategy** identifies the specific hazard mitigation actions to reduce potential risks to the city's critical facilities, residents, and business owners in order to improve resiliency, and assesses Glendora's capabilities to implement and achieve the mitigation actions.
- **Section 6.0: Plan Maintenance** discusses implementation of the plan, including the process to monitor, evaluate, update, and maintain the LHMP, and identifies opportunities for continued public involvement.

2.2.4 GLENDORA CAPITAL IMPROVEMENT PROGRAM

The City of Glendora conducts an annual review and update of its Capital Improvement Program (CIP). The Capital Improvement Program provides the primary planning and budget mechanism for improvement projects throughout the city. The CIP must provide consistency with City policies as set forth in the City's General Plan. Projects within the CIP typically include water, recycled water, sewer, storm drains, and public right-of-way improvements.

2.2.5 GLENDORA MUNICIPAL CODE

The Glendora Municipal Code contains all ordinances adopted by the Glendora City Council. Many of these chapters provide direct relevance to policies and programs in the Safety Element. Relevant Code sections include:

- Title 6: Health and Sanitation
- Title 9: Public Peace, Morals and Safety
- Title 11: Emergency Preparedness
- Title 14: Water
- Title 18: Fire
- Title 19: Buildings and Construction

3.0 EXISTING CONDITIONS

3.1 EXISTING CONDITIONS

The Safety Element addresses both natural and human-made hazards. Specific hazards with the potential to impact Glendora include:

- Geologic hazards – fault rupture, ground shaking, liquefaction, landslides, soil instability
- Flood hazards – associated with rivers and streams, debris flows, and dam failure
- Wildfire
- Hazardous materials
- Crime
- Aircraft overflight

This section of the Safety Element discusses the existing conditions of these hazards and the programs currently in place to address them.

3.1.1 GEOLOGIC HAZARDS

Geologic, hydrologic, seismic, and soil conditions present in the city have been evaluated to identify potential seismic hazards, such as surface faulting (ground rupture), ground shaking, liquefaction, ground lurching, differential compaction, ground cracking, and seismically induced landslides. These data were used to evaluate potential seismic hazards to existing public and private facilities, and future land development.

3.1.1.1 Geology

Glendora is located at the foothills of the San Gabriel Mountains, bounded by the Angeles National Forest to the north, City of Azusa to the west, City of Covina to the south, and the City of San Dimas to the east. Two predominant terrain types are located within Glendora: alluvial fan and foothill. The alluvial fan portion of the city is characterized by gently to moderately sloping areas within the city where a vast majority of urban development has already occurred. The foothill portion of the city is characterized by moderate to very steep hillsides predominantly located along the northern boundary adjacent to the Angeles National Forest. In addition, a small area known as “South Hills” located in the southern portion of the city is also characterized by foothill terrain.

The city is located in the Transverse Range Geomorphic Province of southern California. This province is characterized by an east-west trending mountain range (San Gabriel Mountains), which have been uplifted and folded as a result of compression. This compression is the result of the tectonic movements associated with the San Andreas, Cucamonga, Sierra Madre, and San Fernando Fault Zones. These faults have shaped the landscape of southern California. Within the city, the dominant geologic feature is the Sierra Madre Fault Zone, which has shaped the landscape in the area.



The geologic units underlying the city can be categorized into two general categories: bedrock and alluvium. The bedrock units within the city consist of three main types: (1) sedimentary units of sandstone and siltstone; (2) volcanic units composed of tuff, lava, and mixtures of both; and (3) an igneous-metamorphic complex of crystalline rocks. The alluvium units within the city consist of old and young alluvial deposits that are derived from the surrounding bedrock units. These deposits consist of sand, silt, and gravels, with the youngest deposits located within active drainage courses. Refer to [Exhibit SAF-1, *Regional Geologic Map*](#).

Groundwater depths within the city range between 100 and 150 feet beneath the surface in the areas underlain by alluvium. The depth to groundwater has lowered over the last few decades due to domestic water production, which relies on pumping groundwater from the Glendora Basin aquifer.

3.1.1.2 Seismic Hazards

The following section describes seismic hazards present in Glendora including earthquake faults, surface rupture, ground shaking, liquefaction, landslides, hazardous buildings, and seismic response.

EARTHQUAKE MAGNITUDE SCALE



Earthquake Faults

Southern California is considered a seismically active region that is dominated by earthquake faults. In the Transverse Range Geomorphic Province, these faults typically trend east-west, following the general alignment of the San Gabriel Mountains. One major fault zone is located within the City of Glendora. This zone is known as the Sierra Madre Fault Zone, which runs along the southern margin of the San Gabriel Mountains and is related to the Cucamonga Fault to the east and San Fernando Fault Zone to the west. In addition to these faults, several other faults are located within the region that could have an impact on the city. The San Andreas Fault is approximately 20 miles northeast of the city, and is considered the most seismically active fault in the southern California region. A map illustrating the locations of faults in the vicinity of the city is shown in [Exhibit SAF-2, *Regional Fault Map*](#).

Earthquakes that could affect the city would most likely originate from the Sierra Madre, Cucamonga, or San Andreas Fault Zones. These faults are close enough in proximity or expected

to generate strong enough shaking that could affect Glendora. Geologic conditions within the foothill portions of Glendora could be impacted more severely due to the steep topography within this portion of the city and the relative instability of some of the geologic units in this portion of the city. The level of seismicity in Glendora, both as to maximum credible earthquake intensity and likely earthquake occurrence, is considered to be approximately the same as for the Los Angeles Basin.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONES

The Alquist-Priolo Earthquake Fault Zoning Act defines an active fault as one that has ruptured in the last 11,000 years. The act provides mapping resources for the public to strengthen awareness and prevent unsafe construction in these areas.

Sierra Madre Fault Zone. The Sierra Madre Fault Zone consists of east-west trending faults and folds, which extend along the southern margin of the San Gabriel Mountains. This fault zone is approximately 35 miles in length and terminates at Dalton Canyon to the east and at the San Fernando Fault to the west. This fault is composed of five individual segments, which range in activity. Portions of the city overlying this fault are located within Alquist-Priolo Special Study zones (AP Zone); the segments within the city are considered potentially active. Data gathered on this fault suggests that the slip rate ranges from 0.36 to 4 millimeters per year and this fault is expected to generate earthquakes with a magnitude of Mw6.0-7.0.² Faults that are associated with this fault system include:

- Cucamonga Fault
- Duarte Fault
- San Fernando Fault
- San Gabriel Fault
- Clamshell-Sawpit Canyon Fault
- Raymond Fault

Cucamonga Fault. The Cucamonga fault extends 19 miles from the east side of Dalton Canyon to the San Jacinto fault. The eastern portions of this fault in the vicinity of the communities of Upland and Rancho Cucamonga have been identified within an AP Zone. However, evidence of recent faulting has not been uncovered along the portions of this fault within the City of Glendora. Data gathered on this fault suggests that this fault has a slip rate between 5 and 14 millimeters per year and could generate earthquakes of Mw6.0-7.0.³

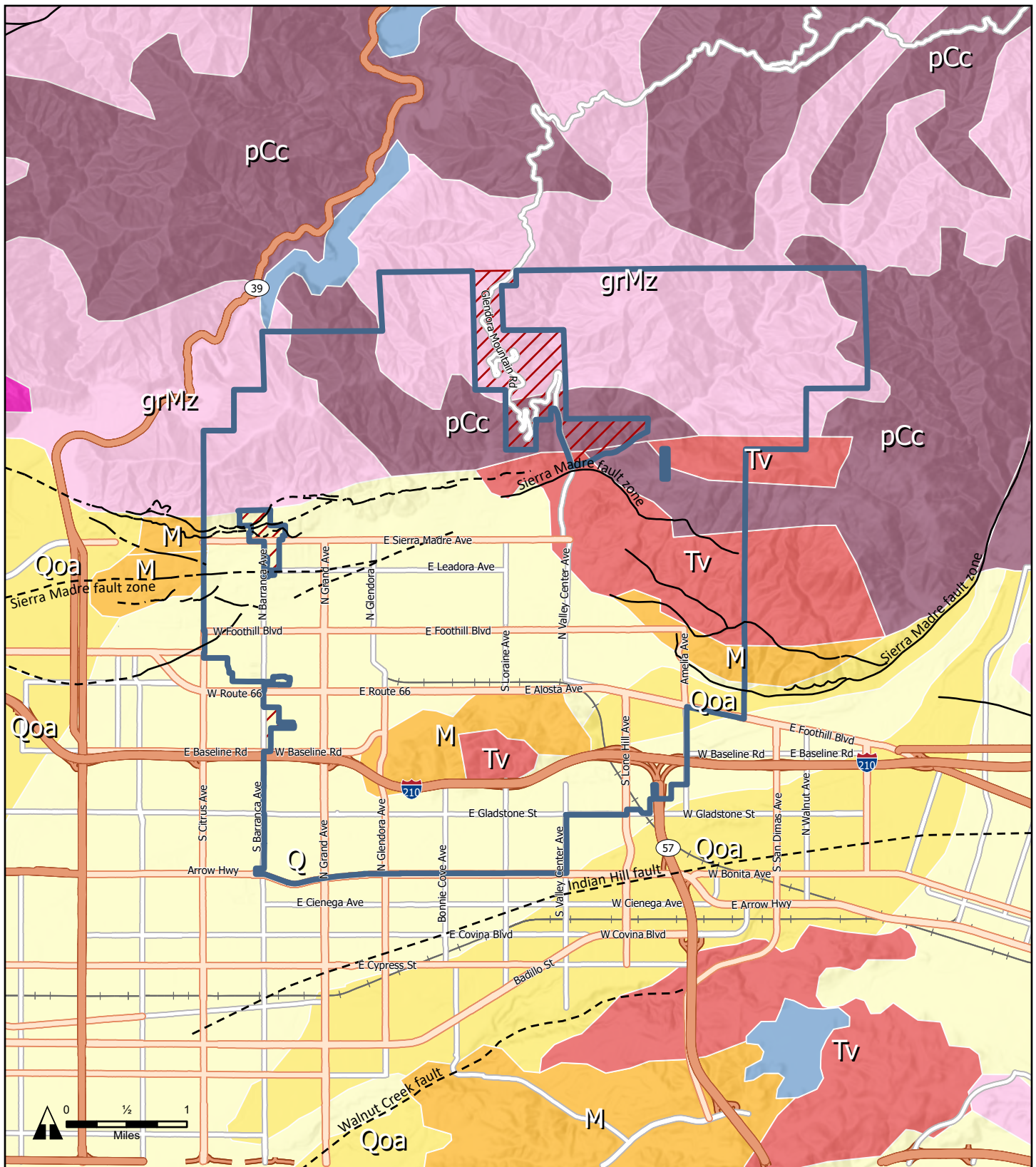
San Andreas Fault Zone. The San Andreas Fault Zone, located approximately 20 miles northeast of the city, is a right-lateral strike-slip that extends approximately 745 miles from Cape Mendocino to the Salton Sea. It has caused numerous major earthquakes throughout California's history and has the potential to cause destructive ground shaking in the southern California region. Data gathered on this fault suggests that the slip rate ranges from 20 to 35 millimeters per year and this fault is expected to generate earthquakes with a magnitude of Mw6.8-8.0.⁴

² Southern California Earthquake Data Center, <https://scedc.caltech.edu/index.html>, accessed April 4, 2024.

³ Southern California Earthquake Data Center, <https://scedc.caltech.edu/index.html>, accessed April 4, 2024.

⁴ Southern California Earthquake Data Center, <https://scedc.caltech.edu/index.html>, accessed April 4, 2024.

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LEGEND

City of Glendora

Sphere of Influence

Generalized Rock Types

Q - Holocene/Pleistocene marine and continental sedimentary rock

Qoa - Pleistocene marine and continental sedimentary rock

M - Miocene marine sedimentary rock

Tv - Tertiary volcanic rock

grMz - Mesozoic plutonic rocks

pC - pre-Cambrian marine sedimentary and metasedimentary rocks

pCc - pre-Cambrian mixed rocks

water

Quaternary faults

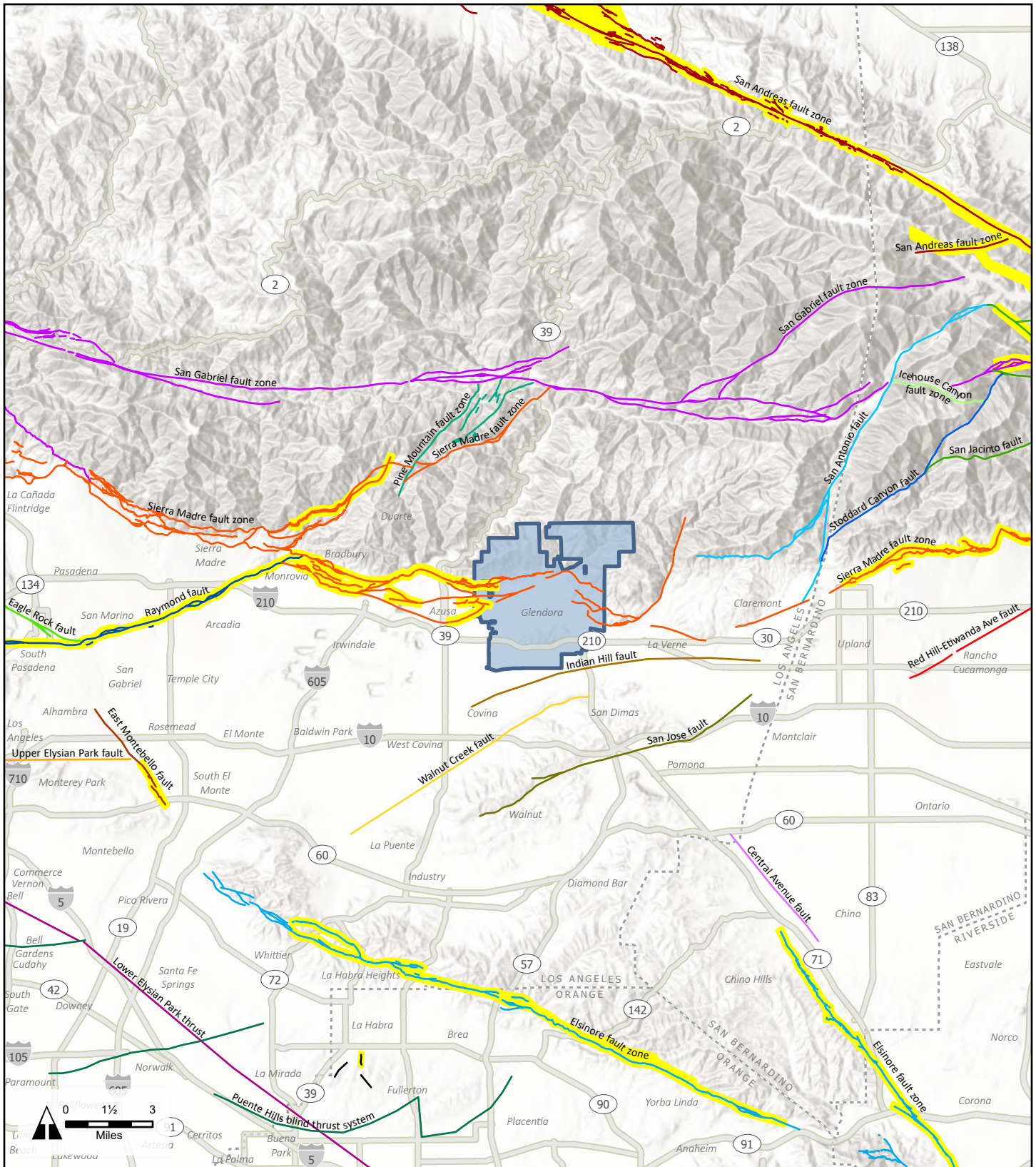
Inferred

Moderately- or Well-Constrained

CITY OF GLENDORA, CALIFORNIA

SAF-1. Regional Geologic Map

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LEGEND

- City of Glendora
- County Boundary
- Quaternary Fault (various colors)
- Alquist-Priolo Zone of Required Investigation

CITY OF GLENDORA, CALIFORNIA

SAF-2. Regional Fault Map

Liquefaction Hazards

Liquefaction is a phenomenon in which the strength and stiffness of a soil are reduced by earthquake shaking or other events. Liquefaction occurs in saturated soils, which are soils in which the space between individual soil particles is completely filled with water. This water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together. Prior to an earthquake, the water pressure is relatively low; however, earthquake shaking can cause the water pressure to increase to the point where the soil particles can readily move with respect to each other. Because liquefaction only occurs in saturated soil, its effects are most commonly observed in low-lying areas. Typically, liquefaction is associated with shallow groundwater, which is less than 50 feet beneath the earth's surface.

Available data indicates that groundwater levels beneath the city range between 100 to 150 feet deep. Certain locations, however, have shallow groundwater conditions and could be susceptible to liquefaction. According to the *Seismic Hazard Zone Maps for the Glendora, Azusa, Baldwin Park, and San Dimas Quadrangles* (March 2024) prepared by the California Geological Survey (CGS), there are several locations within the city that are considered susceptible to liquefaction. The areas identified as prone to liquefaction within the city are shown on Exhibit SAF-3, *Potential Seismic Hazards*.

Landslide Hazards

A landslide is a phenomenon characterized by the general downslope movement under gravity of masses of soil and rock material. Many factors contribute to these types of earth movements such as: topography, rock/soil type, water saturation, and seismic shaking. According to the *Seismic Hazard Zone Maps for the Glendora, Azusa, Baldwin Park, and San Dimas Quadrangles* (March 2024) prepared by the CGS, the foothill areas of the city are considered to have a high potential for landslides. The areas identified as prone to earthquake induced landslide within Glendora are identified on Exhibit SAF-3, *Potential Seismic Hazards*.

As illustrated on Exhibit SAF-3, several landslides have been mapped within the hillsides located in the northeast portion of the city. These landslides are located within bedrock units that have been severely faulted and broken up. The stresses that have been exerted on these bedrock units have weakened the geologic units allowing surficial failures to occur.

Structure Failure

Glendora is fortunate that most of its buildings have been built under recent building codes and design criteria. In fact, a substantial amount of construction has occurred in Glendora under design standards that take into account some of the lessons learned from the 1971 Sylmar earthquake.



Seismic Response

Since most of the structures and infrastructure in Glendora have recently been built under modern building codes, the city is likely to survive the maximum expected earthquake with relatively moderate losses. Possible geologic effects of a likely major earthquake in Glendora include:

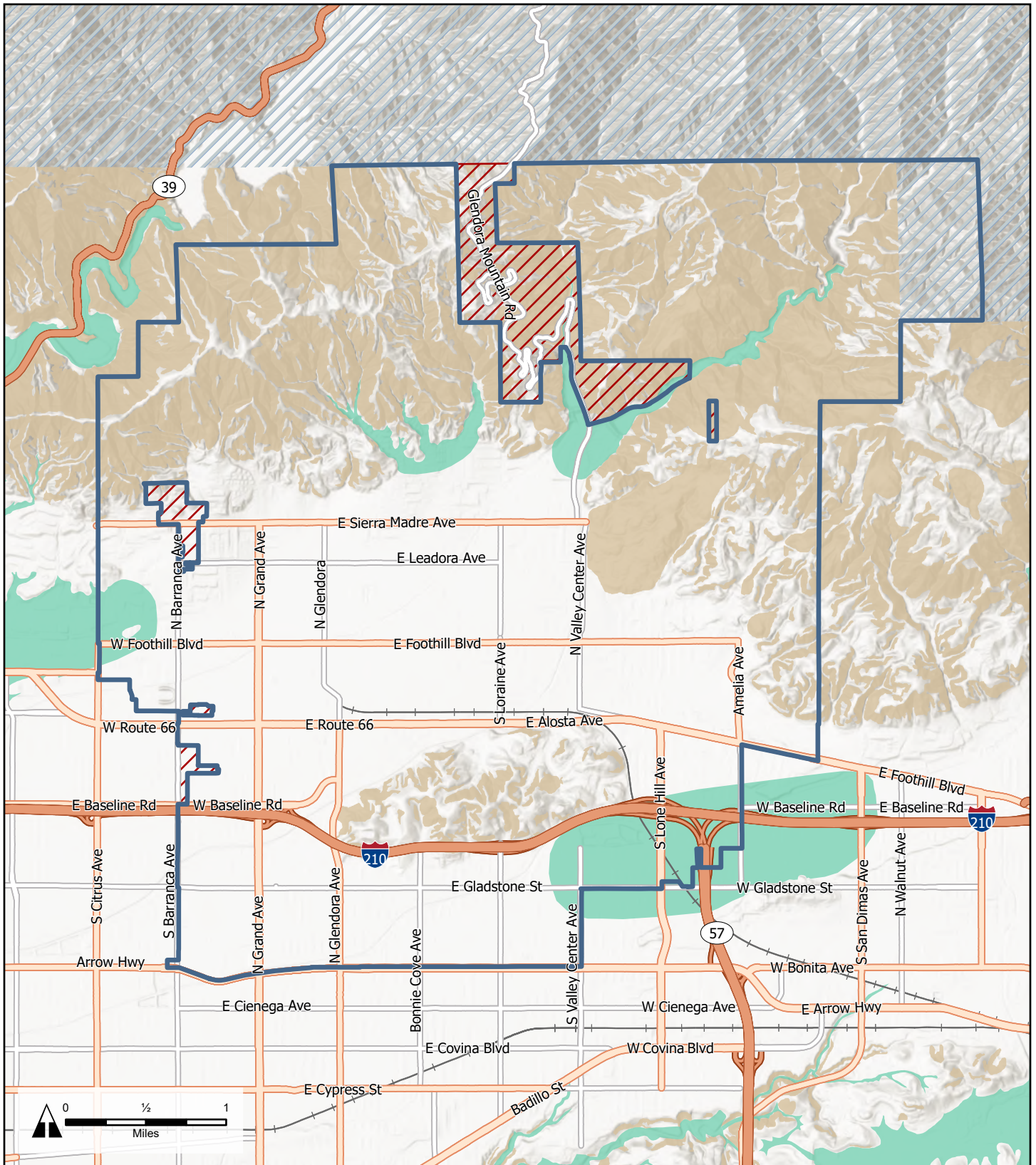
- Rupture of the ground surface associated directly with movement on geologic faults. The likelihood of an event such as this is prevalent; however, it would be focused in the foothill portions of the city, which are not as densely populated as the alluvial portions.
- Ground failure due to liquefaction (a momentary quick condition, similar to quicksand) could occur in Glendora wherever the right combination of perched water and low density, sandy material exists. Liquefaction conditions may occur in areas along the canyon and wash areas located at the base of the foothills and in isolated areas as identified on Exhibit SAF-3.
- Ground shaking with moderate to high lateral accelerations would be the primary seismic effect in the city.
- In general, complete collapse of buildings is not likely to occur and building damage is likely to be only moderate. However, partial to total collapse could occur among the very few pre-1933 buildings still existing, and partial collapse of some tilt-up and concrete block buildings built prior to March 1972 must be counted as a possibility, based on the evidence of the Sylmar earthquake. The majority of construction has been under modern building codes. Where current state-of-the-art seismic evaluations can enter into all future development, and where disaster preparedness is being maintained, it is possible to survive the maximum expected earthquake with relatively moderate losses.

Possible impacts to the city from a major seismic event include:

- Injuries and loss of life
- Property damage
- Economic disruption – loss of jobs, loss of productive time, interference with trade, transportation, communication, and other utilities
- Social disruption
- Housing dislocation
- Interference with community activities and services
- Emergency welfare requirements – shelter, food, communications, financial assistance
- Psychological trauma – especially among young children

However, the full extent of these impacts will be influenced by many factors.

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LEGEND

- City of Glendora
- Liquefaction Zone
- Landslide Zone
- Unevaluated Area

CITY OF GLENDORA, CALIFORNIA

SAF-3. Potential Seismic Hazards

3.1.2 FLOODING

3.1.2.1 Flooding

According to the Federal Emergency Management Agency (FEMA), the majority of developed areas in Glendora are identified as Zone X, meaning that the area is located outside of any Special Flood Hazard Areas (SFHA) and has minimal risk of flood hazard (see [Exhibit SAF-5, *Flood Hazard Zones*](#)). Potential flooding could occur in a northwestern portion of the city mapped within the 500-year floodplain, generally located along Sierra Madre Avenue. Additionally, a significant portion of the city has not been mapped for flood hazards by FEMA. These unmapped areas occur in the northern and eastern foothills of Glendora and generally consist of open space and low-density residential uses. Development within flood hazard areas is expected to comply with flood protection standards that reduce vulnerability to flood impacts and ensure safe use and occupation of structures.

FEMA prepares and maintains Flood Insurance Rate Maps (FIRMs) that show flood zones subject to floodplain management regulations and where federal flood insurance is required (<https://msc.fema.gov/portal/home>).

Three flood channels traverse through the city: Little Dalton Wash, Big Dalton Wash, and San Dimas Wash. All three channels are concrete-lined channels designated as floodways to serve the region. Access to these channels is limited at all times for public safety.

3.1.2.2 Dam Inundation

Dam inundation is flooding that occurs due to structural failure of a dam. Failure of a dam may be caused by seismic activity, severe flooding that causes water to exceed the capacity of the dam, or landslides that flow into a reservoir displacing the water.

The City of Glendora faces a potential hazard from dam inundation resulting from the failure of either of two dams: Big Dalton Dam and San Dimas Dam. It is considered unlikely that either dam would fail during a catastrophic event. The SEMS Emergency Operations Plan prepared by the City of Glendora outlines the City's response for dam failure.

Big Dalton Dam. This dam is located in Big Dalton Canyon, four miles northeast of Glendora. Completed in 1929, this dam is owned and operated by the Los Angeles County Flood Control District. This dam stores approximately 960 acre-feet (over 312 million gallons) of water.

Should a breach occur, the water would flow south westerly out of Big Dalton canyon via the Big Dalton Wash. The areas between the South Hills and the San Gabriel foothills surrounding this wash would be inundated by the waters from this flood. The affected area is mostly comprised of residential with some commercial, and industrial uses as well. Exhibit SAF-5, *Dam Inundation Areas*, shows the area that would be affected by a dam failure.

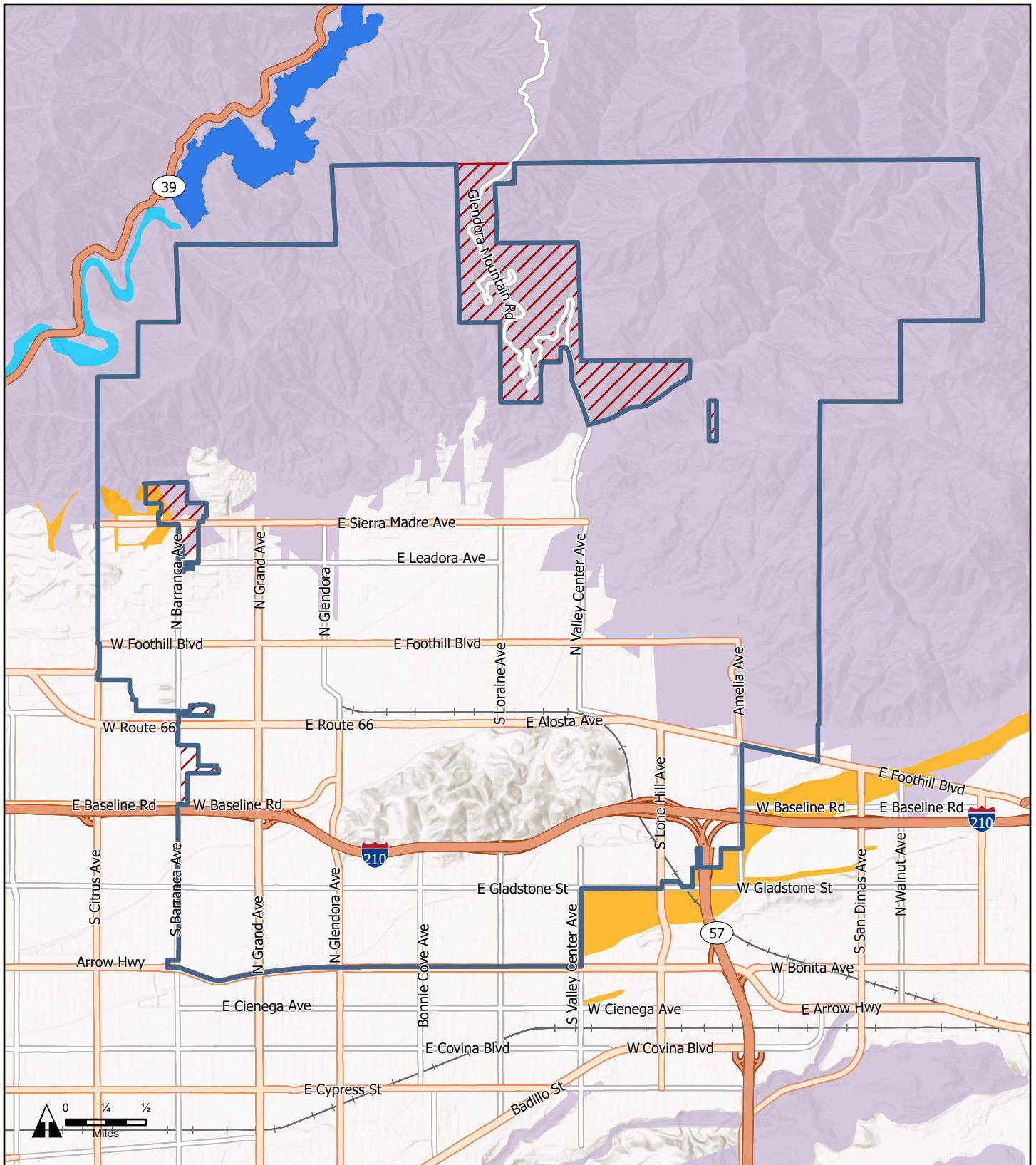


Big Dalton Dam

San Dimas Dam. The San Dimas Dam is owned and operated by the Los Angeles County Flood Control District. It is located east of the city in the foothills above the City of San Dimas. Built in 1922, this dam stores approximately 1,500 acre-feet (488 million gallons) of water.

Should a breach occur, the water would flow southwest along the San Dimas Wash inundating the portions of the city located south of the 210 Freeway. Land uses that would be affected by this inundation mainly include residential, commercial, and industrial. Exhibit SAF-5, *Dam Inundation Areas*, shows the areas that would be affected by a dam failure.

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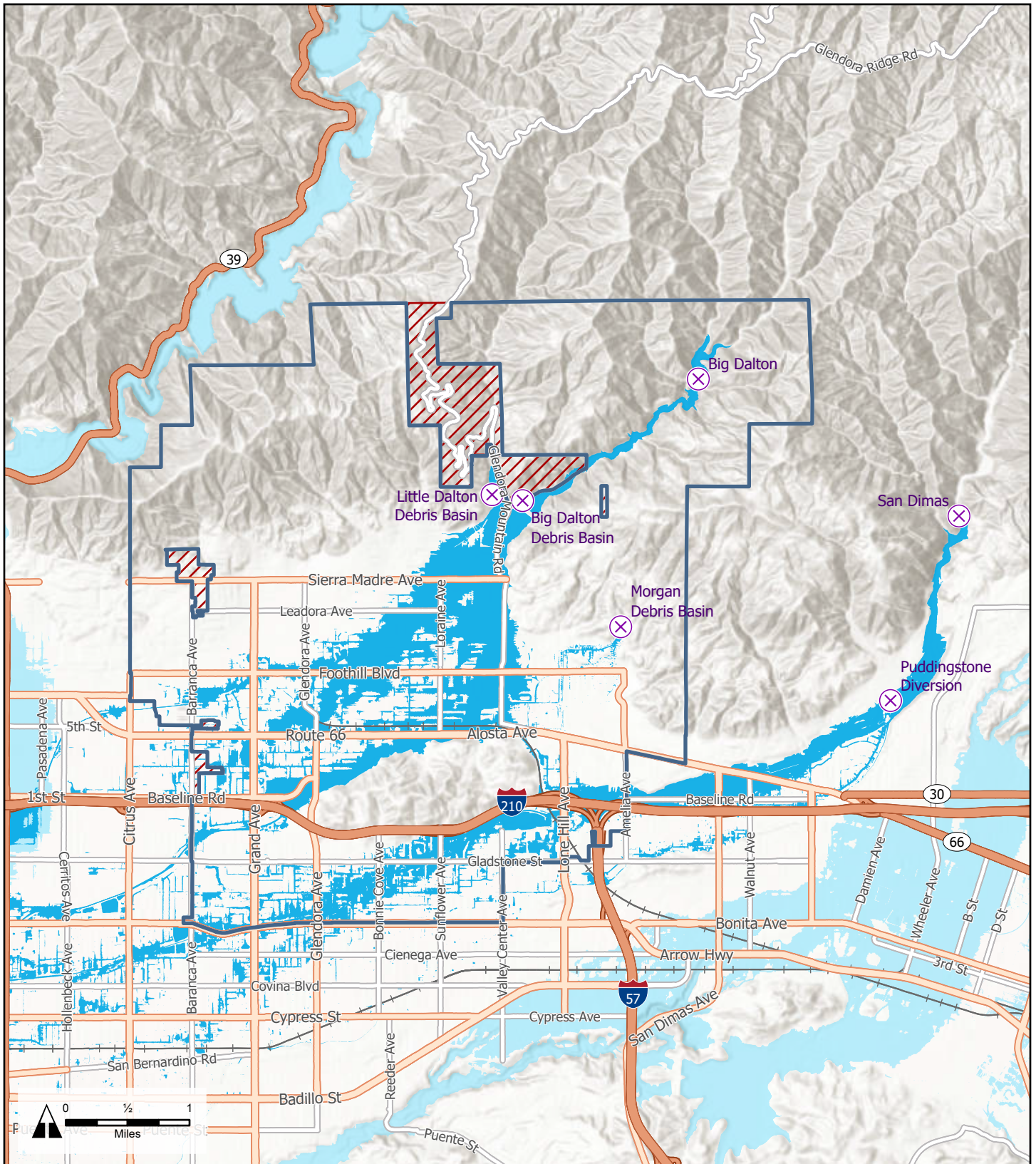
LEGEND

- | | |
|--|--|
| City of Glendora | 500-year Flood Zone |
| Sphere of Influence | Area of Minimal Flood Hazard |
| 100-year Flood Zone | No Flood Hazard Study has been Conducted |
| 100-year Flood Zone (contained in channel) | |

CITY OF GLENDORA, CALIFORNIA

SAF-4. Flood Hazard Zones

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LEGEND

- City of Glendora
- Sphere of Influence
- X Dam with Inundation Area Affecting Glendora
- Dam Failure Inundation Areas affecting Glendora
- Nearby Dam Failure Inundation Areas

CITY OF GLENDORA, CALIFORNIA

SAF 5. Dam Inundation Areas

3.1.3 WILDFIRE

3.1.3.1 Wildfire

Although wildfires can be classified as natural disasters, only 10 to 15% of wildfires are attributed to natural causes. The remaining 85 to 90% of wildfires are a result of human activity.⁵ The threat of wildfires in the foothill areas in southern California has been of concern for many years. Very high risk for wildfire is evident in areas having steep slopes that are covered with chaparral vegetation and where there is limited access for fire control equipment. Low hazard areas are developed urban areas where fire access is readily available and the terrain is relatively flat. Industrial areas, hazardous material users, structures with substandard electrical wiring, overhead high voltage power lines, and high pressure gas lines are examples of urban fire hazards.

In order to facilitate immediate firefighting response, the City should have the following standards for areas that are located in High or Very High Fire Hazard Severity Zones (VHFHSZ):

- There should be sufficient access routes and roads for emergency vehicles and for the evacuation of residents from all areas.
- Adequate access should be provided for all developed areas. All roadways to hazard areas should be of sufficient width to accommodate firefighting equipment. Streets should be marked and addresses should be posted in plain view.
- Adequate water supply should be available and sufficient for fire suppression activity.

All development within the VHFHSZ should comply with the standards set forth in Los Angeles County Fire Department's Fuel Modification Plan. The three primary components needed to reduce fire losses are:

1. Implementing building construction methods that reduce building fire hazards;
2. Providing adequate defensible space around structures to reduce fuel; and
3. Identifying areas where there is a significant risk and a history of significant losses.

Public Resources Code (PRC) Section 4291 requires that homeowners provide fuel modification to 100 feet around their buildings to create a defensible space for firefighters and to protect their homes from wildfires. Residents must reduce dry fuel around the perimeter of any structure and comply with the adopted codes that provide standards for mitigating fire hazards. Good defensible space around structures allows adequate area for firefighters to fight a fire and avoid injury to personnel and equipment. Terrain, climate conditions, and vegetation interact to affect fire behavior.

⁵ Green Matters, "Are Wildfires Considered Natural Disasters, or Are they Chiefly Caused by Humans?" April 29, 2021.

Glendora's location at the base of the San Gabriel Mountains creates a wildland-urban interface (WUI) that makes Glendora more susceptible to wildfires than cities that do not border the foothills.

The U.S. Geological Survey (USGS) in partnership with the U.S. Forest Service (USFS) provides fire danger forecasting tools that utilize a combination of satellite-derived vegetation indices, various biogeophysical variables, and weather information to produce 7-day forecasts. The City may use these tools in coordination with the Los Angeles County Fire Department (LACoFD) to determine fire potential index, large fire probability, and fire spread probability.

Historic Wildfires in Glendora

Fortunately, there have been limited wildfire outbreaks within the city, as described below.

2014 Colby Fire. The Colby Fire was a wildfire in the Angeles National Forest. It was ignited along the Colby Truck Trail in the San Gabriel Mountains in northern Los Angeles County. The fire started on January 16, 2014, caused by an illegal campfire that blew out of control. January fires are unusual in southern California, but there was little rainfall in the area leading up to the fire, which led to a "red flag" fire danger situation. Warm temperatures, low humidity, and an excess of dry brush in the foothills around Glendora (which had not burned significantly since the 1960s) encouraged the growth of the fire. By January 26, the Colby Fire was contained but had burned 1,992 acres. The fire, which was fanned by strong Santa Ana winds, destroyed five homes, injured one person, and forced the evacuation of 3,600 people at its peak.



Source: KABC Television, LLC, Colby Fire, January 16, 2014.

Historic Wildfires Near Glendora

Areas bordering the city are highly prone to wildfires; therefore, Glendora is exposed to a threat from wildfires originating outside the city limits. Below are descriptions of three of the most recent notable fires outside the city.

2009 Station Fire. The Station Fire is the 10th largest wildfire in California history, burning 160,577 acres and killing two firefighters once it began in late August 2009. The fire started in the Angeles National Forest near the U.S. Forest Service ranger station on the Angeles Crest Highway (SR 2). The blaze threatened 12,000 structures in the National Forest and the nearby communities of La Cañada Flintridge, Glendale, Acton, La Crescenta, Littlerock, Pasadena, and Altadena, as well as the Sunland and Tujunga neighborhoods of Los Angeles. The fire was predicted to burn for months and travel miles to the City of Azusa adjacent to Glendora. The Station Fire burned on the slopes of Mount Wilson, threatening numerous television, radio, and cellular antennas on the summit, as well as the Mount Wilson Observatory, which includes several historically significant telescopes and astronomical facilities operated by UCLA, USC, UC Berkeley, and Georgia State University. In Oct. 2009, the fire extinguished due to a fall rainstorm.

2016 San Gabriel Complex Fire. The San Gabriel Complex Fire ignited the morning of June 20, 2016. The Complex Fire consisted of two fires, the Reservoir Fire and the Fish Fire. Both fires originated northeast of the city limits. The cause of the Reservoir Fire was due to a vehicle crash while the cause of the Fish Fire is still under investigation. The fires burned fuel that was 7-10 years old with 6-8 foot tall chaparral and large grass crops. At the height of the fire, 1,376 homes were evacuated. The American Red Cross established an evacuation center and 1,460 staff from multiple local, state, and federal agencies worked to protect property and suppress the fire. Road closures were in place and law enforcement patrolled for security while firefighters worked through the night to contain the fire. Although the San Gabriel Complex Fire threatened homes in the city, no property damage was reported.

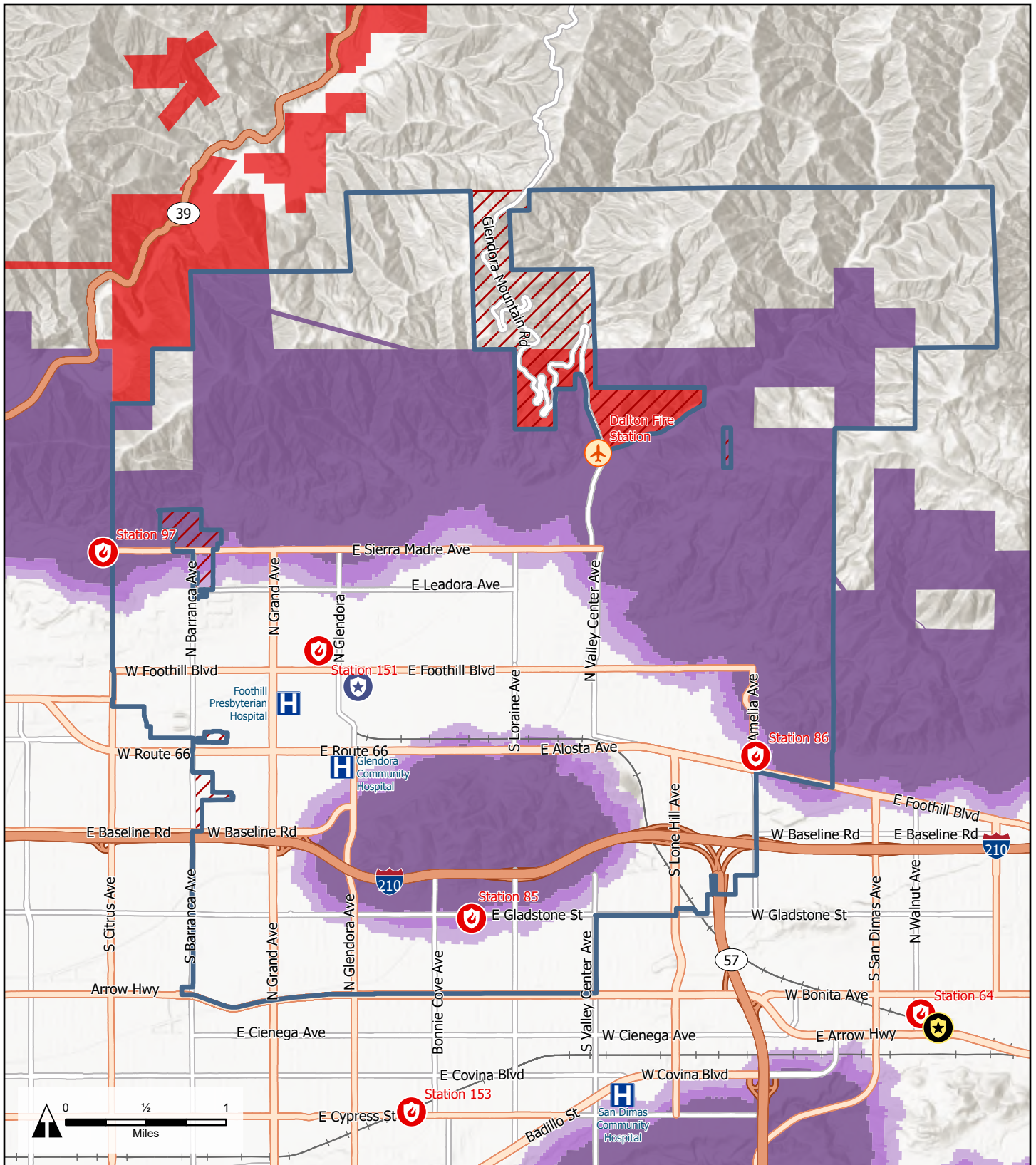
2020 Bobcat Fire. The Bobcat Fire started on September 6, 2020. By Dec. 18, it was fully contained and had burned 115,796 acres in the central San Gabriel Mountains in the Angeles National Forest. It is one of the largest fires on record in LA County. The fire triggered mandatory evacuation orders in parts of Arcadia and Camp Williams. The cause is still under investigation but is thought to be due to a power line conductor igniting overhead trees. The fire initially spread southward prompting evacuation orders for residents in Sierra Madre, Monrovia, Bradbury, and Duarte, along with evacuation warnings for those in Arcadia, Pasadena, and Altadena. The fire then grew westward and threatened the Mount Wilson Observatory, approaching within 500 ft. of the observatory as firefighters worked to protect the structure. By Sept. 17, the fire rapidly expanded to the north into Pleasant View Ridge Wilderness due to moderate coastal winds, leading to mandatory evacuations in Antelope Valley as the fire approached Juniper Hills. Containment difficulties were exacerbated by very dry vegetation and rugged topography that made it difficult to access. An estimated 6,000 structures were threatened and there were six

injuries. The fire destroyed 27 residences and damaged 28 others. It also destroyed 83 structures and damaged 19 others.

2024 Bridge Fire. The Bridge Fire began on September 8, 2024 in the Angeles National Forest near Glendora. The fire began after a recent heat wave, and fueled by dry conditions and high winds, spread to over 56,030 acres in Los Angeles and San Bernardino counties. Evacuation orders were issued in the Angeles National Forest area, including Wrightwood and Mount Baldy, and evacuation warnings were issued for the Foothill Communities, including portions of Claremont, La Verne, and San Dimas. The fire destroyed 17 structures and damaged 81 others. There were eight confirmed fire personnel and civilian injuries.

2025 Eaton Fire. The Eaton Fire began on the evening of January 7, 2025 in Eaton Canyon in the San Gabriel Mountains, near Altadena. The fire was one of several major concurrent fires in the county being driven by dry conditions and extremely powerful Santa Ana winds, including the Palisades Fire and Hughes Fire. By February 20, 2025, the fire was completely contained and had burned 14,021 acres. The Eaton Fire is one of the most destructive wildfires in California history, destroying an estimated 9,414 structures, damaging 1,074 others, and resulting in 17 confirmed fatalities and nine injuries.

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LEGEND

- City of Glendora
- Sphere of Influence
- H Hospital
- P Glendora Police Station

- S San Dimas Sheriff Station
- F Los Angeles County Fire Station
- A USDA California Hotshots

Fire Hazard Severity Zones

- | State Responsibility Areas | Local Responsibility Areas |
|---|---|
| Very High | Very High |
| High* | High |
| Moderate* | Moderate |

* there are no lands with this classification within the mapped extent

CITY OF GLENDORA, CALIFORNIA

SAF-6. Fire Hazard Severity Zones

3.1.4 HAZARDOUS MATERIALS

3.1.4.1 Hazardous and Toxic Materials

Hazardous materials are any substance or combination of substances, which because of quantity, concentration, or characteristics, may cause or significantly contribute to an increase in death or serious injury, or pose a substantial hazard to humans and/or the environment. Local governments have little control over the production and use of these materials because they are part of our society. Even household wastes can be hazardous materials.

Emergency response plans are in place with the City per the SEMS Emergency Operations Plan in the case that a hazardous or toxic materials event occurs. In addition, LACoFD provides emergency response to hazardous materials. LACoFD provides two engines, one hazardous materials task force, one squad, and a battalion chief that directly respond to hazardous materials incidents.

3.1.4.2 Transport of Hazardous Materials

In Glendora, a hazardous chemical release would most likely occur as a result of either transportation of chemicals by railroad or truck, use of chemicals at a business, or illegal dumping of chemical waste. Interstate 210 is heavily traveled by trucks and thus, represents the most likely location of a release.

Fixed Facility. The second most likely threat from hazardous materials comes from the potential of an accidental spill and/or incident at one of the approximately 150 known facilities that manufacture, warehouse, and process toxic chemicals and/or generate hazardous waste materials within or next to the city. This potential also exists at former facilities, such as abandoned service stations or industrial businesses. The threat is significantly lessened though because of required plan contingency and evacuation plans.

Clandestine Dumping. Clandestine dumping of hazardous materials is a criminal act and could pose a threat. The City anticipates that there will be an increase in dumping as costs to legally dispose of materials at designated hazardous waste disposal sites increase, but cannot anticipate if or when such an act would occur.

Pipelines. Two water pipelines traverse the city. There are no oil or gas lines that carry hazardous materials within Glendora.

Household Hazardous Waste. Household hazardous waste poses a risk to the city. Glendora participates in the Los Angeles County sponsored monthly Household Hazardous Waste Roundups for County residents.

3.1.5 CRIME

3.1.5.1 Police Protection

Police protection is provided by the Glendora Police Department located at 150 South Glendora Avenue. The Police Department is led by the Chief of Police and has 51 sworn officers and 52 civilian employees. Sworn officers include:

- **Administration Services Division** is comprised of two Captains, one Office Coordinator, one Support Services Supervisor, one Business Services Manager, and one Community Services Officer (CSO).
- **Patrol Bureau** is comprised of four Lieutenants, four Sergeants, four Corporals, 24 sworn Officers, one Dispatch Supervisor, 11 full-time and two part-time Dispatchers, five Jailers, three part-time Reserve Officers, two Code Enforcement Officers, and four full-time and one part-time CSOs.
- **Investigations Bureau** is comprised of one Lieutenant, one Sergeant, seven full-time and two part-time Investigators, one Investigator assigned to the Los Angeles Interagency Metropolitan Apprehension Crime Task Force team (LA IMPACT), two full-time Community Impact Team (CIT) officers, one Property and Evidence Technician, one Court Liaison, one Community Services Officer, and one part-time Police Cadet.
- **Traffic Bureau** is comprised of one Corporal, two Traffic Officers, three full-time contracted Parking Enforcement Officers, and numerous part-time contracted Crossing Guards.

Community Relations and Emergency Services

Community Relations Bureau. A Community Services Officer performs community relations programs, school safety education programs, and conducts Citizen Academy classes. Two full-time Police Officers are assigned as School Resource Officers and provide security and mentoring for students at Glendora High School, Whitcomb High School, and Glendora middle schools.

Emergency Services. Emergency Services is responsible for citywide preparedness and ensuring compliance with local, Homeland Security, State, and FEMA requirements. They also oversee three emergency service volunteer groups: Police Auxiliaries, the Glendora Community Emergency Response Team (CERT) and the Glendora Emergency Amateur Radio Services (GEARS) team. Emergency Services conducts community relations presentations on emergency preparedness and offers yearly Community Emergency Response Team training to residents.

Response Times

Quick and effective response to citizen emergencies and concerns are important to the City. These are measured based on the time the dispatcher receives a call for service from the public

to the time the responding officer arrives at the location of the call. Call types are defined below, and Table SAF-1, *Police Response Times* illustrates the Police Department's average response times for 2023.

- Emergency: Officer responding with red lights and siren.
- Immediate: Officer needed as soon as possible, obey all traffic laws.
- Alarm: Officer needed to respond to an alarm activation.
- Non-Emergency: Beat officer needed when available.
- Report: Beat officer needed to take a report when available.

TABLE SAF-1: POLICE RESPONSE TIMES

Call Type	Average Response Time (2023)	Target Response Time
Emergency	00:04:47	00:04:00
Immediate	00:13:14	N/A
Alarm	00:14:16	00:13:00
Non-Emergency	00:22:01	00:19:05
Report	00:35:35	00:27:00

Source: City of Glendora Police Department, May 2024.

3.1.5.2 Crime Prevention Through Environmental Design (CPTED)

Crime Prevention Through Environmental Design (CPTED) revolves around restoring public safety and creating “defensible space.” The concept of defensible space is applicable to community and site planning, as well as building design. CPTED approaches the problem of creating a defensible environment by addressing both the physical and psychological aspects of design. Security concerns are addressed during the design stage of a project, rather than added after the development is constructed.

CPTED Approaches to Security

Physical Planning Process. Crime prevention is an important consideration in the physical planning process. Conditions for public safety can be enhanced and property loss reduced by utilizing land use planning and site design techniques to deter criminal activity. Carefully planned development can serve to minimize the opportunity for unlawful activity, and thus lower the actual occurrence of crime.

Crime Prevention Through Physical Planning. The use of physical planning may be one of the least costly and most successful means of crime prevention. The key is to establish design criteria that will affect community control by members of the community. Improving the observational capability of residents to visually survey their residential environment through design considerations is aimed at reducing the workload of law enforcement agencies and enhancing community orientation.

Street, Building, and Landscaping Design. The design of streets, buildings, and landscaping can influence the way people regard spatial use. Architectural alteration of entrances can change a space once considered public into a semi-private one that is shared by a limited number of people. In large multi-family complexes with one or two entrances, people can enter the building without notice or challenge. Multi-family buildings designed to provide a separate common entrance for six to eight families allow a higher level of surveillance by the occupants. Families soon become acquainted with their neighbors' normal day-to-day activities and can recognize their most frequent visitors.

Streets are typically designed and considered as public space allowing free and ready access into any neighborhood by anyone. By siting residential structures in relation to their lots and the street, a degree of neighborhood control or territoriality may be established. The designed use of symbolic or psychological barriers through landscaping can have an apparent differentiation to public versus private space. Typical examples of these symbolic barriers are a small hedge, a long walkway, or a set of steps between the public sidewalk and the house. These design features tend to identify the end of the public space and the beginning of a more selective space use.

Landscaping features can also facilitate neighborhood control by providing observable "barriers" beyond which other residents of the area would take note and potentially challenge. Here landscaping can be used to define space use by visually delineating area for the private space use from public space use. An attractively landscaped front yard can be considered the object of the resident's pride of ownership. With neighbors reinforcing this aspect of private domain, they soon develop a sense of identity to and responsibility for others' front yards. Landscaping treatment should be used in a manner that enhances an area's or project's setting without obstructing the visibility of walkways or entrances from the streets or other residences.

Community Identity and Control. The design of physical space can augment community identity and control. Visibility alone is not enough; there must be a reason before a person will challenge inappropriate behavior. If a person feels he/she has a stake in a neighborhood or community, there is ample reason to question the potentially unlawful behavior of others.

The use of design in the physical planning process can encourage residents to assert a psychological identity over their immediate neighborhood, and thus to deter crime by reducing the opportunity for unlawful activity. Strongly defined areas of influence, real and psychological barriers, and improved opportunities for surveillance can assist a community in exerting a meaningful level of crime prevention and control by its residents.

CPTED Strategies

CPTED incorporates several strategies to create a defensible space, such as surveillance, territoriality, natural access control, and physical security.

Surveillance. This concept promotes maximizing the visibility of people, parking areas, and building entrances. Features to implement this concept could include doors and windows that look out onto streets and parking areas, pedestrian-friendly sidewalks and streets, front porches, and adequate nighttime lighting.

Territoriality. Creating gateways to clearly indicate public routes, and using structural or design elements to discourage access to private areas. A sense of territory is important as it encourages individuals to take control of their environment and defend it against becoming a potential target of attack. The concept of territoriality incorporates design features that define property lines and distinguish private spaces from public spaces using landscape plantings, pavement designs, gateway treatments, and fences.

Natural Access Control. This concept clearly distinguishes public areas and private areas, thus reducing access to potential targets and increasing the deterrent to potential offenders. This concept is achieved by designing streets, sidewalks, building entrances, and neighborhood gateways to clearly indicate public routes, and using structural or design elements to discourage access to private areas.

Physical Security. This concept seeks to make it more difficult and time consuming to enter a location, but not make the location a fortress. This concept is achieved by installing window locks, dead bolts for doors, and interior door hinges. For outdoor areas, create an environment where entryways are exposed and well designed, and include landscaping features that deter intruders and increase security around the home.

3.6 AIRCRAFT OVERFLIGHT

While Glendora is not within the direct flight paths of any particular airport, aircraft fly over the city throughout the day and night. Most of these flights are from small private aircraft originating out of local airports. The closest airports in the area are Bracket Airport in Pomona/La Verne and Cable Airport in the City of Upland. The nearest commercial airport is Ontario International Airport located in the City of Ontario, which is approximately 20 miles east of Glendora.

The City of Glendora Emergency Operations Plan provides the policies and procedures addressing emergency response to air disasters. Regardless of where an air crash occurs, the resulting explosions and fires have the potential to cause injuries, fatalities, and the destruction of property at and adjacent to the impact point. The time of day when the crash occurs may also have a profound effect on the number of fatalities or wounded. Damage assessment and disaster relief efforts associated with an air crash incident will require support from other local governments, private organizations, and in certain instances from the state and federal governments.

3.2 EMERGENCY PREPARATION AND RESPONSE

Emergency preparation and response are important components in ensuring residents are ready for hazards and first responders can adequately serve residents in the event of a hazard unfolding. The City has an Emergency Operations Plan (EOP) which informed this element and acts as an extension to the State of California Emergency Plan and the Los Angeles County Operational Area Emergency Operations Plan.

Preparedness

The Los Angeles County Fire Department (LACoFD) provides fire response services in Glendora. LACoFD regularly visits schools and provides community-level response education through its Community Emergency Response Team (CERT) training program. CERT programs educate volunteers about disaster preparedness and basic response skills, such as fire safety and medical response.

Response

The Los Angeles County Fire Department and Glendora Police Department respond to small- and large-scale hazard events in Glendora. Currently, the City's response capacity meets the needs of the community; however, hard-to-reach populations with functional and medical needs may still face challenges evacuating. Regarding mutual aid and coordination, the City of Glendora is located within Cal OES Mutual Aid Region I, and the Cal OES Southern Administrative Region. During local emergencies, mutual aid is requested by the Incident Commander. The City of Glendora's Emergency Operation Plan includes recommended National Incident Management System and Standardized Emergency Management System trainings, which the City of Glendora bases its training decisions on for designated emergency personnel. Another important aspect of emergency response includes having visible and legible addresses present on residences, which allows emergency personnel to respond quickly to calls. Policy SAF-2.18 requires all streets, both public and private, to be marked and visible and all street addresses to be posted in plain view.

The Los Angeles County Fire Protection District has no official adopted standards for response. For the City of Glendora, the average response time is 4.38 minutes.

Emergency Response Facilities

Emergency response facilities are those activated during an emergency and used to respond to the hazard. The City contracts with the Los Angeles County Fire Department for fire protection and other fire-related services. LACoFD is the local responsible agency for fire protection within the city's VHFHSZ. The city also abuts VHFHSZ lands where the responsibility for fire protection lies with the State of California (State Responsibility Areas or SRAs).



LACoFD Station 86 - Glendora

Three fire stations located within the city serve Glendora: Fire Station 85 located at 650 East Gladstone Street, Fire Station 86 located at 520 Amelia Avenue, and Fire Station 151 located at 231 West Mountain View Avenue (refer to [Table SAF-2, *Fire Stations in Glendora*](#)). Water is provided by three different sources: groundwater pumped from the Main San Gabriel Basin; treated, imported surface water purchased from Metropolitan Water District of

Southern California through Three Valleys Municipal Water District; and local treated surface water and/or groundwater purchased from the Covina Irrigating Company (CIC). The City's main source of water supply is groundwater pumped from the Main Basin.⁶

TABLE SAF-2: LACoFD FIRE STATIONS IN GLENDORA

Station No. & Address	Number of Personnel	Equipment
Station 85 650 East Gladstone Street	17	3 Captains 3 Firefighter Specialists 9 Firefighters 1 Engine 1 EST (2 person unit)
Station 86 520 Amelia Avenue	21	6 Captains 3 Firefighter Specialists 12 Firefighters 1 Engine 1 Truck
Station 151 231 West Mountain View Avenue	17	3 Captains 3 Firefighter Specialists 9 Firefighters/Paramedics 1 Engine 1 Nurse Educator

Source: LACoFD, May 2024.

LACoFD provides an Emergency Response Service (EMS). Although none of the stations located within Glendora have this section, it is accessible through other stations in the county. The EMS section is responsible for paramedic training, certification, equipment, and quality improvement.

⁶ City of Glendora, 2020 Urban Water Management Plan. June, 2021.

However, each station is staffed with qualified emergency medical training (EMT) firefighters. In addition, Station 85 has an Emergency Service Team, which serves similar functions, and Station 151 is equipped with a paramedic unit. This means that the nine firefighters at Station 151 are also trained paramedics.

Critical Facilities and Facilities of Concern

Critical facilities are buildings and infrastructure that are essential for the delivery of vital services or protection of a community. Critical facilities are owned, operated, and maintained by various agencies, not just the City. They include emergency operation centers, healthcare facilities, police and fire stations, schools, and power stations. These facilities support critical community lifelines that enable the continuous operation of critical business and government functions and are essential to human health and safety or economic security. Damage to these facilities caused by a hazard event has the potential to impair response and recovery and may lead to disruption of services. Facilities of concern are less vital to safety and well-being, but may assist in evacuations, serve as assembly points or temporary shelters, or provide a supportive role in preparing for and recovering from hazard events.

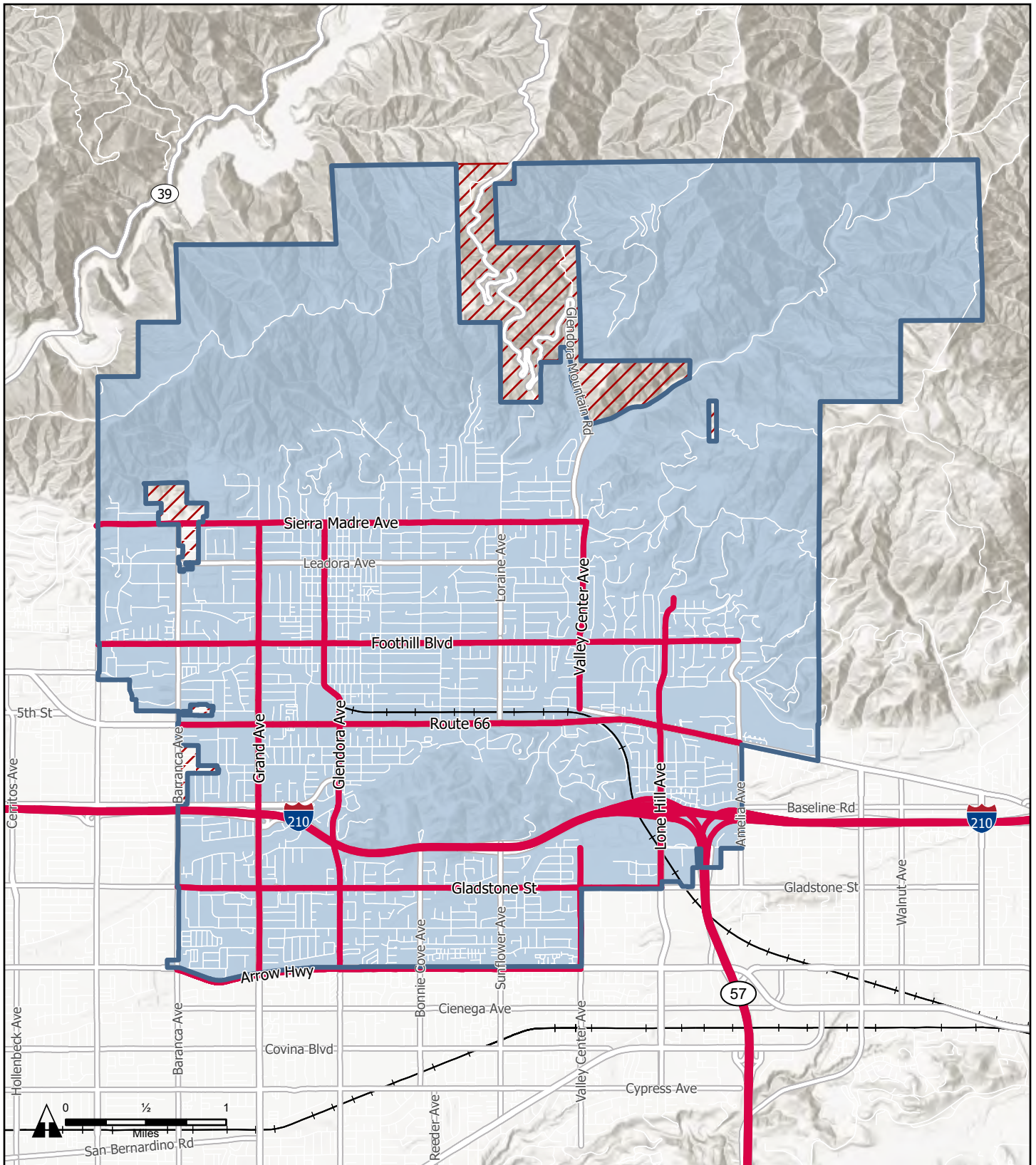
According to the LHMP, there are 61 critical and essential facilities within or adjacent to Glendora as shown in LHMP Figure 4-12: Glendora Critical Facilities and Facilities of Concern.

Evacuation Routes

In the event of an extreme fire, flood, or other circumstances, evacuation may be necessary. To preserve the lives of Glendora residents, it is important to ensure that the routes used for evacuation are unobstructed and in good condition. Evacuation routes in Glendora include Sierra Madre Avenue, Foothill Boulevard, Route 66, Gladstone Street, and Arrow Highway all running east/west, and Grand Avenue, Glendora Avenue, Valley Center Avenue, and Lone Hill Avenue all running north/south as shown in Exhibit SAF-7, *Emergency Evacuation Routes*. These evacuation routes are largely outside of flood, fire, landslide, and liquefaction hazard areas in the city, and different routes can be activated as necessary to avoid hazards outside Glendora. The City will also continue to coordinate with emergency responders to ensure adequate exit strategies are available for all residential developments.

Furthermore, Senate Bill 99 (2019) requires safety elements to identify residential developments in hazard areas that do not have at least two emergency evacuation routes. The City prepared an analysis consistent with SB 99 in 2023, included as Appendix B to the Safety Element. The analysis identified multiple residential areas of concern in the high hazard zone that warrant further study, and which are located throughout the city as identified in Appendix B.

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LEGEND

- City of Glendora
- Sphere of Influence
- Emergency Evacuation Routes

CITY OF GLENDORA, CALIFORNIA

SAF-7. Emergency Evacuation Routes

3.3 CLIMATE CHANGE AND RESILIENCY PLANNING

As a result of climate change, Glendora, like other cities in California, may experience more frequent and intense heat waves, drought, wildfires, flooding, and more severe storms and extreme weather events. The impacts of climate change pose an increasing and growing challenge to the safety and well-being of Glendora's residents. SB 379 is a State law requiring the City to update the Safety Element to address climate change adaptation and resiliency strategies applicable to Glendora. A Climate Vulnerability Assessment (CVA) has been prepared to identify risks that climate change poses to the city and is attached as Appendix A. Relevant goals, policies, objectives, and actions informed by the CVA have been added to the Safety Element, and a high-level overview of the findings is provided below.

- Wildland fires represent the threat most likely to affect Glendora as a result of climate change. While most likely to ignite within the FHSZs and VHFHSZs, the effects of wildfire can adversely impact larger areas, cascading out towards the entirety of Glendora and the surrounding cities, with smoke, ash, and poor air quality.
- The most vulnerable populations are those living in or adjacent to VHFHSZs within the city and its Sphere of Influence (SOI). Other highly vulnerable populations include seniors (approximately 16% of the city population) and people with pre-existing health conditions such as asthma (approximately 18% of the city population).
- The most vulnerable natural areas are the sensitive hillside areas (and wildlife within these environments) located in the northern portion of the city, which are within the VHFHSZs. This largely undeveloped area contains the most open space and natural landscape in the city and consists of high amounts of often dry foliage that is highly susceptible to fires. As prolonged dry spells are predicted to lengthen, plants, animals, and habitats that receive less and less water are more likely to burn from wildfire, leave the area, or die out from lack of resources.
- The most vulnerable infrastructure are homes (and businesses) within and bordering the VHFHSZs, as well as power and energy infrastructure. Closely located infrastructure, i.e., neighborhood homes within and bordering VHFHSZs, can suffer brutal impacts, and possibly even total destruction. Extreme weather and heat conditions can increase the risk of fires, which can lead to the destruction of energy infrastructure such as power lines that are located in more remote (and more fire prone) areas or power infrastructure that is located above ground. Since energy grids are interconnected and provide energy throughout the region, large parts of the southern California population are expected to be impacted by distant fires or power outages.
- Regional drought is also a major hazard to Glendora as the city is served predominately by groundwater and further served by imported water sourced from areas also highly susceptible to drought (southern California and the greater southwest region). Drought may also result in increased tree and plant mortality, which contributes to higher fuel

loading and wildfire size and severity. As expected with climate change, droughts are expected to increase both in frequency and intensity.

- Wildfire and drought aftermath can also lead to larger flooding incidents. As wildfires burn natural vegetation in the northern hillsides, and drought dries out vegetation and root systems, soil and sediments become loose, and the water holding capacity of the area dwindles as there are fewer plants to absorb and regulate the stormwater. When rainstorms fall on the hillsides, the water easily picks up the loose soil and burnt debris, gains momentum moving down the hillsides, and causes flooding impacts to intensify in low-land areas.

4.0 GOALS AND POLICIES

4.1 FLOOD HAZARDS

Planning Consideration: Glendora is particularly susceptible to flooding due to its location adjacent to the San Gabriel Mountains. Significant flooding events have occurred periodically and have had a demonstrated impact on the safety and property of Glendora residents. To reduce the potential impacts of flooding on the safety and economic integrity of the city's residents, it is important to ensure disaster planning is coordinated with local planning decisions.

Goal	SAF-1	Protection from potential flood hazards, including dam inundation.
Policies	SAF-1.1	Coordinate with the Los Angeles County Flood Control District to ensure that flood control facilities under their jurisdiction are adequately operated and maintained.
	SAF-1.2	Utilize the City's capital improvement process to identify necessary storm drain improvements to minimize potential flood damage.
	SAF-1.3	Provide an annual review of the Standardized Emergency Management System (SEMS) Emergency Operations Plan to ensure evacuation routes are sufficient in the event of flooding.
	SAF-1.4	Continue the maintenance of city-owned flood control facilities within Glendora to ensure their efficient operation and work with Los Angeles County, as needed, to transfer the maintenance of existing and new facilities.
	SAF-1.5	Evaluate new development within the city to assess the development's exposure to potential flooding hazards and ensure that habitable structures and infrastructure are not located within the 100-year flood plain.
	SAF-1.6	Coordinate with Los Angeles County to ensure that storm drain and flood protection facilities built in conjunction with new development are maintained by the County.

4.2 FIRE HAZARDS

Planning Consideration: The city's location adjacent to national forest lands and areas of natural open space and vegetation, when combined with long dry seasons, significantly increases the risk of wildland fires and urban fires. The establishment of policies and procedures to mitigate potential impacts of wildfires and urban fires will contribute to the protection of life and property of Glendora's residents.

Goal	SAF-2	Reduced incident of damage to life and property from wildland fires.
Policies	SAF-2.1	Require all proposed developments to prove that the development can adequately be served by fire flows.
	SAF-2.2	Maintain low density/intensity land use designations in the hillside and VHFHSZ areas.
	SAF-2.3	Require fire resistant building materials for structures in the hillside and VHFHSZ areas.
	SAF-2.4	Require proposed developments, especially those within VHFHSZs, to comply with emergency vehicle access requirements of the Los Angeles County Fire Department (LACoFD) and Glendora Police Department.
	SAF-2.5	Continue to implement brush-clearance requirements in areas subject to wildland fire hazards.
	SAF-2.6	Evaluate all new development to be located in or adjacent to wildland areas to assess its vulnerability to fire and its potential as a source of fire.
	SAF-2.7	Require all new development in the city's VHFHSZs to meet the most recent version of the California Fire Code and California Building Code.
	SAF-2.8	As part of the development review process consider fire safe design (i.e., fire-resistant building and site design, materials, and landscaping) for development within VHFHSZs.
	SAF-2.9	Locate, when feasible, new essential public facilities and infrastructure outside of VHFHSZs, including but not limited to, hospitals and healthcare facilities, emergency shelters, emergency command centers, emergency communication facilities, and utilities or identify construction methods or other methods to minimize damage if these facilities must be located in VHFHSZs.

- SAF-2.10 Modify, as feasible, existing non-conforming development to contemporary fire safe standards, including road standards and vegetative hazards.
- SAF-2.11 Coordinate with LACoFD to identify and incorporate fire resistive building and fire safe site design methods to prevent and minimize damage if new structures are proposed in VHFHSZs on undeveloped land and/or when rebuilding after a fire.
- SAF-2.12 Work with CAL FIRE, United States Forest Service, United States Geologic Service, and applicable nongovernmental agencies to create a plan to address post-fire recovery activities and projects that allow burned areas to fully recover and minimize repetitive losses and further damage.
- SAF-2.13 As part of the LACoFD review process, require ongoing brush management, fuel management/modification, defensible space, fire retardant landscaping, and other project design features for new development located in areas of or adjacent to a VHFHSZ.
- SAF-2.14 Require adequate Fire Protection Plans for new development in VHFHSZs.
- SAF-2.15 Work with LACoFD to identify and maintain fire hazard reduction projects, including community fire breaks and vegetation clearance around private and public roads.
- SAF-2.16 Coordinate with LACoFD to define minimum standards for evacuation of residential areas in VHFHSZs. If areas with inadequate access/evacuation routes are identified, develop appropriate mitigation measures, improvement plans, or educational programs to ensure safe evacuation.
- SAF-2.17 Coordinate with the City's water purveyor to ensure necessary water supply systems and fire flow for structural fire suppression are provided and maintained.
- SAF-2.18 Require all streets, both public and private, to be marked and visible and all street addresses to be posted in plain view.
- SAF-2.19 Maintain and regularly update the City's fire hazard overlay map for changes in fire hazard severity districts consistent with changes in hazard designations by CAL FIRE.
- SAF-2.20 Coordinate adequate fire prevention services and facilities to meet the service standards identified by LACoFD.

	SAF-2.21	Require all new development to ensure that fire response times and service standards are maintained, as determined by LACoFD.
Goal	SAF-3	Reduced incident of damage to life and property from urban fires.
Policies	SAF-3.1	Enforce the installation of fire alarm systems, smoke detectors, and/or sprinklers to protect life and property.
	SAF-3.2	Provide education and outreach to residents regarding fire safety and prevention, with an emphasis on protecting vulnerable and at-risk populations such as seniors and those with limited mobility.
	SAF-3.3	Continue to implement and enforce the latest edition of the California Fire Code.

4.3 SEISMIC HAZARDS

Planning Consideration: Glendora is located within a highly active seismic region. To ensure the safety of Glendora residents and the city's economic integrity, demonstrated efforts must be undertaken to protect residents from the potential loss of life and property due to seismic events. The City seeks to coordinate citywide planning policies to reduce potential hazards associated with a seismic event.

Goal	SAF-4	Protection from loss of life and property during seismic events.
Policies	SAF-4.1	Require that new development and infrastructure avoid on-site seismic hazards such as faults, liquefaction zones, and landslide areas.
	SAF-4.2	Adopt building regulations that minimize effects from seismic events in building construction.
	SAF-4.3	Provide instructional materials, classes, and other educational resources to ensure residents and the daytime population are knowledgeable of the risks and methods to reduce such risks, as well as involve the residents and community groups in the City's annual emergency preparedness event.
Goal	SAF-5	Protection from landslides.
Policies	SAF-5.1	Ensure that development within landslide prone areas meets the City's Hillside Development Criteria and Hillside Development Strategy.

- SAF-5.2 Require proposed developments located within areas identified by California Department of Conservation Seismic Hazard Zone Maps (<https://maps.conservation.ca.gov/cgs/EQZApp/app/>) to prepare a geotechnical investigation report.

4.4 POLICE PROTECTION

Planning Consideration: Glendora residents have enjoyed lower incidence of crime and this is reflected in the community's perception that Glendora is a safe place to live. The City of Glendora seeks to maintain and enhance its low crime rates through the coordination of public safety issues and police protection with physical planning.

Goal	SAF-6	Coordinated public safety and community planning.
Policies	SAF-6.1	Consult the Glendora Police Department to identify and address impacts of proposed development on police services.
	SAF-6.2	Ensure police services are not impacted by development, traffic congestion, and other growth-related issues.
Goal	SAF-7	High quality police protection.
Policies	SAF-7.1	Deploy human and financial resources to ensure adequate and equitable distribution of police services.
	SAF-7.2	Conduct periodic reviews of calls for service and response times to ensure adequate emergency response.
	SAF-7.3	Continue to promote citizen involvement in crime prevention and public safety through programs and education.
	SAF-7.4	Continue to support police involvement with youths, youth organizations, and school activities.
Goal	SAF-8	Reduced incidence of crime to persons and property.
Policies	SAF-8.1	Inform and educate Glendora residents and business owners on crime trends within the community and opportunities to increase their safety.
	SAF-8.2	Encourage the organization of neighborhoods and businesses to promote crime prevention through programs such as Neighborhood Watch and Business Watch.

4.5 DISASTER PREPAREDNESS

Planning Consideration: Local and regional wildfire and flooding events have demonstrated the need to ensure disaster planning is coordinated with local planning decisions. The concerns over the physical safety of Glendora residents and the potential impacts to life and property should, therefore, be a consideration in all citywide planning decisions.

Goal	SAF-9	Minimized loss of life, injury, or property during disaster events.
Policies	SAF-9.1	Maintain and update the City's adopted Local Hazard Mitigation Plan and Emergency Operations Plan.
	SAF-9.2	Implement the strategies and plans in the City's Emergency Operations Plan.
	SAF-9.3	Implement the strategies and plans in the City's Local Hazard Mitigation Plan.
	SAF-9.4	Require new developments to incorporate appropriate development features and project mitigation measures that avoid natural and human-made hazards.
	SAF-9.5	Prepare for and support multi-jurisdictional emergency response.
	SAF-9.6	Continue to work cooperatively with adjacent jurisdictions and regional agencies to address emergency preparedness.
	SAF-9.7	Ensure compliance with the Los Angeles County Emergency Management Plan.
	SAF-9.8	Coordinate with regional, state, and federal agencies to prepare for and respond to potential terrorist threats.
	SAF-9.9	Ensure the community is aware of home-based emergency preparedness procedures.
	SAF-9.10	Work with LACoFD and the Police Department to define minimum standards for evacuation of residential areas and to maintain, update, and regularly exercise emergency access, protocols, and evacuation routes to assess their effectiveness under a range of emergency scenarios. If areas with inadequate evacuation routes are identified, develop appropriate mitigation measures, improvement plans, and/or education programs to ensure safe evacuation.
	SAF-9.11	Coordinate with LACoFD and the Police Department to proactively develop ongoing emergency services training to stay current with

best practices and support community programs that train volunteers to assist “First Responders” in the implementation of the Local Hazard Mitigation Plan programs and actions.

Goal	SAF-10	Community outreach for disaster preparedness.
Policies	SAF-10.1	Provide education and outreach to Glendora residents and business owners on the City’s emergency plan.
	SAF-10.2	Work in conjunction with neighboring cities and regional jurisdictions to address emergency preparedness.

4.6 COMMUNITY SAFETY

Planning Consideration: Overall community safety is a real and perceived issue that relates the physical environment with safety through design of the built environment. The design of physical features of the community, such as roadways, parking areas, and street lighting, can make a significant contribution to safety. Glendora residents seek to establish a real and perceived sense of safety through the incorporation of physical improvements and community participation.

Goal	SAF-11	Reduced traffic safety hazards.
Policies	SAF-11.1	Minimize the potential for accidents involving railways, automobiles, pedestrians, and cyclists by working closely with the Glendora Police Department, Los Angeles County Metropolitan Transportation Authority, California Highway Patrol, and all applicable transportation and/or railroad companies to identify safety problems and implement corrective measures.
	SAF-11.2	Use technology to improve safety at grade crossings that cause the least environmental harm (e.g., automated horn systems).
	SAF-11.3	Ensure new infrastructure and development projects are designed according to accepted traffic engineering principles.
Goal	SAF-12	Improved community safety and reduced opportunities for criminal activity through appropriate physical design.
Policies	SAF-12.1	Maximize natural surveillance in all new development through physical design features that promote visibility.
	SAF-12.2	Promote land use and design policies and regulations that encourage a mixture of compatible land uses to promote the safety of public use areas and of pedestrian travel.

	SAF-12.3	Involve the Glendora Police Department in the development review process of public areas relative to building and site plan vulnerability to criminal activities.
	SAF-12.4	Encourage new developments to incorporate the principles of Crime Prevention Through Environmental Design (CPTED) to create defensible space.
Goal	SAF-13	Community outreach related to safety and crime prevention.
Policies	SAF-13.1	Continue to promote citizen involvement in crime prevention and public safety through programs, education, and other methods.
	SAF-13.2	Maintain community outreach, education, and training programs that raise personal, neighborhood, and community safety awareness.
	SAF-13.3	Support cooperative arrangements between the Glendora Police Department and local organizations, such as schools, business organizations, and other appropriate groups.

4.7 TOXIC AND HAZARDOUS MATERIALS

Planning Consideration: Glendora is aware hazardous waste is produced as the by-product of a variety of industrial activities and is present in many common household products. The potential threat to the community by these hazards must be addressed through precautionary actions and contingency plans.

Goal	SAF-14	Safe transport, use, storage, and disposal of toxic and/or hazardous materials.
Policies	SAF-14.1	Encourage the proper disposal of household hazardous waste through the dissemination of information through educational and outreach activities.
	SAF-14.2	Monitor facilities or businesses that utilize, store, or handle hazardous materials to ensure practices and procedures will reduce the threat of damage to life and property.
	SAF-14.3	Enforce federal, state, and local laws and regulations relating to the use, storage, transport, and cleanup of toxic, explosive, and other hazardous materials to prevent unauthorized discharges.
	SAF-14.4	Identify specific routes, both street and railroad systems, for the safe transport of hazardous materials in and through the city.

4.8 CLIMATE CHANGE AND RESILIENCY PLANNING

Planning Consideration: Climate change has the potential to increase the severity of various natural hazards and impacts in the City of Glendora. Climate change refers to changes in conditions that result from increased atmospheric greenhouse gas (GHG) concentrations, which are linked to an increase in average global temperature. The increase in global temperature and GHG, among other impacts, results in a series of changes to the global climate. This section focuses on policies Glendora can implement at the local level to help the community adapt to climate change.

Goal	SAF-15	Prevent or minimize personal injury, loss of life, and property damage due to climate hazards and climate-induced secondary impacts.
Policies	SAF-15.1	Promote a well-prepared city that can effectively overcome natural disasters and scarcity of resources due to climate change.
	SAF-15.2	Demonstrate leadership in local climate planning efforts through a range of tangible policies and actions at the municipal operations level.
	SAF-15.3	Collaborate with local, regional, state, and/or federal jurisdictions and agencies on climate resiliency and adaptation strategies.
	SAF-15.4	Reduce communitywide greenhouse gas emissions locally by actively supporting regional efforts to reduce greenhouse gases throughout the county.
	SAF-15.5	Monitor climate change-related effects with local, regional, state, and/or federal partners to provide information on effectiveness of existing infrastructure and programs.
	SAF-15.6	Implement necessary actions and programs to improve drought impact preparation.
	SAF-15.7	Promote plans and programs that support sustainable energy sources.
	SAF-15.8	Promote the use of sustainable and carbon-neutral energy sources in new development.
	SAF-15.9	Explore using renewable energy and clean generation technologies such as solar, wind, biogas, or fuel cells to power city-owned and operated facilities where feasible.

APPENDIX A: CLIMATE VULNERABILITY ASSESSMENT

City of Glendora

Climate Vulnerability Assessment

March 2025

Prepared by De Novo Planning Group

Glendora

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Executive Summary

The Los Angeles Region is increasingly vulnerable to climate change resulting from increased greenhouse gas (GHG) concentrations, which are linked to rising average temperatures. Climate change may impact seasonal temperature patterns; precipitation timing, volume, and location; sea-level rise; ocean acidification; and severe wind and storm event frequency, severity, and location. In addition, climate change can intensify the effects of many natural hazards, adding to concerns addressed in hazard mitigation planning.

This Climate Vulnerability Assessment (CVA) is intended to inform City policies, plans, programs, and guidance to promote effective and integrated action to safeguard Glendora from climate change. It assesses the community's vulnerability to climate change in order to assist the City with implementing specific plans and programs to reduce the effects of climate change.

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A. Introduction

Communities in California are increasingly vulnerable to the effects of climate change. California's Fourth Climate Change Assessment, conducted in 2018, identifies the Los Angeles Region as especially vulnerable to human-induced impacts to the climate since approximately half the population of the State calls the region home (Hall, 2018). Climate change refers to changes in conditions that result from increased atmospheric greenhouse gas (GHG) concentrations, which are linked to an increase in average global temperature. The increase in global temperature and GHG, among other impacts, result in a series of changes to the global climate, including shifts in: seasonal temperature patterns; altered precipitation timing, volume, and location; sea-level rise; ocean acidification due to increased carbon dioxide (CO₂) absorption; and altered severe wind and storm event frequency, severity, and location. These outcomes interact, and the potential consequences may result not only in global climate shifts, but also changes to a variety of characteristics that define biophysical systems and human progress.

What is a Climate Vulnerability Assessment?

The purpose of a Climate Vulnerability Assessment (CVA) is to inform City policies, plans, programs, and guidance to promote effective and integrated action to safeguard from climate change. In addition to increasing global average temperatures, climate change has the effect of intensifying the effects of many natural hazards, adding to concerns otherwise addressed in hazard mitigation planning. Climate change results in an increase in variance of climate patterns. The increase in variance means that extreme events may exhibit changes in frequency, severity, and location. The increased variance therefore creates challenges for hazard planning, which previously used historic recurrence rates to predict future events, and now must incorporate changes to frequency, severity, and location due to climate change influences.

Addressing Climate Change

Climate change can be viewed from two scales: global and local. Addressing climate change relies on two high-level approaches at both scales: mitigation and adaptation. Climate change mitigation involves the reduction of GHG emissions, whereas climate change adaptation aims to reduce harm from the effects of a changing climate. At the global scale, mitigation can appear as less dependency on fossil fuels and a shift towards renewable energy; at the local scale, mitigation can appear as multi-modal and active transportation networks, as an example. At the global scale, climate adaptation can be seen as expanded emergency response teams and climate refugee aid. At the local scale, adaptation can be the preparation taken for inevitable climate-induced emergencies and the social impacts that could emerge from them. Both approaches at both scales are necessary; however, this document focuses on identifying vulnerabilities and adaptation strategies on the local level within the City of Glendora.

Regulatory Framework

There are currently numerous laws and regulations in place in the State of California that are aimed at reducing the impacts of climate change hazards. For decades, California has continued to adopt, update, and amend Senate and Assembly Bills; create monitoring and mitigation programs; and fund state, regional, and local agencies to promote environmental preservation. A list of relevant bills and documents adopted by the State, region, and City are included in [Appendix A](#). While these documents create general goals and guidelines for agencies to achieve and follow, each municipality is unique and therefore can best thrive and meet environmental regulations in its own unique way. The regulatory documents

included in [Appendix A](#) provide a framework for the City of Glendora to consider, but it is up to the City to implement specific programs and designs to reduce the effects of climate change.

Assessing Vulnerabilities

The vulnerability that a community experiences as a result of climate change is a product of its biophysical setting in combination with the characteristics of the community, ranging from its built pattern to social, political, and economic characteristics. Put simply, the level of climate vulnerability can be calculated using the following formula:

$$\text{Exposure} + \text{Sensitivity} - \text{Adaptive Capacity} = \text{Vulnerability}$$

Where:

- **Exposure** refers to the nature and degree to which a system or sub-population is exposed to significant climatic variations.
- **Sensitivity** refers to the degree to which a system or sub-population is affected by climate-related stimuli.
- **Adaptive Capacity** refers to the adaptability of a system or sub-population to adjust to climate change, to moderate potential damages, or to cope with the consequences.

Example:

It is 100 degrees Fahrenheit (exposure) on a playground at a Glendora elementary school. Inside a classroom, Cindy is a student with a pre-existing condition (sensitivity) that leaves her at risk of hyperthermia; however, the classroom is air conditioned (adaptive capacity), so Cindy is able to continue learning with the rest of the students.

As shown by the example above, many factors are at play when determining the level of climate vulnerability. The California Adaptation Planning Guide identifies five steps in assessing the vulnerability of a community to climate change:

1. **Exposure:** What climate change effects will a community experience?
2. **Sensitivity:** What aspects of a community (people, structures, and functions) will be affected?
3. **Potential impacts:** How will climate change affect the points of sensitivity?
4. **Adaptative capacity:** What is currently being done to address the impacts?
5. **Risk and onset:** How likely are the impacts and how quickly do they occur?

Not only do impacts vary, but vulnerability varies across specific areas and groups. For example, future climate changes, especially increases in extreme heat, are expected to disproportionately burden low-income residents and communities of color across the region. The City of Glendora is home to an array of people and not all residents are expected to be equally impacted. This CVA describes vulnerabilities in terms of social vulnerabilities and physical vulnerabilities. Social vulnerabilities examine how populations, communities, and social systems are affected by climate change. Physical vulnerabilities examine how infrastructure, critical facilities, and land are affected by climate change.

B. Climate Impacts and Vulnerability Assessment

An assessment of a community's vulnerability to climate change begins with an understanding of local exposure to climate impacts. In addition, a primary objective of this document is to identify geographic areas, populations, and infrastructure in Glendora with heightened risk to projected climate impacts. This section first describes the methodology used to obtain climate impact projections, then highlights each major impact projected in Glendora and focuses on the following questions:

- What is the hazard?
- What is the local exposure?
- Where and when does this impact occur?
 - To what extent will the City be exposed to this impact?
 - Who (or what) is the most vulnerable?
- How does this impact affect or tie into other impacts or hazards?
- How is the City currently addressing this impact?

Methodology

While the science is highly certain that California (and the world) will continue to warm and experience greater impacts from climate change in the future, specific outcomes are inherently uncertain. Future outcomes vary depending on the level of global GHG emissions. Accordingly, most climate models include a range of possible scenarios based on the level of global GHG emissions.

This document references data, and data analysis, from California's Fourth Climate Change Assessment published in 2018. The data discussed in the Assessment, derived from 32 coarse-resolution (~ 100 km) global climate models (GCMs), were bias corrected and downscaled using the Localized Constructed Analogues (LOCA) statistical method. The data covers 1950-2005 for the historical period and 2006-2100 for two future climate projections using medium and high GHG and aerosol emissions scenarios.

For City-specific predictions, this document uses climate modeling from Cal-Adapt – a tool that was developed as a key recommendation of the 2009 California Climate Adaptation Strategy and created with oversight from the California Energy Commission and California Strategic Growth Council. Cal-Adapt makes two predictions for the period of 2006-2100 using medium and high GHG and aerosol emissions scenarios. These scenarios are known as Representative Concentration Pathways (RCP). Each RCP represents a standardized set of assumptions of humanity's trajectory in the coming years. The Medium Emissions Scenario (RCP 4.5) represents a mitigation scenario where global CO₂ emissions peak by 2040 and then decline. Statewide, temperature is projected to increase 3-7°F (or 2-4°C) for this scenario by the end of this century. The High Emissions Scenario (RCP 8.5) represents a scenario where CO₂ emissions continue to rise throughout the 21st Century. Statewide, temperature is projected to increase approximately 7-12°F (or 4-7°C) by the end of this century. Precipitation shows fewer wet days, wetter winters, drier springs and autumns, and an increase in dry years as well as maximum precipitation in a single day. Cal-Adapt also specifies that its data is derived from the 32 LOCA downscaled climate projections generated to support California's Fourth Climate Change Assessment, observed historical data is derived from Gridded Observed Meteorological Data, and the data presented are aggregated over all LOCA grid cells that intersect Glendora's boundaries.

A local profile snapshot of Glendora was generated by Cal-Adapt using:

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

(All City-specific Cal-Adapt data presented in this CVA is from the Local Climate Change Snapshot for the City of Glendora, generated on March 21, 2023.)

In addition to the range of potential outcomes, climate change can produce a variety of impacts depending on location. California is expected to experience warmer temperatures, increased drought, and more extreme weather events (IPCC, 2007). This is why climate change projections include both drought and increased precipitation leading to flooding. The range of impacts anticipated in Glendora are summarized below.

The key hazards addressed in this Climate Vulnerability Assessment are those that pose a particular threat to the City. Various City documents were consulted to identify the key hazards. The Los Angeles County Climate Vulnerability Assessment and the Los Angeles Countywide Sustainability Plan (*Our County*) were consulted as well. The Los Angeles County CVA provides direction and information that this Glendora CVA uses as a *jumping off point*. For consistency, and to better understand regional impacts, much of the regional discussion included here is inspired by the Los Angeles County CVA.

Impacts

Extreme Heat and Weather

What is it?

Climate change alters seasonal temperature patterns. Effects can include changes in average temperature, the timing of seasons, and the degree of cooling that occurs in the evening. In addition to new seasonal temperature patterns, extreme events such as heat waves are projected to occur more frequently and/or last for longer periods of time. In California, temperature increases are expected to be more pronounced in the summer and in inland areas, and many areas are losing even more of the already moderate winter conditions. Phenomena such as heat waves are projected to increase not only in frequency but in spatial extent (CNRA, 2009). The degree of change experienced partially depends on global GHG emissions and atmospheric concentrations. By 2050, however, temperature increases between 1.8°F to 5.4°F are projected under both emissions scenarios examined by the State (CNRA, 2009).

Extreme heat and human safety, human health, and human productivity are inextricably linked (LACCSO, 2021).

Local Exposure/Environment

Temperatures in Glendora are generally representative of those found throughout Southern California. In terms of extreme weather, extreme heat is looked at over other extreme weather and storm patterns due to the impact heat has within the City comparatively. Glendora is not in a location subject to dangerous storms (hurricanes, tornados, blizzards, etc.), tsunamis, or intense winters.

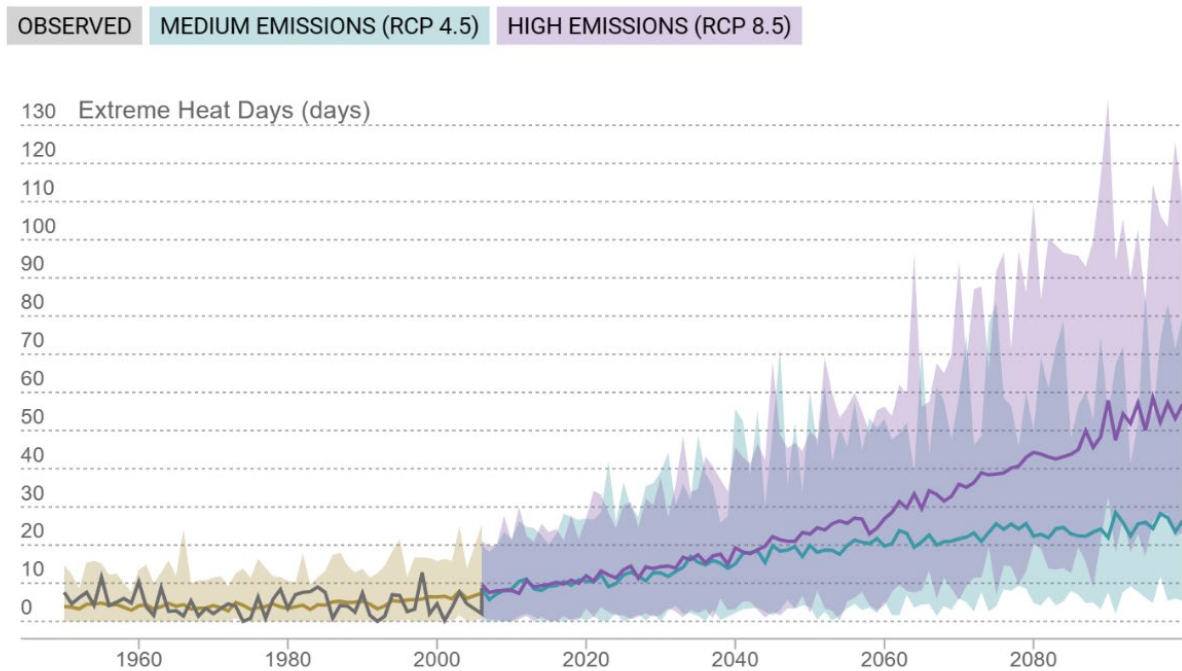
Regionally, extreme heat is projected to increase in frequency, severity, and duration, with the largest increases occurring in the Santa Clarita and San Fernando Valleys in the Greater Los Angeles County area. While Glendora is not located within the Santa Clarita or San Fernando Valleys, valley-like environments are found in Glendora, indicating that the City will likely see a similar increase in extreme heat. In addition



to hot days, extended periods of extreme temperature, known as heat waves, can multiply the impacts of extreme weather. LA County has begun to experience more frequent, more severe, and longer heat waves. Countywide heat waves are projected to increase in frequency and duration by mid-century. By mid-century, projections suggest that most of the County will likely shift to moderate or high exposure to extreme heat, with the majority of LA County in high exposure by mid-century (LACCSO, 2021).

The average annual high temperature calculated from 1961 to 1990 for Glendora is 77.2° Fahrenheit (°F), and the average annual low temperature is 51.3°F (Cal-Adapt, 2023). *Figure 1* shows the number of days in a year when the daily maximum temperature is above a threshold temperature of 100.2°F. This threshold temperature is the summertime 98th percentile value of historical daily maximum/minimum temperatures (from 1961-1990, between April and October) observed in Glendora.

Figure 1: Extreme Heat Days in Glendora



Source: Cal-Adapt. Accessed March 21, 2023. Available at <https://cal-adapt.org/tools/local-climate-change-snapshot/>

As shown in *Figure 1*, climate change is expected to increase the frequency of extreme heat events per year in Glendora. *Table 1* supports *Figure 1* by showing the average number of days in a year expected to exceed the 98th percentile high-heat threshold in the City. The Baseline (1961 to 1990) modeled historical data shows an average of four days that exceeded the high-heat threshold. By mid-century (2035 to 2064), the number of days exceeding the high-heat threshold is expected to increase approximately two weeks from the Baseline average (from 4 to 19 days) under the Medium Emissions scenario (RCP 4.5) and increase by 19 days (from 4 to 23 days) under the High Emissions scenario (RCP 8.5). By the end of the century (2070 to 2099), the average number of days is expected to increase by approximately three weeks (from 4 to 24) and 42 days (from 4 to 46) past Baseline for Medium and High Emissions scenarios, respectively.

Table 1: Average Number of Days Exceeding 98th Percentile High-Heat Threshold; Extreme Heat Days

Time Period	Scenario	30yr Average	30yr Range	Change from Baseline
Baseline (1961-1990)	Modeled Historical	4 days*	2-5 days	-
Mid-Century (2035-2064)	Medium Emissions (RCP 4.5)	19 days	12-43 days	+15 days
	High Emissions (RCP 8.5)	23 days	14-47 days	+19 days
End of Century (2070-2099)	Medium Emissions (RCP 4.5)	24 days	16-62 days	+20 days
	High Emissions (RCP 8.5)	46 days	31-95 days	+42 days
Source: Cal-Adapt. Accessed March 21, 2023. Available at https://cal-adapt.org/tools/local-climate-change-snapshot/ * Observed 30-year average from 1961-1990: 4 days ** Threshold temperature for a location is defined as the 98th percentile value of historical daily maximum/minimum temperatures (from 1961–1990, between April and October) observed at that location.				

Who is Most Vulnerable?

Everybody can be affected by extreme weather and heat, but certain groups are more sensitive and thus more vulnerable. Social vulnerabilities include people with pre-existing health conditions; children and older adults; people who depend on walking, biking, or transit to get around; and people who work outdoors. Children are at a higher risk for being adversely affected by extreme weather because they spend much of their time outdoors playing or exercising thereby increasing their body temperature already; increased activity in more extreme weather more easily leads to dehydration, exhaustion, and skin burning. Older adults are considered highly vulnerable to extreme heat and weather because a human body's regulatory and immune systems tend to deteriorate with age and are not as prepared to be resilient against drastic changes. The United States Census Bureau reports that Glendora residents under the age of 20 comprise approximately 25 percent of the population as of 2021; and seniors (65 and above) make up approximately 16 percent of the City population (US Census, 2023).

Furthermore, extreme heat can cause uncomfortable and even dangerous conditions for outdoor physical activity, making it harder for people to get the recommended amount of exercise and potentially leading to increased risk of long-term health effects related to a sedentary lifestyle. The health risks associated with exposure to extreme heat are intensified when compounded with other demographic factors. Hispanic and Latino people are overrepresented in other vulnerable populations, like outdoor workers and undocumented individuals. Approximately 38 percent of the Glendora population is Hispanic or Latino (US Census, 2023). When the City prepares and plans for protection from extreme heat and weather, culturally sensitive outreach efforts should be at the forefront to ensure all Glendora residents know how to stay safe. Respite from heat is critical to outdoor workers to mitigate the potential health impacts of

extreme heat. For this reason, both place of residence and place of occupation are important in understanding the overall risk (LACCSO, 2021).

Air pollution is linked to asthma and cardiovascular disease, both of which increase vulnerability to extreme heat. In return, extreme heat can contribute to and exacerbate the formation of ground-level ozone, which triggers asthma attacks (LACCSO, 2021). According to the California Health Interview Survey (CHIS), organized by the UCLA Center for Health Policy Research, approximately 16 percent of the adult Glendora population (18+) has been diagnosed with asthma at some point; this is similar to the rate found throughout the state which is approximately 16 percent, and slightly higher when compared to the county rate of 15 percent (CHIS, 2023).

Physical vulnerabilities include energy, water, and transportation infrastructure. As temperatures rise, an increased demand for cooling can cause strain on the energy grid and lead to blackouts. The effects of heat on the physical energy grid such as power lines can also cause strain and lead to fires. Extreme heat and weather can cause transportation delays or malfunctions, overuse during emergency evacuations, or damage to transportation infrastructure such as roads. Parks and open space are also affected because extreme heat can harm vegetation and wildlife, causing the northern vast open spaces within the City to be highly vulnerable.

Drought

What is it?

California's highly variable climate is susceptible to prolonged dry spells. A warming climate will compound drought impacts, as evidenced during recent precipitation deficits in the 2000s Southwest drought (Colorado River Basin), and during the 2012-2015 drought in California and neighboring states (Pierce, et al, 2018). Furthermore, recent research suggests that extended drought occurrence ("mega-drought") could become more pervasive in future decades (Pierce, et al, 2018). Drought is a climate hazard for which census tract-level mapping is not possible. The increase in frequency of transition between wet and dry extremes – or precipitation whiplash – makes the drought-flood cycle more dramatic in the Southern California region (LACCSO, 2021).

In addition to direct impacts on water supply, drought creates dry conditions that can lead to secondary impacts, including but not limited to: increased wildfire risk, reduced evapotranspiration (and thus less ability to mitigate periods of extreme temperatures), damage to habitats and vegetation, and higher volumes of dust. This phenomenon can quickly remove moisture from the soil, leading to compacted soil. In the case of a severe rain event, compacted soil will not allow for infiltration, bolstering potential flooding hazards. Collectively, these conditions can contribute to decreased air quality and increased public health issues across LA County (LACCSO, 2021).

Drought vulnerability can be exacerbated by single-source dependency, increased groundwater contamination risk, water from small service providers, and a jurisdiction's location in areas with a projected increase in extreme heat days. Decreases in precipitation, from drought and evaporation, caused by higher temperatures, may increase the concentration of pollutants and salinity in streams, reservoirs, and groundwater. More frequent and intense periods of drought could reduce the availability of imported water and drive an increasing use of groundwater. If not managed sustainably, groundwater overdrafts can permanently diminish aquifer capacity (LACCSO, 2021).

Local Exposure/Environment

The City of Glendora is a retail water supplier that serves customers in Glendora and portions of the Cities of San Dimas and Azusa, as well as an unincorporated portion of Los Angeles County. The City provides water service to a population of approximately 45,500. The City is a sub-agency of Three Valleys Municipal Water District (TVMWD) and Upper San Gabriel Valley Municipal Water District, both wholesale agencies. The City Water Division Manager is responsible for the operation and management of the City's water system (Stetson, 2020).

Glendora has a legal responsibility to provide water utility services, including water for residential, commercial, industrial, public authority, and for public fire hydrants and private fire services. The City's primary source of water supply is groundwater, which is delivered to the system by eight active wells. To supplement the City's groundwater supply, the City also has three connections with TVMWD to purchase treated imported water from the Metropolitan Water District of Southern California (MWD), and one connection with Covina Irrigation Company to purchase local treated surface water and groundwater. Although the City has no plans for future water supply projects, the City anticipates constructing new groundwater production wells to replace existing wells when necessary. In addition, the City assesses a Developer Impact Fee for new developments within the service area. Funds collected through the Developer Impact Fee are used to purchase a sufficient amount of additional water rights to meet increased water demands (Stetson, 2021).

As Glendora primarily relies on groundwater, relies on imported water when needed, and anticipates increased extreme heat days (see [Extreme Heat and Weather](#)), groundwater overdrafts and heightened regional drought could become a bigger concern in the near future. In preparation for drought conditions, the City has four emergency interconnections with other water agencies including two with Suburban Water Systems, one with Golden State Water Company, and one with the City of Azusa (Stetson, 2021).

Table 2 shows the differences in maximum dry spell lengths in Glendora from Baseline measurements to predicted future variations. The Baseline scenario indicates that the 30-year average length of a dry spell was approximately 117 days for the City. Dry spells are predicted to increase approximately one week over Baseline conditions by mid-century (2035-2064), and one to two weeks by the end of century (2070-2099).



Table 2: Maximum Length of Dry Spell

Time Period	Scenario	30yr Average	30yr Range	Change from Baseline
Baseline (1961-1990)	Modeled Historical	118 days	103-132 days	-
Mid-Century (2035-2064)	Medium Emissions (RCP 4.5)	124 days	99-148 days	+6 days
	High Emissions (RCP 8.5)	125 days	102-149 days	+7 days
End of Century (2070-2099)	Medium Emissions (RCP 4.5)	124 days	105-146 days	+6 days
	High Emissions (RCP 8.5)	132 days	96-178 days	+14 days
Source: Cal-Adapt. Accessed March 21, 2023. Available at https://cal-adapt.org/tools/local-climate-change-snapshot/ * Observed 30-year average from 1961-1990: 117 days				

Who is Most Vulnerable?

As the City relies predominately on groundwater, and to a lesser extent on imported water, all residents served by the City of Glendora are susceptible to drought impacts. Extreme drought (and heat) decreases soil moisture and, increases plant and animal mortality. Plant die-offs cause a domino effect by reducing available shade and evaporative cooling, thereby raising surrounding temperatures and reducing the thermal comfort of pedestrians. The generally undeveloped foothills found throughout the northern region of the City would be subject to impacts from drought conditions, and therefore contribute to the domino effect of reducing cooling and moisture retention.

People with pre-existing respiratory conditions are extremely vulnerable to drought conditions. In the absence of rainfall during prolonged periods of drought, the region could experience increased concentrations of resuspended road particulates (dust), which have adverse respiratory impacts (Hall, et al., 2018). As of 2020, approximately 16 percent of the Glendora adult population (18+) and ten percent of the Glendora child population (1-17) have been diagnosed with asthma at some point in their lives (CHIS, 2023).

Another impact of drought on people in LA County is the increasing prevalence of Valley fever. Valley fever is a disease caused by inhaling fungus spores carried in soil dust. Arid and semiarid landscapes, dust storms, and warmer temperatures all contribute to conditions that lead to increases in Valley fever. The number of reported cases of Valley fever in California has steadily and significantly increased over the past 20 years. Populations at greater risk of severe disease from Valley fever include people who are Black or Filipino, older adults, pregnant women, infants, and people with diabetes or conditions that weaken the immune system. People who live or work in areas where soil is disturbed, such as near farming operations, are at higher risk of exposure (LACCSO, 2021). As of 2021, approximately 2.15 percent of the Glendora population is African-American, and approximately 3.11 percent is Filipino (US Census, 2023). Additionally, approximately eight percent of the Glendora adult population has been diagnosed with diabetes (CHIS,

2023). These statistics indicate that a small portion of the Glendora population may be highly sensitive to Valley fever.

Potential drought hazards can be curbed through proactive water management. Noting that the majority of water used within the City is sourced from groundwater, water consumption, whether it be for personal, commercial, or industrial use, must be used at a sustainable rate. To help protect this resource, Glendora has enacted varying water restrictions, including those currently in place:

- Outdoor watering is restricted between 8:00 AM – 5:00 PM
 - Watering limited to 3 days per week
 - Watering limited to 5 minutes per station
 - Irrigation systems with drip irrigation are given an exception for an additional 15 minutes as long as there is no runoff
- No washing down sidewalks or driveways
- No excessive runoff from landscape irrigation that causes water flow onto an adjoining sidewalk, driveway, street, alley, or gutter
- No outdoor watering during and 48 hours following measurable rainfall
- No washing motor vehicles with a hose, unless the hose is fitted with a shut-off nozzle
- Restaurants, cafes, and bars can only serve water to customers upon request
- Hotels and motels must display a notice providing guests with the option of choosing not to have towels and linens laundered daily

Some water restrictions in place in other cities and counties in California include personal and individual restrictions and limitations or increased cost of service. Other restrictions are designed to limit commercial and industrial water use and water waste.

Wildland Fire

What is it?

As California is expected to experience increased temperatures and reduced precipitation, there will likely be more frequent and intense wildfires and longer fire seasons. Fires spread more quickly on dry, windy days and move more easily in an uphill direction and in areas with higher-density vegetation. Wildfires are a natural and important part of the ecosystem but can become more intense and dangerous as a result of climate change and land management. Wildfires are unplanned, naturally occurring fires that may be caused by lightning, accidental human ignitions, arson, or escaped prescribed fires. Weather is one of the most significant factors in determining the severity of fires; natural fire patterns are driven by conditions such as drought, temperature, precipitation, wind, vegetation, and fuel (i.e. biomass) availability. Wildfires pose a great threat to life and property, particularly when they move from forest or rangeland into developed areas.

Climate change is projected to increase the frequency of wildfire events, the extent of burned areas across California, and the duration of wildfire seasons. Wildfire seasons are projected to begin earlier in the spring due to drier and warmer spring conditions on average, potentially requiring longer periods for firefighting services. Greater inter-annual variability in temperature and precipitation may also affect wildfire intensity. For example, multiple wet years can result in larger fuel buildup in landscapes. This may



result in increasingly intense and frequent wildfires, if followed by drought years. Wildfire risk will also vary depending on population growth and land use characteristics, including rates of residential expansion and infrastructure into fire prone areas over the next century.

Local Exposure/Environment

Due to its weather, topography, and native vegetation, the majority of Los Angeles County is at risk from wildland fires. The San Gabriel Mountains, largely covered by the Angeles National Forest, have the highest degree of wildfire risk. On average, the San Gabriel Mountains are projected to experience an increase in wildfire burn area of approximately 40 percent and 50 percent in 2050 and 2080, respectively, under the High Emissions scenario. By mid-century, wildfire events in LA County and across the state are projected to be considerably larger, more frequent, and more destructive (LACCSO, 2021).

Glendora's location at the base of the San Gabriel Mountains creates a wildland-urban interface (WUI) that makes Glendora more susceptible to wildfires than cities that do not border the foothills. The City and the surrounding landscape exhibit a complex wildfire environment that presents a significant risk to public and firefighter safety and the built and natural environment. This region of the San Gabriel Mountains has been subject to numerous damaging wildland fires, is influenced by local extreme wind and weather conditions (including Santa Ana wind events), has steep and varied terrain with a mosaic of different vegetation types, and is characterized by wildland-urban interface development patterns that can exacerbate wildfire risk. Glendora's WUI area runs along the northern portion of development within the city limits, towards the base of the foothills, and includes populated residential neighborhoods.

The extended droughts characteristic of California's Mediterranean climate result in large areas of dry vegetation that provide fuel for wildland fires. Furthermore, the native vegetation of the region typically has a high oil content that makes it highly flammable. The area is also intermittently impacted by Santa Ana winds – the hot, dry winds that blow across Southern California in the spring and late fall.

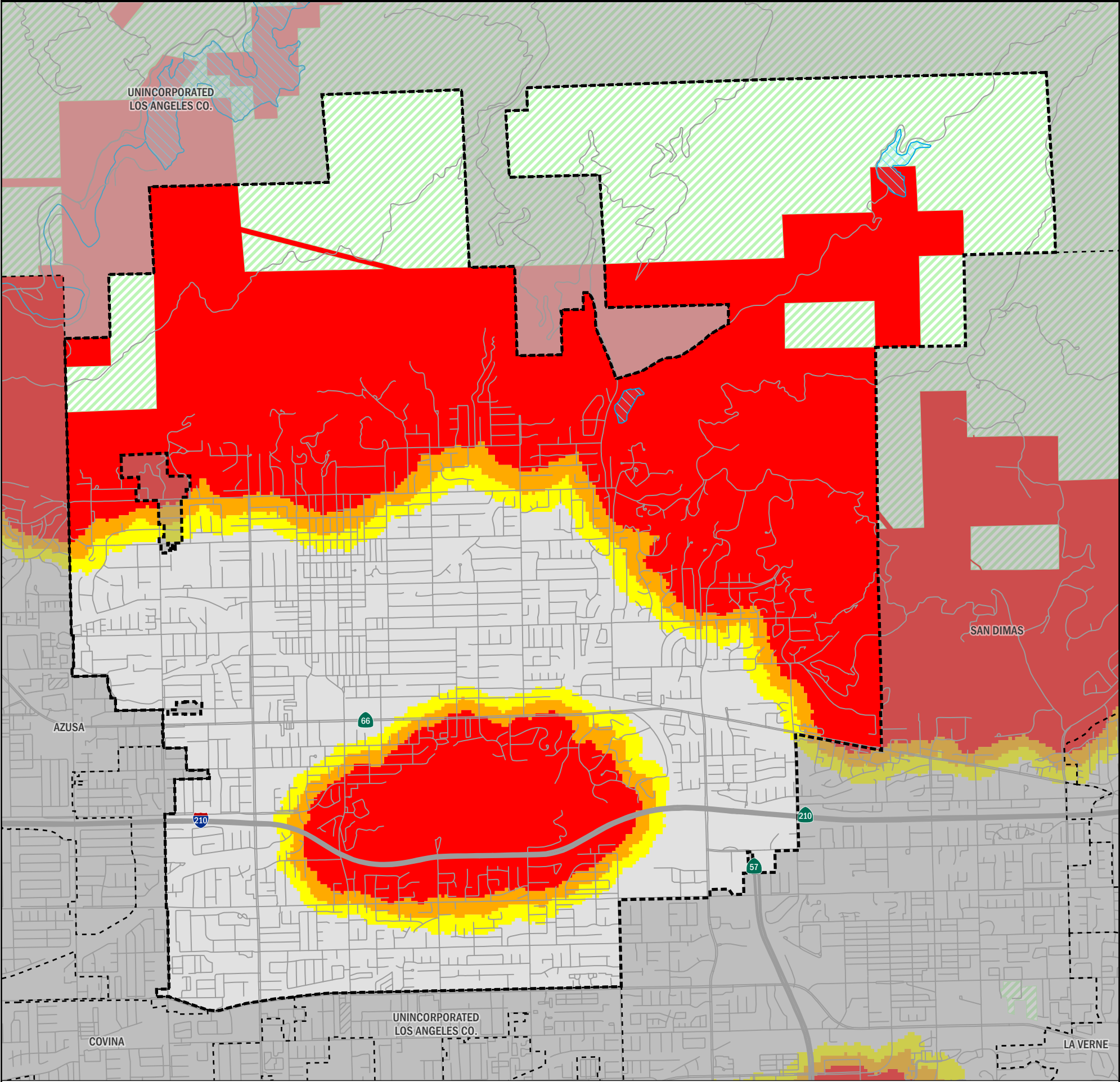
The State has charged CAL FIRE with the identification of Fire Hazard Severity Zones (FHSZ) within State Responsibility Areas (SRAs). In addition, CAL FIRE must recommend Very High Fire Hazard Severity Zones (VHFHSZ) identified within any Local Responsibility Areas (LRA). The FHSZ maps are used by the State Fire Marshall as a basis for the adoption of applicable building code standards. *Figure 2* shows Fire Hazard Severity Zones within Glendora (CAL FIRE, 2025). *Figure 2* illustrates that the City is considered to be within a VHFHSZ; the VHFHSZ covers the northern portion of the City and the South Hills Park area. As the City is a member of the Los Angeles County Fire Protection District, the Los Angeles County Fire Department (LACoFD) provides Glendora with fire suppression and emergency medical services. The LACoFD is therefore the local responsible agency for fire protection within the City's VHFHSZ and follows the CAL FIRE VHFHSZ designation. The City also abuts VHFHSZ lands where the responsibility for fire protection lies with the State of California (State Responsibility Areas or SRA) (CAL FIRE, 2025).





Local Responsibility Area Fire Hazard Severity Zones

As Identified by the
State Fire Marshal
March 24, 2025

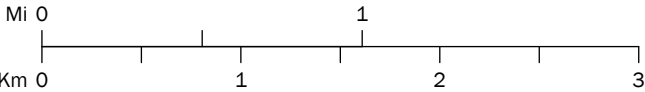


Fire Hazard Severity Zones (FHSZ) in Local Responsibility Area (LRA), as Identified by the State Fire Marshal

Very High High Moderate

Fire Hazard Severity Zones in State Responsibility Area (SRA), Effective April 1, 2024

Very High



Projection: NAD 83 California Teale Albers
Scale: 1:38,000 at 11" x 17"

- Incorporated City
- Unzoned LRA
- Waterbody
- Federal Responsibility Area (FRA)

Government Code section 51178 requires the State Fire Marshal to identify areas in the state as moderate, high, and very high fire hazard severity zones based on consistent statewide criteria and based on the severity of fire hazard that is expected to prevail in those areas. Moderate, high, and very high fire hazard severity zones shall be based on fuel loading, slope, fire weather, and other relevant factors including areas where winds have been identified by the Office of the State Fire Marshal as a major cause of wildfire spread.

The State of California and the Department of Forestry and Fire Protection make no representations or warranties regarding the accuracy of data or maps. Neither the State nor the Department shall be liable under any circumstances for any direct, special, incidental, or consequential damages with respect to any claim by any user or third party on account of, or arising from, the use of data or maps.

Gavin Newsom, Governor, State of California
Wade Crowfoot, Secretary for Natural Resources, CA Natural Resources Agency
Joe Tyler, Director/Fire Chief, CA Department of Forestry and Fire Protection
Daniel Berlant, State Fire Marshal, CA Department of Forestry and Fire Protection

Data Sources:
CAL FIRE Fire Hazard Severity Zones (FHSZSRA23_3, FHSZLRA_25_1)
CAL FIRE State Responsibility Areas (SRA25_1)
City and County boundaries as of 10/22/24 (CA Board of Equalization)

There are three fire stations strategically located within the City that serve Glendora: Fire Station 85 located at 650 East Gladstone Street, Fire Station 86 located at 520 South Amelia Avenue, and Fire Station 151 located at 231 West Mountain View Avenue. In addition, the Los Angeles County Fire Department provides for the public's safety by deploying and staffing a variety of emergency response vehicles for Air and Wildland, Emergency Medical Services, Fire Prevention, Rescue, Forestry, Health Hazardous Material, and Emergency Operations (City of Glendora, 2023).

Table 3 projects the average annual area burned over the next century in Glendora. As shown, approximately 35 to 37 acres more of the City is expected to burn during the middle of the century (2035-2064) compared to the Baseline acreage. Whereas, the end of the century only sees 11 to 32 additional acres burned. One explanation as to why less acreage is anticipated to burn at the end of the century compared to the mid-century, regardless of emissions scenario, is that the end of the century projections are calculated using the mid-century projections; the mid-century is anticipated to burn the existing land and vegetation, leaving less fuel towards the end of the century. Further, development is anticipated to continue to grow outwards over time, and more developed land in the City leaves less room for open acreage to burn.

Table 3: Average Annual Area Burned

Time Period	Scenario	30yr Average	30yr Range	Change from Baseline
Baseline (1961-1990)	Medium Emissions (RCP 4.5)	173.0 acres	164.5-182.9 acres	-
	High Emissions (RCP 8.5)	171.4 acres	161.9-179.4 acres	-
Mid-Century (2035-2064)	Medium Emissions (RCP 4.5)	207.6 acres	183.9-232.5 acres	+34.6 acres
	High Emissions (RCP 8.5)	208.5 acres	184.1-232.3 acres	+37.1 acres
End of Century (2070-2099)	Medium Emissions (RCP 4.5)	205.4 acres	181.0-219.0 acres	+32.4 acres
	High Emissions (RCP 8.5)	182.7 acres	164.8-195.6 acres	+11.3 acres

Source: Cal-Adapt. Accessed March 21, 2023. Available at <https://cal-adapt.org/tools/local-climate-change-snapshot/>

Regional access to the City of Glendora is provided by the Foothill Freeway (I-210). The I-210 Freeway provides east-west regional circulation through the City, connecting with the Orange Freeway (SR-57) at the eastern boundary of the City. Continuous travel routes through the City are constrained by the I-210 Freeway and the 260-acre South Hills Park, located in the middle of the City. North-south mobility through the City is limited to arterials and collectors on either side of the park that cross the I-210 Freeway, which include Barranca Avenue, Grand Avenue, Glendora Avenue, Lone Hill Avenue, and Amelia Avenue. Other limited north-south collectors that carry local traffic include Loraine Avenue, Valley Center Avenue,

Bonnie Cove Avenue, and Sunflower Avenue. East-west roadways through the City include Sierra Madre Avenue, Foothill Boulevard, Route 66, Gladstone Street, and Arrow Highway (City of Glendora, 2008). It is crucial that transportation routes are able to safely and effectively operate in times of emergency. Foothill Boulevard and Grand Avenue are the major arterials in the City that have historically been used as evacuation routes, and are still considered main evacuation routes currently.

Wildfire smoke can travel great distances and affect people far from a wildfire's location (LACCSO, 2021). WUI areas are highly prone to wildfires, indicating that the City would likely be exposed to a threat from wildfires originating outside Glendora. Starting in 2008, the State of California began integrating wildfire protections and material requirements into building codes to ensure that newly constructed buildings or major renovations meet certain safety standards. Although these code requirements do not nullify the potential risks, these standards minimize the potential impacts on a building and its occupants. Communities in LA County with high wildfire exposure and old buildings have high risk of wildfire damage; these include Arcadia, Azusa, Glendora, Monrovia, and Sierra Madre – all communities along the San Gabriel Valley foothills (LACCSO, 2021).

Who is Most Vulnerable?

Vulnerable populations include those that live within the Fire Hazard Severity Zones. As depicted in *Figure 2*, the foothills of the San Gabriel Mountains and development directly south are located within a VHFHSZ. Safe and adequate evacuation plans are crucial to ensuring that impacts are as minimal as possible. Individuals with physical disabilities or who live in isolation may have difficulty evacuating. Additionally, households with no access or limited access to cars may have difficulty evacuating. As of 2018, 27.5 percent of Glendora households own one or no vehicles (SCAG, 2019).

Wildfires are big contributors to air pollution in the western United States and are responsible for an estimated 70 percent of PM 2.5 emissions during periods when fine particulate matter pollution levels are above the Environmental Protection Agency standard. Wildfire-generated particulate matter is linked to respiratory complications like asthma, chronic obstructive pulmonary disease, pneumonia, bronchitis, and other infections. Wildfire can have grave impacts on people's livelihoods, homes, and health (LACCSO, 2021). Especially vulnerable people include individuals with pre-existing health conditions, such as asthma, who are more sensitive to hazardous air. As previously discussed, the percentage of people diagnosed with asthma in Glendora is similar to the rates in LA County and the state; approximately 16 percent of Glendora and Californian residents 18 years and older, and approximately 15 percent of LA County residents 18 years and older, have been diagnosed with asthma at some point in their lives (CHIS, 2023).

In addition to personal impacts, wildfires can cause major community-wide disturbances, like evacuations, power outages, economic losses, road and school closures, losses to biodiversity and the natural environment, and disruptions to recreational activities (LACCSO, 2021). Vulnerable infrastructure includes energy infrastructure (fires in other areas could cause damage to power plants or power lines causing blackouts), communications, and water (water quality reduced due to ash, etc.). Natural habitats and plants and animals are extremely vulnerable to wildfires; the foothills and open spaces found in and surrounding the City provide homes to plant and animal species, which are susceptible to fire hazards. Plant and animal life is at an even higher risk due to the fact that Glendora is a WUI area. The South Hills area, located in the center of Glendora, consists of approximately 400 acres of essentially isolated habitat where no wildlife corridor exists to connect it with other natural areas. However, populations of deer and



other wildlife continue, which is evidence that pathways for migration do exist in some capacity (City of Glendora, 2008). The biodiversity and the natural environment of the South Hills are highly vulnerable to wildfire hazards as the open space is surrounded by urban development, essentially trapping and confining wildlife.

Windstorm

What is it?

The combination of windspeed, topography, climate, and temperature can create deadly impacts under the right conditions. Hazardous wind events can include windstorms, tornados, or microbursts. Tornados are spawned when there is warm, moist air near the ground, cool air aloft, and winds that speed up and change direction. An obstruction, such as a house, in the path of the wind causes it to change direction. This change increases pressure on parts of the house, and the combination of increased pressures and fluctuating wind speeds creates stresses that frequently cause structural failures.

Unlike tornados, microbursts are strong, damaging winds which strike the ground and often give the impression a tornado has struck. They frequently occur during intense thunderstorms. The origin of a microburst is downward moving air from a thunderstorm's core, but unlike a tornado, they affect only a small area. When the microburst wind hits an object on the ground such as a house, garage, or tree, it can flatten the buildings and strip limbs and branches from the tree. After striking the ground, the powerful outward running gust can wreak further havoc along its path. Damage associated with a microburst is often mistaken for the work of a tornado, particularly directly under the microburst. However, damage patterns away from the impact area are characteristic of straight-line winds rather than the twisted pattern of tornado damage. Tornados, like those that occur every year in the Midwest and Southeast parts of the United States, are a rare phenomenon in most of California with most tornado-like activity coming from microbursts.

Local Exposure/Environment

Strong winds and topography of the area create the regional Santa Ana winds, which can result in disaster conditions, the most common being fire fanned by the high winds. These winds commonly occur between October and February, with December having the highest frequency of events. Summer events are rare. A Santa Ana wind event manifests as a dry northeasterly wind originating from the Great Basin and upper Mojave Desert. As the wind channels through the mountain passes and canyons of Southern California, the wind velocity increases. Wind speeds are typically 40 mph (35 knots) through and below passes and canyons with gusts to 58 mph (50 knots). Stronger Santa Ana winds have gusts greater than 69 mph (60 knots) over widespread areas, and gusts greater than 115 mph (100 knots) in favored areas. Frequently, the strongest winds occur during the night and morning hours due to the absence of a sea breeze. The sea breeze, which typically blows onshore daily, can moderate the Santa Ana winds during the late morning and afternoon hours. Santa Ana winds are an important forecast challenge because of the high fire danger associated with them – with Santa Ana winds driving wildfire flames, the speed and reach of the flames is greater than in times of calm wind conditions.

Based on local history, most incidents of high wind in the San Gabriel Mountains area are the result of the Santa Ana and El Niño related wind conditions. While high impact wind incidents are not frequent in the area, significant wind events and sporadic tornado activity have been known to negatively impact



surrounding cities in the area. A windstorm in late November 2011, which caused winds in excess of 90 mph (78 knots) in the Pasadena, Sierra Madre, Arcadia, Monrovia, and Bradbury, downed trees and resulted in extended power and utility outages. Based on previous windstorm history, it is not difficult to assume that a future windstorm event could generate similar damage. It is also possible that a strong Santa Ana wind condition could cause substantial damage in the City of Glendora.

Glendora is located within the South Coast Air Basin (Basin). This Basin is a 6,600 square mile area that includes all of Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. The Basin is topographically bounded by the Pacific Ocean to the west with the San Gabriel, San Bernardino, and San Jacinto mountains to the north and east (City of Glendora, 2008).

The topography and climate of Southern California combine to make the Basin an area predisposed to air pollution problems. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and prevents pollutants from dispersing upward and allows pollutants to accumulate within the lower layer. This situation is called a temporary inversion. In addition, light winds during the summer further limit ventilation. Because of the low average wind speeds in the summer and a persistent daytime temperature inversion, emissions of pollutants have an opportunity to combine with sunlight producing smog. The smog potential is increased in the Basin because the South Coast region experiences high, consistent levels of sunlight. Local air quality in Glendora is further influenced by the presence of the Foothill Freeway (I-210) that traverses the City. The freeway carries a large amount of regional traffic, and thus, generates large amounts of vehicular emissions from both automobiles and trucks (City of Glendora, 2008).

Who is Most Vulnerable?

Windstorms can affect air quality on a regional level. Strong winds can stir up dust, pollen, pollutants, and particulate matter. People with sensitive respiratory systems, or diseases such as asthma, can be put at greater risk for health complications due to strong wind events.

Severe windstorms pose a risk to life and property in the City of Glendora by creating conditions that disrupt essential systems such as public utilities, telecommunications, and transportation routes. High winds can and do occasionally cause tornado-like damage to local homes and businesses near the community. High winds have destructive impact, especially to trees, power lines, and utility services.

Windstorms damage buildings, power lines, and other infrastructure typically due to falling trees and branches. During wet winters, saturated soils cause trees to become less stable and more vulnerable to uprooting from high winds. When severe windstorms strike a city, downed trees, power lines, and damaged property can be major hindrances to emergency response and disaster recovery. Historically, falling trees are the major cause of power outages in the region. Windstorms such as strong microbursts and Santa Ana wind conditions cause flying debris and downed utility lines. Falling trees bring electric power lines down to the pavement, creating the possibility of lethal electric shock. Southern California Edison (SCE) provides electricity to the City of Glendora; services are provided by overhead and underground facilities throughout the City (City of Glendora, 2008). Adherence to local regulations such as Chapter 19.40, *Underground utility districts*, reduces potential windstorm hazards to infrastructure.



Structures with weak reinforcement, or structures that are older, are susceptible to damage from strong wind events. Wind pressure creates a direct and frontal assault on a structure, pushing walls, doors, and windows inward. Conversely, passing currents create lift suction forces that pull building components and surfaces outward. With extreme wind forces, the roof or entire building can fail causing considerable damage. According to the SCAG Local Profile for the City of Glendora, approximately 90 percent of the existing housing stock in Glendora was built prior to 1990; these units may be more susceptible to extreme wind conditions as they were built before the establishment of modern-day building codes. Ensuring all new development, redevelopment, and retrofitting projects adhere to the most up to date State Building Codes and follow City development standards regarding slopes (Municipal Code Chapter 21.04.030, *Hillside development*), chances of hazardous impacts from windstorms dramatically decrease.

Flooding

What is it?

Increased flooding occurs when a larger amount of rain falls over a shorter period of time, even if there is less overall rain. In such instances, vegetated and pervious surfaces such as grass and soil do not have enough time to absorb the rainfall, overwhelming stormwater infrastructure capacity, which leads to localized flooding pools. In combination, changes in temperature and precipitation may exacerbate impacts. Heavy stormwater runoff can contaminate the surrounding bodies of water with environmentally and biologically harmful bacteria (Cal EMA, 2012a,b,c). Intense rainstorms could require evacuation and temporary or permanent displacement of people and result in property damage or loss.

Flood-prone zones typically include areas within river floodplains or adjacent to drainage systems, low-lying areas where heavy rainfall can collect, and areas with inadequate storm drain infrastructure. Inland flooding can be exacerbated by high amounts of impermeable surfaces. Data on exposure to extreme precipitation is limited to annual rainfall averages and does not capture the extreme precipitation events that can cause the most damage. Exposure to inland flooding is based on mapping of floodplains created by the Federal Emergency Management Agency (FEMA) (LACCSO, 2021).

The Clean Water Act of 1987 established requirements for stormwater discharges under the National Pollutant Discharge Elimination System (NPDES) permit program. The goals of the permit include protecting the beneficial uses of the water bodies and reducing stormwater pollution. Polluted stormwater degrades creeks and oceans, and can pollute surrounding flora and fauna. Sediments cloud the water, nutrients promote the growth of algae, and toxic chemicals from pesticides or leaking cars all threaten the health of fish and other aquatic life (City of Glendora, 2023).

Local Exposure/Environment

Glendora is comprised of the San Gabriel Mountains foothills, bounded by the Angeles National Forest to the north, and urban development to the west, south, and east. A portion of the City (southern area) is characterized by gently to moderately sloping areas within the City where a vast majority of urban development has already occurred. The foothill portion of the City (northern area) is characterized by moderate to very steep hillsides predominantly located along the northern boundary adjacent to the Angeles National Forest. In addition, the isolated South Hills open space area is located in the southern portion of the City and is also characterized by foothill terrain (City of Glendora, 2008).



The northern portion of Glendora has steep topography and a minimal risk of flooding. However, there are low-lying areas in the City where stormwater can gravitate towards and build up. Localized flooding may occur in low spots or where infrastructure is unable to accommodate peak flows during a storm event. The steep slopes found throughout the City allow stormwater to gain momentum and pick up and move debris. Landslides and mudslides are a second type of risk in WUI areas at the foothills of mountain ranges where there may be steep slopes. The congruence of post-wildfire debris and extreme precipitation in these sloped areas can have devastating impacts on developments in the down-slope areas (LACCSO, 2021).

According to FEMA, the built areas of the City are in Flood Zone X. Zone X is defined as the area outside the 500-year flood and protected by levee from the 100-year flood (FEMA, 2023).

Various interconnecting channels and storm drain pipes comprise the flood control network. The City of Glendora owns and maintains its water and sewer systems (LA County by contract maintains sewer lines for the City) and requires developers to construct offsite extensions of public infrastructure (i.e. water, sewer, streets, storm drain systems, etc.) needed to serve previously undeveloped property (City of Glendora, 2021). Stormwater flows through a series of storm drains located within the City and is eventually discharged into the San Gabriel River via a channelized tributary. The San Gabriel River watershed consists of an extensive area of riparian and woodland habitats and a series of flood control dams in its upper reaches, but is highly urbanized in the middle and lower reaches. The lower part of the river flows through a concrete-lined channel in a heavily urbanized portion of the county before becoming a soft-bottom channel once again near the ocean in Long Beach (City of Glendora, 2008).

Three flood channels traverse through the City: Little Dalton Wash, Big Dalton Wash, and San Dimas Wash. All three channels are concrete-lined channels designated as floodways to serve the region (City of Glendora, 2008). The Los Angeles County Flood Control District maintains the San Dimas Wash. Additionally, the Los Angeles County Department of Public Works maintains the storm drain and catch basin system serving Arrow Highway, the region along the southern border of Glendora. These systems operate well without any record of overtopping or street flooding (City of Glendora, 2021).

Actual rainfall in the Southern California region tends to fall in large amounts during sporadic and often heavy storms rather than consistently over storms at somewhat regular intervals. In short, rainfall in Southern California might be characterized as feast or famine within any single year. While California does not see the average annual precipitation changing significantly in the next 30-75 years, precipitation will likely be delivered in more intense storms and within a shorter wet season (Cal-Adapt, 2023b). [Table 4](#) shows the predicted increase in maximum one-day rainfall in Glendora over the next century. The Baseline average is 2.409 inches in one day. During the middle of the century (2035-2064), the average rainfall within a day is expected to increase approximately 0.16 inches under the Medium Emissions scenario and approximately 0.22 inches under the High Emissions scenario. By the end of century (2070-2099), rain is predicted to fall an additional 0.26 inches under the Medium Emissions scenario and an additional 0.38 inches in one day under the High Emissions scenario. While these may not seem like exceptional increases on their own, the data must be observed on a larger scale and compounded with other climate change phenomena to predict the impact on the City and on the region.



Table 4: Maximum One-Day Precipitation

Time Period	Scenario	30yr Average	30yr Range	Change from Baseline
Baseline (1961-1990)	Modeled Historical	2.409 inches	2.036 - 2.748 inches	-
Mid-Century (2035-2064)	Medium Emissions (RCP 4.5)	2.564 inches	2.162 - 2.983 inches	+0.155 inches
	High Emissions (RCP 8.5)	2.630 inches	2.197 - 3.184 inches	+0.221 inches
End of Century (2070-2099)	Medium Emissions (RCP 4.5)	2.672 inches	2.252 - 3.144 inches	+0.263 inches
	High Emissions (RCP 8.5)	2.789 inches	1.975 - 3.555 inches	+0.380 inches
Source: Cal-Adapt. Accessed March 21, 2023. Available at https://cal-adapt.org/tools/local-climate-change-snapshot/ * Observed 30-year average from 1961-1990: 2.333 inches				

Dam inundation is flooding that occurs due to structural failure of a dam. Failure of a dam may be caused by seismic activity, severe flooding that causes water to exceed the capacity of the dam, or landslides that flow into a reservoir displacing the water. The City of Glendora faces a potential hazard from dam inundation resulting from the failure of either of two dams: Big Dalton Dam and San Dimas Dam. It is considered unlikely that either dam would fail during a catastrophic event. The Standardized Emergency Management System (SEMS) Multi-Hazard Functional Plan prepared by the City of Glendora outlines the City's response for dam failure (City of Glendora, 2008).

Big Dalton Dam is located in Big Dalton Canyon, four miles northeast of Glendora. This dam is owned and operated by the Los Angeles County Flood Control District and stores approximately 960-acre feet (over 312 million gallons) of water. Should a breach occur, the water would flow south westerly out of Big Dalton canyon via the Big Dalton Wash. The areas between the South Hills and San Gabriel foothills surrounding this wash, would be inundated by the waters from this flood. The affected area is mostly comprised of residential with some commercial and industrial uses. Additionally, the San Dimas Dam is also owned and operated by the Los Angeles County Flood Control District. The San Dimas Dam is located east of the City in the foothills above the City of San Dimas. This dam stores approximately 1,500 acre-feet (488 million gallons) of water. Should a breach occur, the water would flow southwest along the San Dimas wash inundating the portions of the City located south of the 210 Freeway. Land uses that would be affected by this inundation mainly include residential, commercial, and industrial (City of Glendora, 2008).

The City of Glendora's stormwater pollution prevention program is governed by various federal, state, and local laws and regulations. The Municipal National Pollutant Discharge Elimination System (NPDES) Permit is issued to the County of Los Angeles and 84 cities (minus Avalon, Lancaster, Long Beach, and Palmdale) by the California Regional Water Quality Control Board, Los Angeles Region. The Los Angeles County Public Works Stormwater Engineering Division is the agency assigned as the Principal Permittee

for the region (LA Public Works EPD, 2023). The City of Glendora is currently covered or impacted by the following NPDES permits: Municipal; Industrial/Commercial; and Construction. The NPDES Municipal Separate Storm Sewer System (MS4) permit regulates municipal discharges of stormwater and non-stormwater from the Permittees' MS4s. NPDES mandates that the City implement specified stormwater management programs to address the challenges of preventing stormwater pollution. Under this permit, the City is held accountable for water quality in waterways (City of Glendora, 2023).

Agencies such as the Los Angeles County Public Works Stormwater Engineering Division have created plans that prepare the County, and subsequently the City, for potential flooding hazards (LA County Public Works EPD, 2023). The Los Angeles County Comprehensive Floodplain Management Plan aims to evaluate the impacts of urban stormwater discharge on receiving waters and communities. The Floodplain Management Plan is an important component of the County's participation in the National Flood Insurance Program and the Community Rating System, which are administered by FEMA (Tetra Tech, 2021).

Who is Most Vulnerable?

Flooding impacts generally are not linked to specific populations, such as seniors, children, or individuals with disabilities. However, older housing inventories are sometimes located in low-lying, more flood-prone areas, causing the units to be more susceptible to extreme conditions such as flooding. Structures located at the base of the foothills are more vulnerable to flooding hazards as rain falls, gains momentum moving down the hillsides, and sits in low-lying areas. As discussed in [Windstorms](#), approximately 90 percent of the existing housing stock in Glendora was built prior to 1990; these units may be more susceptible to flooding as they were built before the establishment of modern-day building codes.

Beyond impacts to buildings, shelters, and occupants, inland flooding and extreme precipitation have the potential to impact transit and road infrastructure, causing service delays or shutdowns and road closures. One indicator of an area's potential for flooding is its ratio of permeable surfaces to impermeable surfaces. Maintaining as much permeable surface as possible by using permeable materials for new development can help ensure that stormwater will be absorbed into the ground and will filter through the soil to replenish groundwater (LACCSO, 2021).

C. Key Findings

The key findings for Glendora are summarized below to assist in increasing the City's adaptive capacity.

- Climate change has the potential to increase the severity of various natural hazards and impacts in the City of Glendora.
- Wildland fires represent the threat most likely to affect Glendora as a result of climate change. While most likely to ignite within the FHSZs and VHFHSZs, the effects of wildfire can adversely impact larger areas, cascading out towards the entirety of Glendora and the surrounding cities, with smoke, ash, and poor air quality.
- The most vulnerable populations are those living in or adjacent to VHFHSZs within the City and its Sphere of Influence (SOI). Other highly vulnerable populations include seniors (approximately 16



percent of the City population) and people with pre-existing health conditions such as asthma (approximately 18 percent of the City population).

- The most vulnerable natural areas are the sensitive hillside areas (and wildlife within these environments) located in the northern portion of the City, which are within the VHFHSZs. This largely undeveloped area contains the most open space and natural landscape in the City and consists of high amounts of often dry foliage that is highly susceptible to fires. As prolonged dry spells are predicted to lengthen, plants, animals, and habitats that receive less and less water are more likely to burn from wildfire, leave the area, or die out from lack of resources.
- The most vulnerable infrastructure are homes (and businesses) within and bordering the VHFHSZs, as well as power and energy infrastructure. Closely located infrastructure, i.e. neighborhood homes within and bordering VHFHSZs, can suffer brutal impacts, and possibly even total destruction. Extreme weather and heat conditions can increase the risk of fires, which can lead to the destruction of energy infrastructure such as power lines that are located in more remote (and more fire prone) areas or power infrastructure that is located above ground. Since energy grids are interconnected and provide energy throughout the region, large parts of the Southern California population are expected to be impacted by distant fires or power outages.
- Regional drought is also a major hazard to Glendora as the City is served predominately by groundwater, and further served by imported water sourced from areas also highly susceptible to drought (Southern California and the greater Southwest region). Drought may also result in increased tree and plant mortality, which contributes to higher fuel loading and wildfire size and severity. As expected with climate change, droughts are expected to increase both in frequency and intensity.
- Wildfire and drought aftermath can also lead to larger flooding incidents. As wildfires burn natural vegetation in the northern hillsides, and drought dries out vegetation and root systems, soil and sediments become loose, and the water holding capacity of the area dwindles as there are fewer plants to absorb and regulate the stormwater. When rainstorms fall on the hillsides, the water easily picks up the loose soil and burnt debris, gains momentum moving down the hillsides, and causes flooding impacts to intensify in low-land areas.

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Appendix A: Regulatory Setting

State

California Air Resources Board

The California Air Resources Board is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California Clean Air Act (CCAA), which was adopted in 1988. The CCAA requires that all air districts in the state endeavor to achieve and maintain the California Ambient Air Quality Standards by the earliest practical date. The act specifies that districts should focus particular attention on reducing the emissions from transportation and area-wide emission sources and provides districts with the authority to regulate indirect sources.

California Strategic Fire Plan

This statewide plan guides fire policy for much of California. The plan is aimed at reducing wildfire risk through pre-fire mitigation efforts tailored to local areas. The most recent update is the 2018 Strategic Fire Plan. The 2018 Plan reflects CAL FIRE's focus on: 1) fire prevention and suppression activities to protect lives, property, and ecosystem services; and 2) natural resource management to maintain the State's forests as a resilient carbon sink to meet California's climate change goals and to serve as important habitat for adaptation and mitigation. There are also Unit Fire Plans produced under the Strategic Fire Plan that are localized to a county or region; the City of Glendora falls under the Los Angeles County Fire Department Strategic Fire Plan.

State Water Resources Control Board/Regional Water Quality Control Board

In California, all wastewater treatment and disposal systems fall under the overall regulatory authority of the State Water Resources Control Board (SWRCB) and the nine California Regional Water Quality Control Boards (RWQCBs), who are charged with the responsibility of protecting beneficial uses of state waters from a variety of waste discharges, including wastewater from individual and municipal systems. The City of Glendora falls within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Regional Board 4).

The RWQCBs' regulatory role often involves the formation and implementation of basic water protection policies. These are reflected in the RWQCBs' Basin Plans, generally in the form of guidelines, criteria, and prohibitions related to the siting, design, construction, and maintenance of on-site sewage disposal systems.

State Water Board Storm Water Strategy

The Storm Water Strategy is founded on the results of the Storm Water Strategic Initiative, which serves to direct the State Water Board's role in storm water resources management and involves the Storm Water Program by: a) developing guiding principles to serve as the foundation of the Storm Water Program; b) identifying issues that support or inhibit the program from aligning with the guiding principles; and c) proposing and prioritizing projects that the Water Board could implement to address those issues. The State Water Board staff created a document called the Strategy to Optimize Resource Management of Stormwater (STORMS). STORMS includes a program vision, mission, goals, objectives, projects,



timelines, and consideration of the most effective integration of project outcomes into the Water Board's Storm Water Program.

Urban Water Management Planning Act

The Urban Water Management Planning Act's main objectives are the management of urban water demands and the efficient use of urban water. Under its provisions, every urban water supplier is required to prepare and adopt an urban water management plan. The plan must identify and quantify the existing and planned sources of water available to the supplier, quantify the projected water use for a period of 20 years, and describe the supplier's water demand management measures.

California Department of Public Health

The Department of Public Health contains the Division of Radiation Safety and Environmental Management (DRSEM), which is divided into three branches: the Radiologic Health Branch, the Environmental Health Branch, and the Drinking Water and Radiation Laboratory Branch. The Radiologic Health Branch enforces the laws and regulations designed to protect the public, radiation workers, and the environment. The Environmental Management Branch regulates the medical waste industry and recreational health (public swimming pools, ocean beaches, and organized camps); provides sanitary surveillance of state institutions; administers the Registered Environmental Health Specialist (REHS) program; oversees radiological cleanup at military base closure facilities; and coordinates the State's Indoor Radon Program, the Medical Waste Management Program, and California Department of Public Health's Nuclear Emergency Response Program. The Drinking Water and Radiation Laboratory Branch is the State's primary drinking water quality testing laboratory and is the state laboratory capable of measuring chemical, microbiological, and radiochemical contaminants in drinking water and drinking water supplies.

California Water Code

California's primary statute governing water quality and water pollution issues with respect to both surface waters and groundwater is the Porter-Cologne Water Quality Control Act of 1970 (Division 7 of the California Water Code). The Porter-Cologne Act grants the State Water Resources Control Board (SWRCB) and each of the Regional Water Quality Control Boards (RWQCBs) power to protect water quality and is the primary vehicle for implementation of California's responsibilities under the Federal Clean Water Act. The Porter-Cologne Act grants the SWRCB and the RWQCBs authority and responsibility to adopt plans and policies, to regulate discharges to surface and groundwater, to regulate waste disposal sites, and to require cleanup of discharges of hazardous materials and other pollutants. The Porter-Cologne Act also establishes reporting requirements for unintended discharges of any hazardous substance, sewage, or oil or petroleum product.

Each RWQCB must formulate and adopt a Water Quality Control Plan (Basin Plan) for its region. The regional plans conform to the policies set forth in the Porter-Cologne Act and established by the SWRCB in its State water policy. The Porter-Cologne Act also provides that a RWQCB may include within its regional plan water discharge prohibitions applicable to particular conditions, areas, or types of waste.



California Building Code

The California Building Standards Code (CBSC) (California Code of Regulations, Title 24) is a statewide standard that is updated every three years, with the most recent update being in 2022. The CBSC is a compilation of three types of building standards from three different origins:

- Building standards that were adopted by state agencies without change from national model building codes;
- Building standards that were adopted from national model codes but modified to address California specific conditions;
- Building standards, authorized by the California legislature, that constitute amendments not covered by national model codes, that were created to address particular California concerns.

The CBSC specifies materials requirements, construction methods, and maintenance standards for earthquake protection and resiliency. All building occupancies in California are subject to national model codes adopted into the CBSC, and occupancies are further subject to amendments adopted by state agencies. State law also authorizes local governments to enact ordinances making building standards amendments to the CBSC to address local conditions. The law includes specific requirements for the basis for a local amendment, how the amendment language and documents must be prepared, and how the amendment must be filed with either the CBSC, the California Department of Housing and Community Development, or other state agencies as required. The City of Glendora has adopted the 2022 CBSC into Municipal Code Chapter 19.02, *California Building Code*, of Title 19, *Buildings and Construction*.

California Fire Code

The California Fire Code, as a part of Title 24, California Code of Regulations, establishes the minimum requirements consistent with nationally recognized good practices to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to fire fighters and emergency responders during emergency operations. The provisions of this code apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building or structure or any appurtenances connected or attached to such building structures throughout the State of California. The City of Glendora has adopted the California Fire Code into Title 18, *Fire*, Chapter 18.04, *California Fire Code*, of the Municipal Code.

Wildfire Protection Responsibility in California

Local, state, tribal, and federal organizations all have legal and financial responsibility for wildfire protection. In many instances, two fire organizations have dual primary responsibility on the same parcel of land – one for wildfire protection and the other for structural fire protection. To address wildfire jurisdiction responsibilities, in 1981 the California State Legislature outlined various wildfire responsibilities, described below, in Cal. Pub. Res. Code § 4291.5 and Cal. Health & Safety Code § 13108.5.

Federal Responsibility Areas (FRAs)

FRAs are fire-prone wildland areas that are owned or managed by a federal agency such as the U.S. Forest Service, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, or U.S.



Department of Defense. Primary financial and rule-making jurisdiction authority rests with the federal land agency. In many instances, FRAs are interspersed with private land ownership or leases. Fire protection for developed private property is usually the responsibility of the relevant local government agency, not the federal land management agency.

State Responsibility Areas (SRAs)

SRAs are lands in California where the California Department of Forestry and Fire Protection (CAL FIRE) has legal and financial responsibility for wildfire protection. CAL FIRE administers fire hazard classifications and establishes development and building standard regulations in these areas. SRAs are defined as lands that:

- Are in the unincorporated county areas
- Are not federally owned
- Have wildland vegetation cover rather than agricultural or ornamental plants
- Have row crops or seasonal crops, or
- Have watershed, range, or forage values

CAL FIRE adopts SRA boundaries and updates them every five years. Where SRAs contain structures or development, the relevant local government agencies have fire protection responsibility for those improvements.

Local Responsibility Areas (LRAs)

LRAs include land in cities, cultivated agriculture lands, unincorporated non-flammable areas, and lands that do not meet the criteria for SRA or FRA. LRA fire protection is typically provided by city or county fire departments, fire protection districts, or by CAL FIRE under contract to local governments. LRAs may include areas of flammable vegetation and WUI.

Within city limits, the City of Glendora contains VHFHSZs that are under local responsibility (LRA). LACoFD is the responsible agency for fire protection within the LRAs. Within the Sphere of Influence, the City of Glendora contains VHFHSZs that are under State responsibility (SRA) and VHFHSZs under Federal responsibility (FRA). CAL FIRE is the responsible agency for fire protection within the SRAs.

Alquist-Priolo Earthquake Fault Zoning Act and Seismic Hazards Mapping Act (1972)

The 1971 San Fernando Earthquake resulted in the destruction of numerous structures built along its fault. This led to passage of the Alquist-Priolo Earthquake Fault Zoning Act in 1972. This Act prohibits the construction of buildings for human occupancy across active faults in the state. Similarly, extensive damage caused by ground failure during the 1989 Loma Prieta Earthquake focuses attention on decreasing the impacts of landslides and liquefaction. This led to the creation of the Seismic Hazards Mapping Act (1990), which enhances construction standards at locations where ground failures are probable during earthquakes.

Senate Bill 610 and Assembly Bill 901 (2001)

SB 610 and AB 901 both modify the Urban Water Management Planning Act. SB 610 requires additional information in an urban water management plan if groundwater is identified as a water source supplier.



It also requires that the plan include a description of all water supply projects and programs that may be undertaken to meet total projected water use. SB 610 also requires a city or county that determines a project is subject to CEQA to identify any public water system that may supply water to the project and to request identified public water systems to prepare a specified water supply assessment. The assessment must include, among other information, an identification of existing water supply entitlements, water rights, or water service contracts relevant to the identified water supply for the proposed project, and water received in prior years pursuant to these entitlements, rights, and contracts.

AB 901 requires an urban water management plan to include information, to the extent practicable, relating to the quality of existing sources of water available to an urban water supplier over a given period of time. AB 901 also requires information on how water quality affects water management strategies and supply reliability. The bill requires plans to supplement a water source that may not be available at a consistent level of use, to the extent practicable. Additional findings and declarations relating to water quality are required.

California Oak Woodland Conservation Act (2001)

The California Legislature passed Assembly Bill 242, known as the California Oak Woodland Conservation Act, in 2001 as a result of widespread changes in land use patterns across the landscape that were fragmenting oak woodland character over extensive areas. The Act created the California Oak Woodland Conservation Program within the Wildlife Conservation Board. The legislation provides funding and incentives to ensure the future viability of California's oak woodland resources by maintaining large scale land holdings or smaller multiple holdings that are not divided into fragmented, nonfunctioning biological units. The Act acknowledged that the conservation of oak woodlands enhances the natural scenic beauty for residents and visitors, increases real property values, promotes ecological balance, provides habitat for over 300 wildlife species, moderates temperature extremes, reduces soil erosion, sustains water quality, and aids with nutrient cycling, all of which affect and improve the health, safety, and general welfare of the residents of the state.

Assembly Bill 1007 (2005)

Assembly Bill 1007 (Pavley, Chapter 371, Statutes of 2005) directs the California Energy Commission (CEC) to prepare a plan to increase the use of alternative fuels in California. As a result, the CEC prepares the State Alternative Fuels Plan in consultation with State, federal, and local agencies. The plan presents strategies and actions California must take to increase the use of alternative non-petroleum fuels in a manner that minimizes costs to California and maximizes the economic benefits of in-state production. The plan assesses various alternative fuels and developed fuel portfolios to meet California's goals to reduce petroleum consumption, increase alternative fuels use, reduce GHG emissions, and increase in-state production of biofuels without causing a significant degradation of public health and environmental quality.

California Executive Order S-3-05 (2005)

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by 2020, and 3) 80% below 1990 levels by 2050. While two of the benchmark years have passed, the City of



Glendora, along with the rest of the State, can still aim to reduce GHG emissions 80% below the 1990 levels by the year 2050.

Assembly Bill 32 and Executive Order S-20-06 (2006)

In 2006, California adopted Assembly Bill (AB) 32, the Global Warming Solutions Act, as an effort to address the effects of climate change and help reach the goals presented in Executive Order S-3-05. AB 32 sets the same overall GHG emissions reduction goals while further mandating that CARB create a plan, which includes market mechanisms, and implement rules to achieve “real, quantifiable, cost-effective reductions of greenhouse gases.”

Executive Order S-20-06 further directs State agencies to begin implementing AB 32, including the recommendations made by the State’s Climate Action Team.

Bioenergy Action Plan – Executive Order S-06-06 (2006)

Executive Order S-06-06 establishes targets for the use and production of biofuels and biopower. The order also directs State agencies to work together to advance biomass programs while providing environmental protection and mitigation. The executive order establishes targets to increase production and use of ethanol and biodiesel fuels by a minimum of 20% by 2010, 40% by 2020, and 75% by 2050. Additionally, the executive order sets targets for the State related to the use of biomass electricity and cogeneration facilities.

Senate Bill 375 (2008)

California’s Sustainable Communities and Climate Protection Act of 2008 (SB 375) requires transportation agencies to develop a regional “Sustainable Communities Strategy” of land use, housing, and transportation policies that will move the region towards meeting the GHG reduction target set by the CARB. On September 3, 2020, the Southern California Association of Governments (SCAG), the metropolitan planning organization responsible for Glendora and surrounding regions, adopted Connect SoCal (2020-2045 Regional Transportation Plan/Sustainable Communities Strategy), which sets forth a long-range visioning plan that balances future mobility and housing needs with economic, environmental, and public health goals.

Assembly Bill 162 (2009)

This bill requires, upon the next revision of the housing element, on or after January 1, 2009, the Conservation Element of the General Plan to identify rivers, creeks, streams, flood corridors, riparian habitat, and land that may accommodate floodwater for purposes of groundwater recharge and stormwater management. By imposing new duties on local public officials, the bill creates a state-mandated local program.

This bill also requires, upon the next revision of the housing element, on or after January 1, 2009, the safety element to identify, among other things, information regarding flood hazards and to establish a set of comprehensive goals, policies, and objectives, based on specified information for the protection of the community from, among other things, the unreasonable risks of flooding.

Assembly Bill 341 California's Mandatory Commercial Recycling Law (2012)

The purpose of AB 341 is to reduce GHG emissions by diverting commercial solid waste to recycling efforts and to expand the opportunity for additional recycling services and recycling manufacturing facilities in California.

California Sustainable Groundwater Management Act (2014)

On September 16, 2014, Governor Brown signed into law a package of bills (SB 1168, AB 1739, and SB 1319) collectively called the Sustainable Groundwater Management Act. The Act requires local governments and water agencies with high and medium priority groundwater basins to halt overdraft and bring basins into sustainable levels of pumping and recharge. For each basin, local agencies are required to form new groundwater sustainability agencies and prepare groundwater sustainability plans with quantifiable objectives for achievement of sustainability within 20 years.

Senate Bill 379 (2015)

SB 379 revises Government Code Section 65302(g)(4) to require cities and counties to update their safety elements to address climate adaptation and resiliency strategies applicable to their jurisdiction. The updates are required at the next update of their local hazard mitigation plan (LHMP) on or after January 1, 2017. Local jurisdictions without an LHMP must update their safety elements beginning on or before January 1, 2022. The safety element update must include:

- A vulnerability assessment identifying the risks that climate change poses to the local jurisdiction
- A set of goals, policies, and objectives based on a vulnerability assessment for the protection of the community
- A set of feasible implementation strategies to carry out the goals, policies, and objectives

Statewide Emergency Water Conservation Regulations (2016)

In 2016, the State Water Resources Control Board (SWRCB) adjusted emergency water conservation regulations in recognition of the differing water supply conditions and ongoing drought across the state to comply with the Governor's executive order declaring a drought emergency.

Executive Order B-37-16, Making Water Conservation a California Way of Life, updates temporary emergency water restrictions and transitions to permanent, long-term improvements in water use by:

- Providing for wiser water use
- Eliminating water waste
- Strengthening local drought resilience
- Improving agricultural water use efficiency and drought planning

In April 2017, a new Executive Order lifted the drought emergency, but retained many of the conservation requirements. Most regulations are still in effect except for water supply "stress test" requirements and conservation standards for urban water suppliers. The temporary restrictions established a baseline of the types of benefits that are possible from water conservation requirements.

Senate Bill 1383 (2016)

In September 2016, Governor Brown signed SB 1383, Short-Lived Climate Pollutants: Organic Waste Methane Emissions Reductions, establishing methane emissions reduction targets in a statewide effort to reduce emissions of short-lived climate pollutants (SLCP) in various sectors of California's economy. The bill codifies the CARB's SLCP Reduction Strategy, established pursuant to SB 605 (2014), in order to achieve reductions in the statewide emissions of short-lived climate pollutants. Actions to reduce short-lived climate pollutants are essential to address the many impacts of climate change on human health, especially in California's most at-risk communities, and on the environment.

California State Hazard Mitigation Plan (2018)

The 2018 California State Hazard Mitigation Plan is the State's primary hazard mitigation guidance document. It seeks to help communities with their mitigation and disaster resiliency efforts to reduce or eliminate potential risks and impacts of natural and human-caused disasters. The 2018 plan was approved by the Federal Emergency Management Agency (FEMA) on September 28, 2018, and includes:

- An updated statewide risk assessment, disaster history, and statistics
- Recent mitigation progress, success stories, and best practices
- Updated State hazard mitigation goals, objectives, and strategies
- Updated climate mitigation progress and adaptation strategies

California Water Plan (2018)

The California Water Plan is the State's strategic plan for sustainably managing and developing water resources for current and future generations. Required by Water Code Section 10005(a), it presents the status and trends of California's water-dependent natural resources; water supplies; and agricultural, urban, and environmental water demands for a range of plausible future scenarios. The plan is updated every five years, with the most recent update occurring in 2018.

Local

City of Glendora General Plan 2025

A variety of goals, policies, and actions contained in the existing City of Glendora General Plan address climate change vulnerabilities. Specific goals, policies, and implementation actions found within the General Plan that are most related to climate change include:

Air Quality Element

- **Policy AQ-1.3:** Develop and adopt a policy to utilize federal Congestion Mitigation and Air Quality Improvement funds in coordination with regional agencies in a manner consistent with projects approved in the Air Quality Management Plan.
- **Policy AQ-2.2:** Reduce mobile source emissions by increasing population densities within one-half mile of transit nodes.
- **Policy AQ-2.3:** Encourage "walkable" neighborhoods with pedestrian walkways and bicycle paths in residential and other types of developments to encourage pedestrian rather than vehicular travel.

- **Goal AQ-4:** Protect the health of all residents, regardless of age, culture, ethnicity, gender, race, socioeconomic status, or geographic location, from the health effects of pollution with equitable environmental policymaking and enforcement.
 - **Policy AQ-4.3:** Encourage the participation of the business community, civic groups, special interest groups, and the general public in the formulation and implementation of programs that effectively reduce air pollution.

Conservation Element

- **Policy CON-4.3:** Incorporate project-level stormwater mitigation measures to reduce potential impacts to water quality and ensure mitigation measures are adequately monitored.
- **Policy CON-4.5:** Protect the planning area from unnecessary stormwater run-off from outside the planning area that would have the potential to require additional stormwater conveyance or treatment facilities maintained by the City.
- **Goal CON-8:** Proper conveyance and treatment of stormwater and implementation of techniques to reduce pollutants consistent with Federal, State and regional regulations and standards.
 - **Policy CON-8.1:** Ensure existing drainage facilities are properly maintained.
 - **Policy CON-8.2:** Ensure all new development and redevelopment projects comply with Federal, State, regional and City regulations and ordinances related to stormwater.
 - **Policy CON-8.3:** Incorporate project-level stormwater mitigation measures to reduce potential impacts to water quality and ensure mitigation measures are adequately monitored.
 - **Policy CON-8.4:** Establish programs to educate residents regarding impacts of stormwater runoff on water quality and provide a variety of opportunities for Glendora residents to dispose of hazardous materials.
 - **Policy CON-8.5:** Continue to support regional and State efforts in controlling point and non-point sources of water pollution.
- **Goal CON-9:** Preservation and conservation of natural resources and sensitive habitats
 - **Policy CON-9.6:** Develop a land management/ land maintenance plan, including best management practices, of City-owned conservation areas to increase fire safety, protect biodiversity and preserve native plant species.
- **Goal CON-11:** Proactive City participation with local, regional and State agencies to promote multi-agency involvement in understanding and addressing environmental and conservation issues.
 - **Policy CON-11.1:** Investigate new opportunities to work with local, regional and State agencies regarding environmental and conservation issues.

Open Space and Recreation Element

- **Goal OSR-2:** Coordinated land use and environmental planning.
 - **Policy OSR-2.2:** Require a constraints analysis for proposed hillside residential development to ensure that significant land and natural resource features are avoided, such as ridgelines, significant watershed areas, tributaries and streams, and rare, threatened or endangered species habitat.

Safety Element

- **Goal SAF-1:** Protection from potential flood hazards, including dam inundation.
 - **Policy SAF-1.1:** Coordinate with the Los Angeles County Flood Control District to ensure that flood control facilities under their jurisdiction are adequately operated and maintained.
 - **Policy SAF-1.2:** Utilize the City's capital improvement process to identify necessary storm drain improvements to minimize potential flood damage.
 - **Policy SAF-1.3:** Provide an annual review of the Standardized Emergency Management System Multi-Hazard Functional Plan to ensure evacuation routes are sufficient in the event of flooding.
 - **Policy SAF-1.4:** Continue the maintenance of City-owned flood control facilities within Glendora to ensure their efficient operation and work with Los Angeles County, as needed, to transfer the maintenance of existing and new facilities.
 - **Policy SAF-1.5:** Evaluate new development within the City to assess the development's exposure to potential flooding hazards and ensure that habitable structures and infrastructure are not located within the 100-year flood plain.
 - **Policy SAF-1.6:** Coordinate with Los Angeles County to ensure that storm drain and flood protection facilities built in conjunction with new development are maintained by the County.
- **Goal SAF-2:** Reduced incident of damage to life and property from wildland fires.
 - **Policy SAF-2.2:** Maintain low density/intensity land use designations in the hillside areas.
 - **Policy SAF-2.3:** Require fire resistant building materials for structures in the hillside areas.
 - **Policy SAF-2.4:** Require proposed developments to comply with access requirements of the Los Angeles County Fire Department and Glendora Police Department.
 - **Policy SAF-2.5:** Continue to implement brush-clearance requirements in areas subject to wildland fire hazards.
 - **Policy SAF-2.6:** Evaluate all new development to be located in or adjacent to wildland areas to assess its vulnerability to fire and its potential as a source of fire.
- **Goal SAF-3:** Reduced incident of damage to life and property from urban fires.
 - **Policy SAF-3.3:** Continue to implement and enforce the latest edition of the Uniform Fire Codes.
- **Goal SAF-9:** Minimized loss of life, injury or property during disaster events.
 - **Policy SAF-9.1:** Maintain and update the City's adopted Natural Hazard Mitigation Plan and Multi-Functional Disaster Plan.
 - **Policy SAF-9.2:** Implement the strategies and plans in the City's Multi-Hazard Functional Disaster Plan
 - **Policy SAF-9.3:** Implement the strategies and plans in the City's Natural Hazard Mitigation Plan.
 - **Policy SAF-9.4:** Require new developments to incorporate appropriate development features and project mitigation measures that avoid natural and man-made hazards.
 - **Policy SAF-9.5:** Prepare for and support multi-jurisdictional emergency response.
 - **Policy SAF-9.6:** Continue to work cooperatively with adjacent jurisdictions and regional agencies to address emergency preparedness.

- **Policy SAF-9.7:** Ensure compliance with the Los Angeles County Emergency Management Plan

City of Glendora Municipal Code

Chapter 6.09, *Construction and demolition waste management*, and Chapter 6.10, *Specific regulations for organic waste disposal reduction*, recycling, and solid waste collection and recycling programs, aim to regulate waste produced in the City and keep storm drains and waterways clean from pollutants.

Chapter 9.58, *Floodplain management*, promotes public health, safety, and general welfare, and minimizes public and private losses due to flood conditions in specific areas by provisions designed to:

- (1) Protect human life and health;
- (2) Minimize expenditure of public money for costly flood control projects;
- (3) Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- (4) Minimize prolonged business interruptions;
- (5) Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone and sewer lines; and streets and bridges located in areas of special flood hazard;
- (6) Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;
- (7) Ensure that potential buyers are notified that property is in an area of special flood hazard and;
- (8) Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions. (Ord. 1846 § 1, 2007)

Title 11, *Emergency preparedness*, works with the City disaster council and emergency services to establish and organize emergency operations, expenditures, and appointments. Chapter 11.28, *Standardized emergency management systems (SEMS)*, adopted the state of California's Standardized Emergency Management System (SEMS) to manage emergency response and recovery activities.

Title 14, *Water*, establishes the City Water Division, rates, charges, and regulations pertaining to water use. Section 14.24.170 states that no one shall use, suffer, permit or allow any water to run to waste either inside or outside of their premises. Section 14.24.180, *Curtailment of use during water shortage*, claims that whenever the City is suffering a shortage of water, the council shall have the right to determine that no water shall be used for the purpose of spraying trees, irrigating lawns, flowers, trees, garden truck and all other things, save and except such as may be necessary to be used within houses for cooking, bathing and toilet purposes and such as may be necessary to water such animals and fowl as the occupant of the premises may have thereon.

Title 18, *Fire*, adopts the State Fire Code under Chapter 18.04, *California Fire Code*. And, Chapter 19.06, *Fire hazard severity zone*, recognizes certain areas within the City are more susceptible to fire hazards,

establishes modifications to the State mandated uniform construction regulations, and adopts the Fire Hazard Severity Zone Map of the City of Glendora”.

Chapter 19.40, *Underground utility districts*, allows the City council to call public hearings to ascertain whether the public necessity, health, safety, or welfare requires the removal of poles, overhead wires and associated overhead structures within designated areas of the City and the underground installation of wires and facilities for supplying electric, communication, or similar or associated service.

City of Glendora 2020 Urban Water Management Plan

Urban Water Management Plans (UWMP) provide urban water suppliers with a reliable management action plan for long-term resource planning to ensure adequate water supplies are available to meet existing and future water supply needs. The City of Glendora 2020 UWMP incorporates water supply reliability determinations resulting from potential prolonged drought, regulatory revisions, and/or changing climatic conditions. The 2020 UWMP demonstrates the City’s prior, continued, and projected reduction on imported water supplies obtained (either directly or indirectly) from the Sacramento-San Joaquin Delta (Delta). The City has reduced its reliance on the Delta water supplies for Fiscal Year 2019-2020.

The City’s 2020 UWMP was prepared in coordination with planning agencies including the City of Glendora’s Planning Division, the Los Angeles County Department of Regional Planning, and the Southern California Association of Governments (SCAG).

2020 County of Los Angeles All-Hazards Mitigation Plan

The 2020 All-Hazards Mitigation Plan (AHMP) was prepared to assess risks posed by natural hazards and to develop a mitigation action plan for reducing the risks in Los Angeles County. The 2020 AHMP is organized to follow FEMA’s Local Mitigation Plan Review Tool, which demonstrates how local AHMPs meet the Disaster Mitigation Act regulations. The AHMP defines community profiles in the County, identifies hazards, assesses risks, provides mitigation strategies, and explains implementation methods.

Los Angeles County Operational Area Emergency Response Plan (2012)

The Los Angeles County Operational Area Emergency Response Plan (OAERP) provides guidance and procedures for the County and the County as the Operational Area (OA) to prepare for and respond to natural, technological, conflict-related, and human-caused incidents creating situations requiring a coordinated response. It provides guidance for management concepts, identifies organizational structures and relationships, and describes responsibilities and functions of the emergency organization to protect life and property. The plan describes the emergency organization and the process of preparing, responding to, and recovering from disasters.

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APPENDIX B: RESIDENTIAL EMERGENCY EVACUATION ROUTE ANALYSIS

City of Glendora



SB 99 Analysis White Paper Residential Emergency Evacuation Route Analysis

March 2025

Prepared by De Novo Planning Group

City of Glendora SB 99 Analysis White Paper

In coordination with its Safety Element Update (2025), the City of Glendora prepared an analysis consistent with Senate Bill 99 to identify residential developments in high hazard zones that do not have at least two emergency evacuation routes. The analysis identified multiple residential areas of concern in the high hazard zone that warrant further study, and which are located throughout the City as identified on the attached maps. For the purposes of this analysis an “emergency evacuation route” is considered to be a vehicular access point which can be utilized during an emergency and provides a direct connection to the surrounding roadway network. The identification of residential developments within hazard areas with limited accessibility (i.e. fewer than two points of access), will aid Glendora in identifying locations that could be vulnerable during an evacuation event and opportunities for improved connectivity and access. The following is an explanation of the methodology used to map the evacuation routes.

DEFINITIONS & DATA SOURCES

HAZARD AREAS

High Hazard Zones are defined as areas that are located in one or more of the following pre-defined hazard zones:

1. FEMA’s 100-year flood zone (NOT PRESENT)
2. California OES dam inundation area (PRESENT)
3. California Geological Survey’s Potential Liquefaction Zones, mapped as part of the California Seismic Hazard Zonation Program (PRESENT)
4. California Geological Survey’s Potential Landslide Zones, mapped as part of the California Seismic Hazard Zonation Program (PRESENT)
5. California Geological Survey’s Alquist-Priolo Fault Hazard Zones, mapped as part of the California Seismic Hazard Zonation Program (PRESENT)
6. CAL FIRE’s High and Very High Fire Hazard Severity Zones in State Responsibility Areas (NOT PRESENT)
7. CAL FIRE’s Very High Fire Hazard Severity Zones in Local Responsibility Areas (PRESENT)

These high hazard zones were combined into one single “Combined Hazard Area” using ArcGIS union geoprocessing tools.

RESIDENTIAL DEVELOPMENTS

Parcel data was obtained from the Los Angeles County GIS Open Data Portal. This parcel set includes Use Type Classifications. Residential developments are defined as parcels that have a Use Type of Residential. Please note that parcels with a Land Use Code of 010V (Residential – vacant land) are excluded from the dataset as these parcels consist of undeveloped land with no residential units on them.

ACCESS TO MAJOR ARTERIALS

The Road Segments dataset from the Countywide Address Management System (CAMS) is used to identify points of exit from clusters (neighborhoods) of residential parcels. Road centerlines are divided into three main classes:

1. **Freeway or Highway** – These roads are noted as Freeway or Highway in the CAMS dataset.

2. **Arterial Road** – These roads are noted as Primary in the CAMS dataset.
3. **Secondary or Minor Road** – These roads are noted as Secondary or Minor in the CAMS dataset; these roads are generally the first roads a resident will encounter when departing their residence.

ASSUMPTIONS & METHODOLOGY

IDENTIFICATION OF RESIDENTIAL DEVELOPMENTS IN HAZARD AREAS

Using ArcGIS, Residential Developments in Hazard Areas were identified by running a location query to find parcels with the Residential Use Type and that intersect the single Combined Hazard Area.

IDENTIFICATION OF RESIDENTIAL SUBDIVISION EXIT POINTS

The goal of this analysis was to find at least two separate points of exit from residential areas in hazard zones by following a rudimentary roadway network in which vehicles move from Secondary or Minor Roads to Arterial Roads, and eventually to a Freeway or Highway. The following assumptions apply:

1. Residential Developments have immediate access to Secondary or Minor Roads but are distant from Freeways or Highways.
2. Arterials connect Secondary or Minor Roads to Freeways or Highways.
3. Residential Exit Points are the points where Secondary or Minor Roads intersect Arterials, thereby providing eventual access to a Freeway or Highway.

ANALYSIS & RESULTS

ANALYSIS

Upon visual analysis, residential parcels within the Combined Hazard Area were assigned to one of four categories:

1. Multiple Exit Points with Access to a Single Arterial
2. Multiple Exit Points with Access to Multiple Arterials
3. One Exit Point directly onto a Single Arterial
4. One Exit Point with Access to a Single Arterial

RESULTS

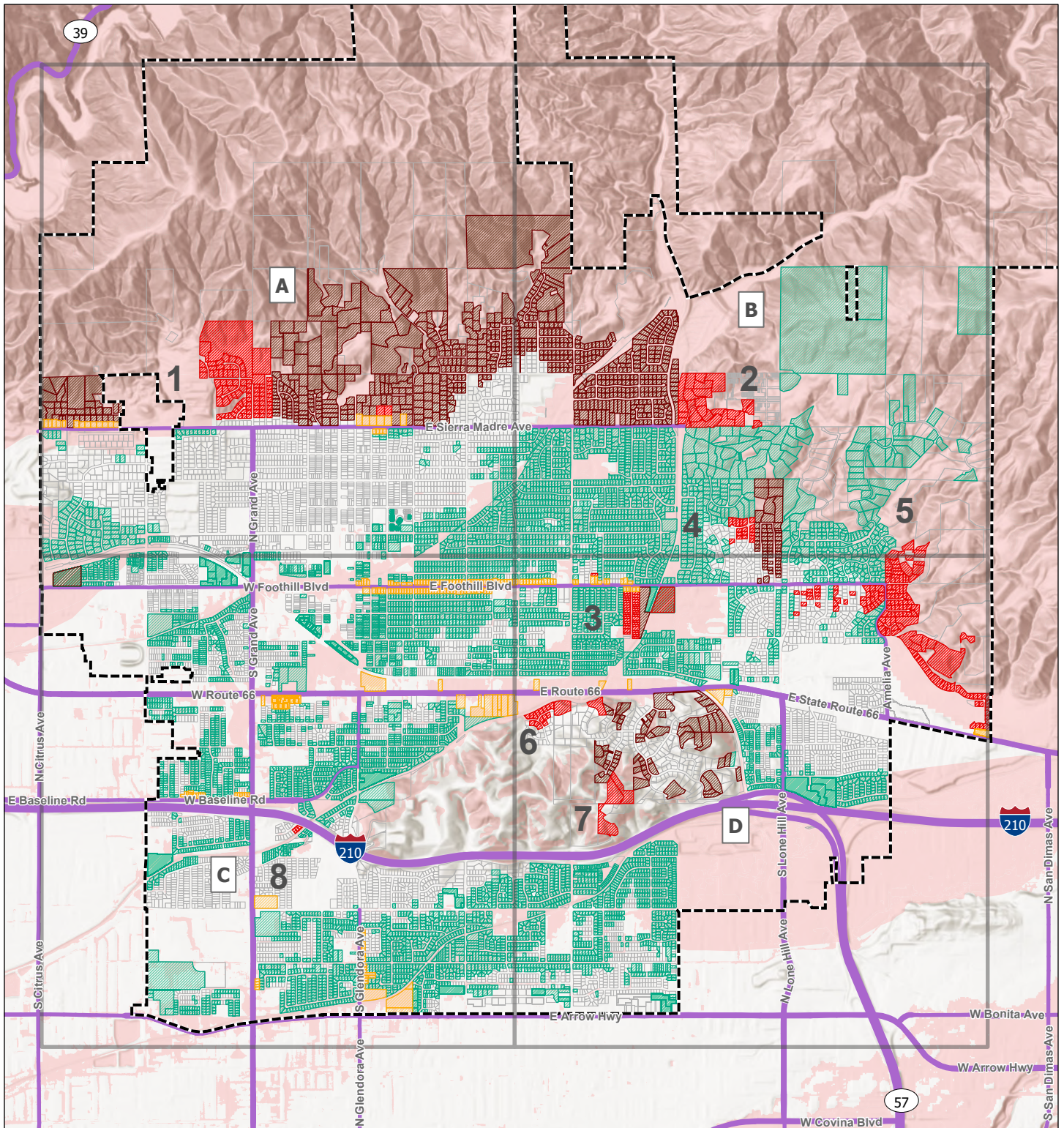
A total of 9,081 unique land parcels were identified as Residential AND within the Combined Hazard Area.

Evacuation Types	Number of Parcels
Multiple Exit Points with Access to Multiple Arterials (GREEN ON THE MAP)	7,575
Multiple Exit Points with Access to a Single Arterial (BROWN ON THE MAP)	839
One Exit Point directly onto a Single Arterial (YELLOW ON THE MAP)	321
One Exit Point with Access to a Single Arterial (RED ON THE MAP)	346
Total	9,081

CONCLUSION

The following neighborhoods should be reviewed for adequate exit strategies as they have only one exit point with access to a single arterial:

1. Neighborhood north of Sierra Madre Avenue with Grand Avenue as an exit point has 67 residential properties that singularly exit from the northernmost segment of Grand Avenue. Likewise, Westridge Avenue is also within this area and it too has only one exit point for 18 residential properties.
2. Neighborhood at the eastern end of Sierra Madre Avenue with Mountain Lane as the one exit point for 25 residential properties.
3. San Jose Drive south of Foothill Boulevard is the one exit point for 38 residential properties.
4. Neighborhood north of Foothill Boulevard with Whispering Oaks Drive as an exit point for 18 residential properties.
5. Neighborhood at eastern end of Foothill Boulevard at Amelia Avenue has a number of cul-de-sac streets with only exit point onto an Arterial Road.
6. Neighborhood south of Route 66 with Elwood Avenue as an exit point for 15 residential properties.
7. Three residential properties in the South Hills area along Sunflower Avenue.
8. Three residential properties south of the 210 Freeway, east of Grand Avenue, with Citrus Edge Street as the only exit point.
9. Miscellaneous other residential properties with only one exit point as shown in RED on the attached maps.

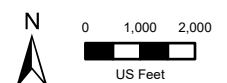


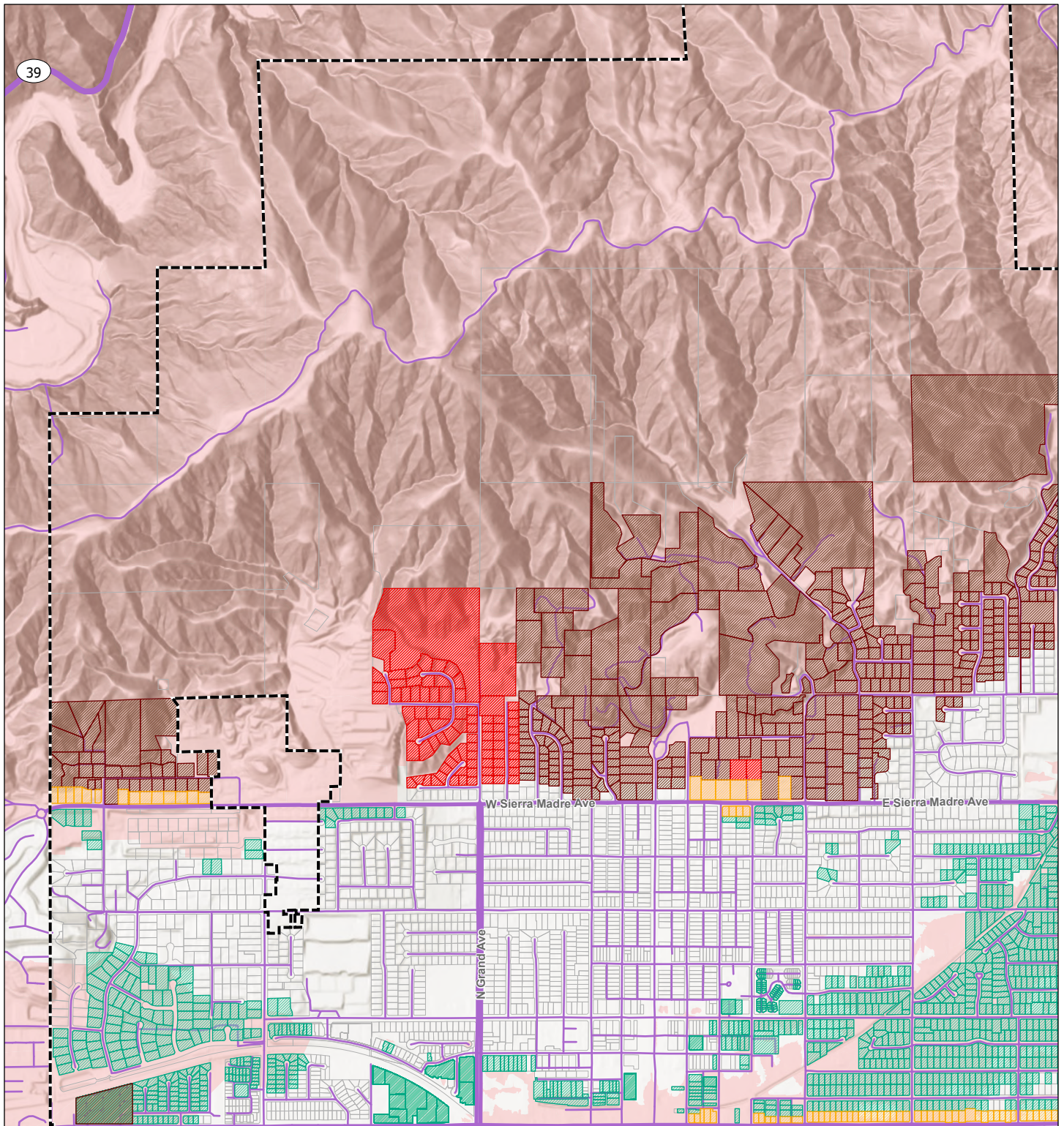
LEGEND

- | | |
|---|--|
| Combined Hazard Areas | Residential Parcels in Hazard Areas |
| City of Glendora | Multiple Exit Points with Access to Multiple Arterials |
| Freeway or Highway | Multiple Exit Points with Access to a Single Arterial |
| Arterial Road | One Exit Point directly onto a Single Arterial |
| | One Exit Point with Access to a Single Arterial |

CITY OF GLENDORA

Access to Arterials from Residential Areas in High Hazard Zones



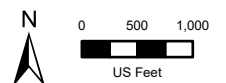


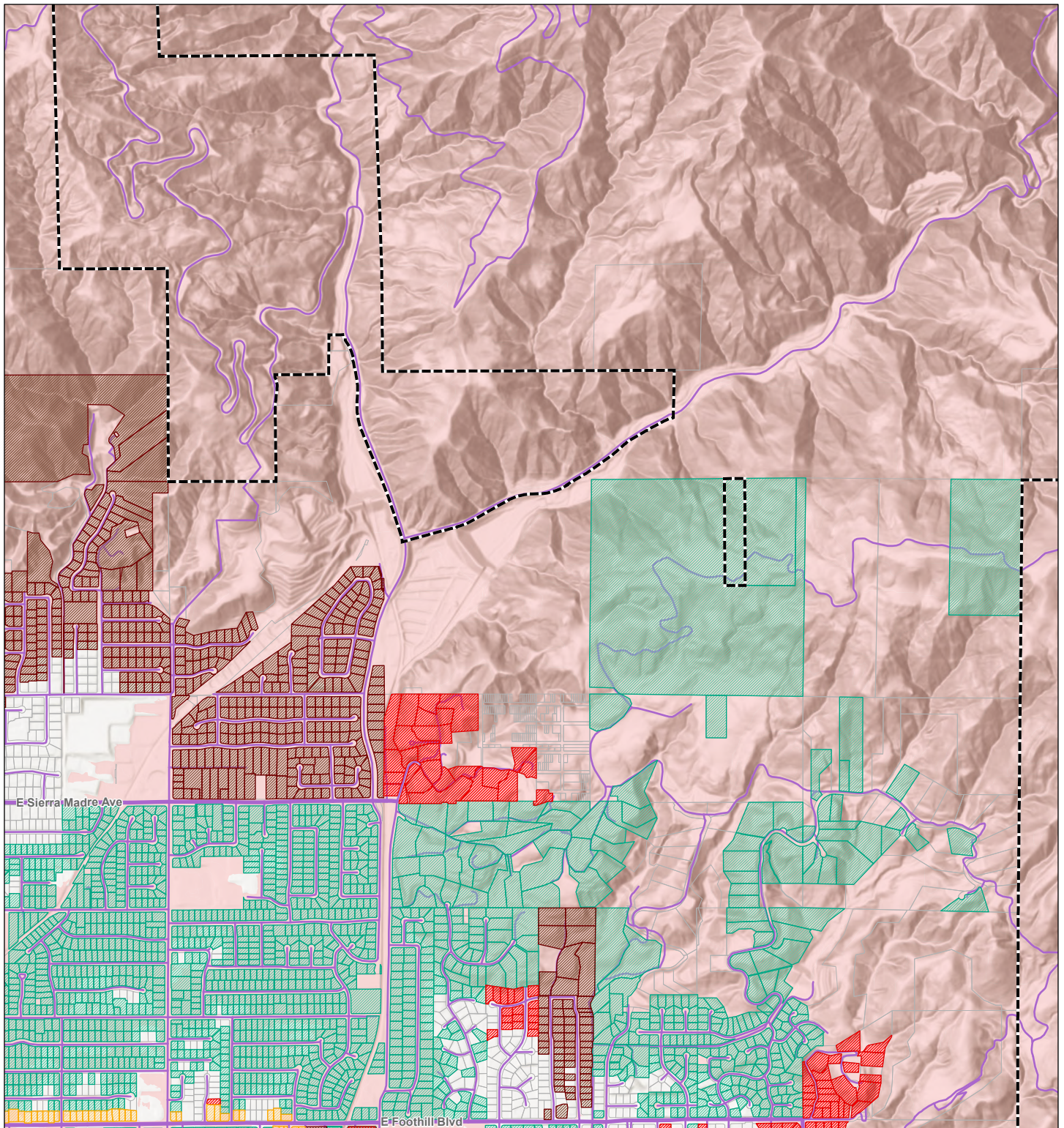
LEGEND

- | | |
|---|--|
|  Combined Hazard Areas | Residential Parcels in Hazard Areas |
|  City of Glendora |  Multiple Exit Points with Access to Multiple Arterials |
|  Freeway or Highway |  Multiple Exit Points with Access to a Single Arterial |
|  Arterial Road |  One Exit Point directly onto a Single Arterial |
|  Secondary or Minor Road |  One Exit Point with Access to a Single Arterial |

CITY OF GLENDORA

Access to Arterials from Residential Areas in High Hazard Zones - Inset A



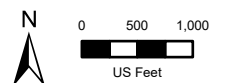


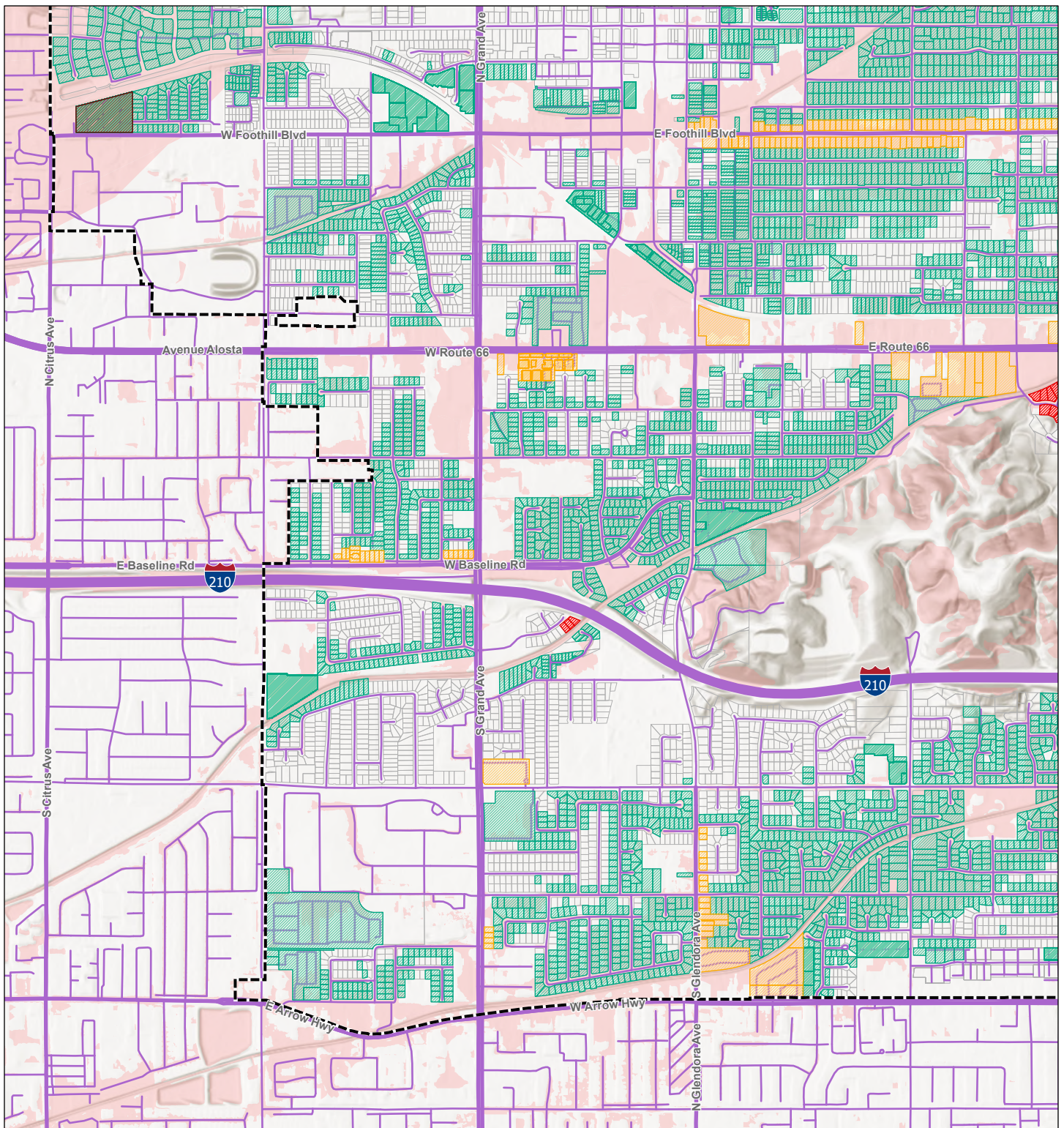
LEGEND

- | | |
|---|--|
|  Combined Hazard Areas | Residential Parcels in Hazard Areas |
|  City of Glendora |  Multiple Exit Points with Access to Multiple Arterials |
|  Freeway or Highway |  Multiple Exit Points with Access to a Single Arterial |
|  Arterial Road |  One Exit Point directly onto a Single Arterial |
|  Secondary or Minor Road |  One Exit Point with Access to a Single Arterial |

CITY OF GLENDORA

Access to Arterials from Residential Areas in High Hazard Zones - Inset B



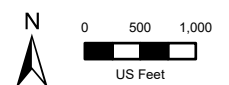


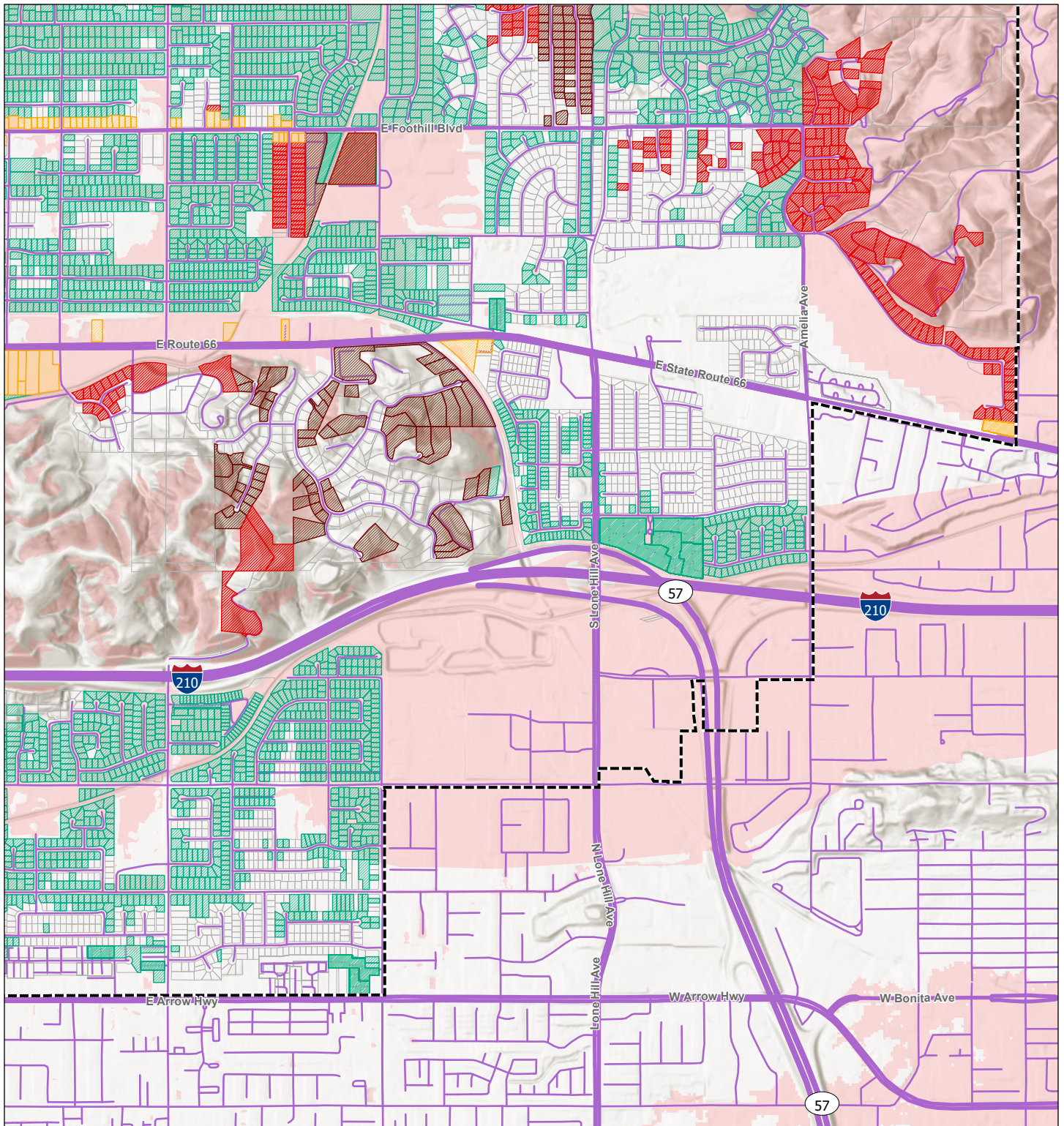
LEGEND

- | | |
|---|--|
|  Combined Hazard Areas | Residential Parcels in Hazard Areas |
|  City of Glendora |  Multiple Exit Points with Access to Multiple Arterials |
|  Freeway or Highway |  Multiple Exit Points with Access to a Single Arterial |
|  Arterial Road |  One Exit Point directly onto a Single Arterial |
|  Secondary or Minor Road |  One Exit Point with Access to a Single Arterial |

CITY OF GLENDORA

Access to Arterials from Residential Areas in High Hazard Zones - Inset C





LEGEND

- | | |
|---|--|
| Combined Hazard Areas | Residential Parcels in Hazard Areas |
| City of Glendora | Multiple Exit Points with Access to Multiple Arterials |
| Freeway or Highway | Multiple Exit Points with Access to a Single Arterial |
| Arterial Road | One Exit Point directly onto a Single Arterial |
| Secondary or Minor Road | One Exit Point with Access to a Single Arterial |

CITY OF GLENDORA

Access to Arterials from Residential Areas in High Hazard Zones - Inset D

