City of Glendora

Climate Vulnerability Assessment

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Prepared by De Novo Planning Group

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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:

Exposure + Sensitivity - Adaptive Capacity = 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

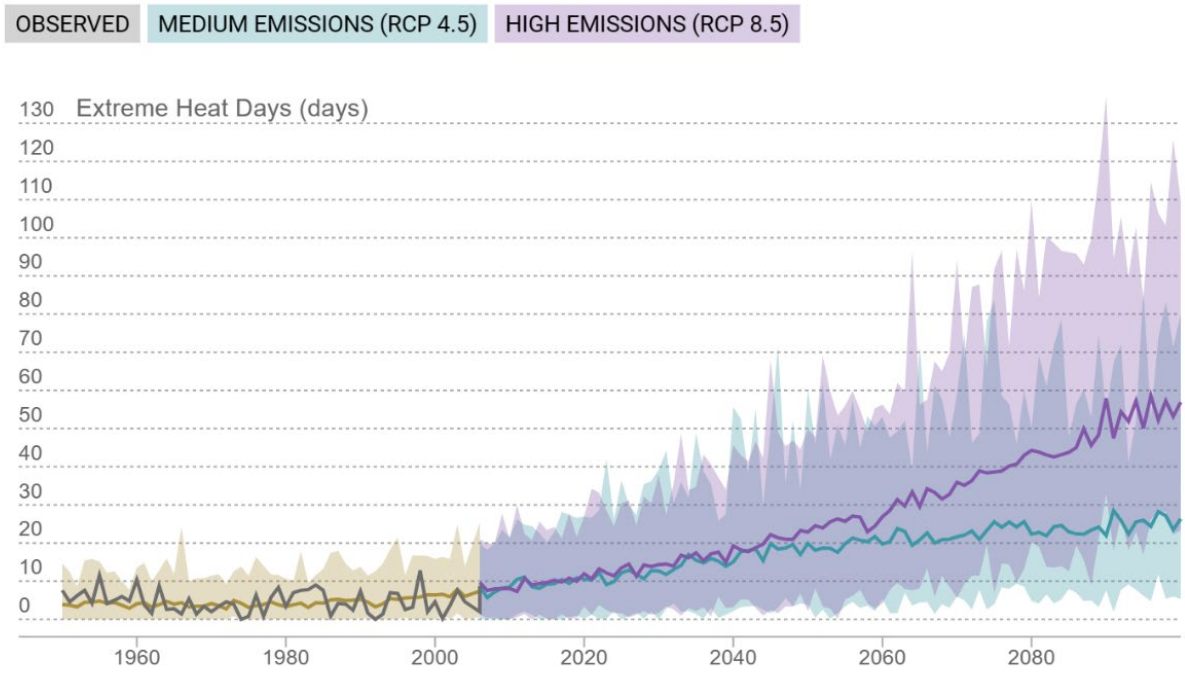
Temperatures in Glendora are generally representative of those found throughout Southern California. In terms of extreme weather, extreme heat is looked at over other extreme weather and storm patterns due to the impact heat has within the City comparatively. Glendora is not in a location subject to 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	Medium Emissions (RCP 4.5)	124 days	105-146 days	+6 days

(2070-2099)	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).

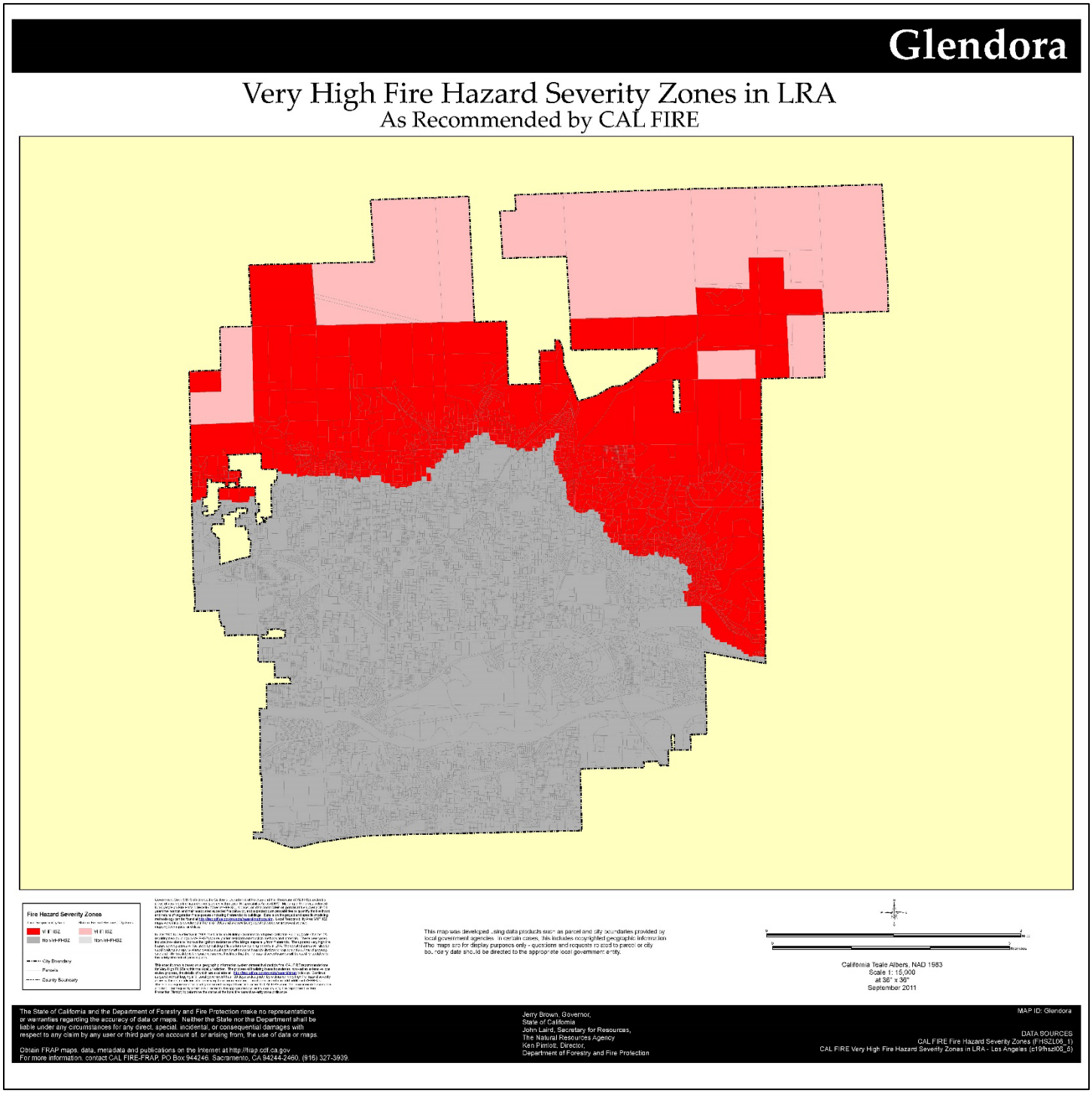
Glendora's location at the base of the San Gabriel Mountains creates a wildland-urban interface (WUI) that makes Glendora more susceptible to wildfires than cities that do not border the foothills. The City

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, 2023). *Figure 2* illustrates that the City is considered to be within a VHFHSZ; the VHFHSZ covers the northern portion of the City. 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, 2023).

Figure 2: Very High Fire Hazard Severity Zones in Glendora



Source: CAL FIRE, 2023.

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. Tornadoes 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 35 knots through and below passes and canyons with gusts to 50 knots. Stronger Santa Ana winds have gusts greater than 60 knots over widespread areas, and gusts greater than 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 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 UMWP 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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