CITY OF
SANTA FE SPRINGS

# 2025
# Local Hazard Mitigation Plan Update

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# INTRODUCTION

This document serves as the City of Santa Fe Springs' Local Hazard Mitigation Plan (LHMP) update for 2025. Hazard mitigation plans are designed to guide communities in reducing the adverse impacts of natural and human-caused hazards by identifying vulnerabilities and implementing strategies to enhance resilience. The preparation and adoption of an LHMP also provides eligibility for Federal Emergency Management Agency (FEMA) grant programs, allowing the City to secure funding for mitigation projects outlined in the plan.

FEMA requires that LHMPs be updated every five (5) years to maintain eligibility for hazard mitigation funding and ensure that the plan reflects current risks, vulnerabilities, and best practices. Santa Fe Springs' previous LHMP update was completed in 2018. This 2025 update includes significant revisions, aligning with FEMA's latest guidance, which emphasizes adaptation to future climate conditions and consideration of equity for vulnerable populations.

## Structure of the 2025 LHMP Update

The 2025 Santa Fe Springs LHMP Update consists of the following sections:

- An overview of hazard mitigation planning, its purpose, and benefits to the community.
- A profile of Santa Fe Springs, detailing its history, climate, demographics, infrastructure, and vulnerable communities.
- An in-depth examination of identified hazards, which were selected in collaboration with City officials and stakeholders. These include:
    - Extreme heat
    - Drought
    - Earthquake
    - High wind/storms
    - Fire
    - Power outage
    - Cyberattack/IT disruption
    - Flooding
    - Dam failure
    - Terrorism
    - Infectious disease/pandemic
- An assessment of Santa Fe Springs' capabilities to mitigate these hazards, including an evaluation of local policies, emergency response resources, land use regulations, and interagency coordination efforts.
- A prioritized list of potential mitigation actions, along with strategies to enhance implementation, funding opportunities, and community engagement.

- A description of the LHMP planning process, including stakeholder involvement, public outreach efforts, and integration with existing city and regional plans.
- A plan for maintaining and updating the LHMP, ensuring that it remains a living document that continues to support Santa Fe Springs' resilience goals.

## Plan Submission and Approval

The 2025 Santa Fe Springs LHMP Update was submitted to the California Governor's Office of Emergency Services (Cal OES) and the Federal Emergency Management Agency (FEMA) for approval on June 10, 2025. The Santa Fe Springs City Council reviewed and adopted the LHMP on [INSERT DATE], ensuring that the plan remains in effect and that the City retains eligibility for federal hazard mitigation funding programs.

This update represents Santa Fe Springs' commitment to proactive hazard mitigation planning, ensuring the safety, sustainability, and long-term resilience of the community.

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# SECTION 1 – HAZARD MITIGATION PLANNING

The goal of hazard mitigation is to reduce the frequency and severity of disasters, minimize their impact on communities, and promote resilience and sustainability in the face of future emergencies. This can include measures such as building codes and standards, zoning regulations, evacuation plans, early warning systems, and disaster-resistant infrastructure. By taking a proactive approach to disaster risk reduction, we can help to save lives, reduce the economic impact of disasters, and ensure that communities are better prepared to respond to and recover from emergencies.

Hazard mitigation planning improves a community's ability to effectively respond to natural disasters by establishing plans for maintaining continuity of operations for both government and community entities. The process involves identifying attainable goals to reduce the risk of injury, loss of life, and property damage from hazardous events, and developing strategies and activities to mitigate their effects.

Hazard mitigation planning is intended to be a participatory process that involves government agencies, stakeholders, and the public. The planning process includes scheduled events that encourage participation and ensure that a comprehensive approach is taken to address current and future hazards. By incorporating a systematic and inclusive approach, the local hazard mitigation plan (LHMP) helps to reduce the community's vulnerability to disasters and promote resilience.

## Purpose and Authority

The City of Santa Fe Springs's 2025 Local Hazard Mitigation Plan (LHMP) outlines the potential natural and human-caused hazards that pose a threat to the citizens, resources, and property in the City. The plan also outlines the city's objectives and commitment to reducing the risks associated with these hazards.

The focus of this LHMP is on the hazards that pose the greatest risk to the city, as determined through a comprehensive hazard risk assessment and input from local officials. The updated risk assessment will help the city prioritize and update mitigation actions based on the hazards that pose the greatest risk to lives and property.

## FEMA and California Requirements and Compliance

The City of Santa Fe Springs' risk assessment and hazard mitigation planning efforts adhere to both federal and state regulatory requirements, ensuring compliance with the Disaster Mitigation Act of 2000 (DMA 2000) (Public Law 106-390) and California Government Code §65302(g), which mandates the integration of climate adaptation and hazard mitigation into local planning efforts.

## Federal Compliance: FEMA Requirements

The City of Santa Fe Springs' risk assessment and hazard mitigation planning efforts are guided by federal regulations established under the Disaster Mitigation Act of 2000 (DMA 2000) (Public Law 106-390), which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.). These regulations, codified in Title 44 of the Code of Federal Regulations (CFR) Part 201, require local jurisdictions to develop and maintain a FEMA-approved Local Hazard Mitigation Plan (LHMP) to remain eligible for federal hazard mitigation funding, including grants under the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) Program, among others.

To achieve compliance with 44 CFR §201.6, this plan includes:

- Risk Assessment (§201.6(c)(2)) – A comprehensive analysis of hazard exposure, vulnerability, and potential impacts on people, property, and critical infrastructure.
- Mitigation Strategy (§201.6(c)(3)) – A framework of goals, objectives, and prioritized actions designed to reduce long-term risks from identified hazards.
- Plan Maintenance Process (§201.6(c)(4)) – A strategy for periodic review, evaluation, and updates to ensure the plan remains current and effective.
- Public Involvement (§201.6(b)(1)) – Documentation of community engagement efforts, including outreach to stakeholders, residents, and neighboring jurisdictions.
- Integration with Other Plans (§201.6(c)(4)(ii)) – A demonstration of how hazard mitigation efforts align with the General Plan Safety Element, Emergency Operations Plan (EOP), Capital Improvement Plan (CIP), and other local and regional planning mechanisms.

FEMA requires that LHMPs be updated and resubmitted every five years to reflect changes in development patterns, emerging hazard risks, and progress on mitigation actions. This ensures that the City remains eligible for FEMA disaster funding and continues to align with national hazard mitigation priorities, including those outlined in FEMA's National Mitigation Investment Strategy (NMIS) and the National Risk Index (NRI).

## State of California Compliance: SB 379, SB 1035, and General Plan Integration

In addition to federal requirements, California has established additional hazard mitigation and resilience mandates through legislation that integrates climate adaptation into local planning:

- Senate Bill 379 (SB 379) – Climate Adaptation and Resilience (2015): Requires local jurisdictions to include climate adaptation and vulnerability assessments in the Safety Element of their General Plan, ensuring alignment with the Local Hazard Mitigation Plan (LHMP).
- Senate Bill 1035 (SB 1035) – Safety Element Updates (2018): Mandates that the Safety Element be reviewed and updated alongside the LHMP every eight years to account for flooding, wildfires, sea-level rise, and other climate change-related hazards.

- California Government Code §65302(g): Requires that cities and counties integrate climate resilience and hazard mitigation into their General Plans, ensuring that disaster risk reduction strategies align with broader land use, housing, infrastructure, and sustainability goals.

## Hazard Mitigation Grant Funding

The U.S. Congress passed the Disaster Mitigation Act of 2000 (DMA 2000), which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act and emphasized the need for state and local governments to closely coordinate their mitigation planning activities. The development of a hazard mitigation plan is a specific eligibility requirement for any local government applying for federal mitigation grant funds. These funds include Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA), administered by FEMA.

- Hazard Mitigation Grant Program (HMGP): To qualify for post-disaster mitigation funds, local jurisdictions must have an approved mitigation plan from FEMA. HMGP provides funds to states, territories, Indian tribal governments, local governments, and eligible private non-profit organizations (such as hospitals and special needs populations) following a presidential disaster declaration.
- Flood Mitigation Assistance (FMA): A community must have an approved mitigation plan from FEMA to be eligible for FMA grants to implement flood mitigation, acquisition, or elevation of flood-prone homes. The community must also participate in the National Flood Insurance Program (NFIP) since one of the goals of FMA is to reduce or eliminate NFIP claims.

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# SECTION 2 – COMMUNITY PROFILE

This is an overview of the City of Santa Fe Springs with information about the community's physical setting, history, economy and demographics, current and future land uses, and key infrastructure. The Community Profile establishes the baseline conditions that informs the development of hazard mitigation actions.

## 2.1 Setting and Location

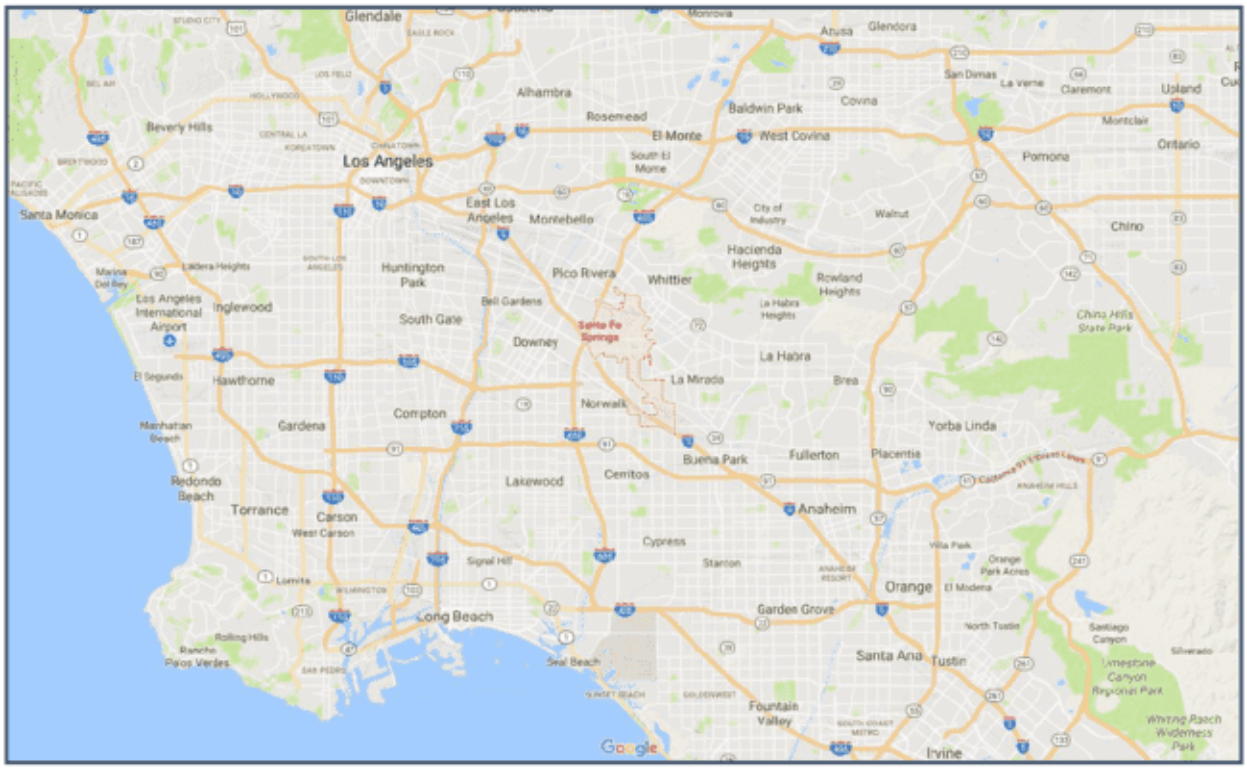


*Figure 1 – Map of Los Angeles area centering the City of Santa Fe Springs.*

The City of Santa Fe Springs has a total land area of approximately 8.9 square miles (U.S. Census Bureau, 2023 TIGER/Line files). It is located around 13 miles southeast of downtown Los Angeles and is bounded by several key jurisdictions: the City of Downey to the west, the City of Norwalk to the south and southwest, and the City of Whittier to the northeast. Additionally, it shares borders with unincorporated areas of Los Angeles County, including West Whittier-Los Nietos and South Whittier. The Interstate 5 (Santa Ana Freeway) serves as a critical transportation corridor running along the city's western edge, facilitating regional connectivity. Other major

highways, such as the Interstate 605 (San Gabriel River Freeway) and State Route 19 (Rosemead Boulevard), further enhance accessibility to neighboring cities and the broader metropolitan area.

Santa Fe Springs features a largely flat topography, making it highly suitable for the extensive industrial and commercial developments that characterize the city. Unlike neighboring municipalities that feature more pronounced elevation changes, the terrain in Santa Fe Springs is predominantly level, contributing to its historical and ongoing role as a center for manufacturing, logistics, and warehousing. The city's industrial backbone is complemented by various business parks and distribution centers that benefit from the excellent transportation infrastructure.

One significant geographical feature within the city is the San Gabriel River, which runs along or just outside the city's eastern boundary, forming part of the regional flood control system. The San Gabriel River Trail, a key recreational amenity, runs parallel to the river and is popular for walking, biking, and outdoor activities. Furthermore, the city is home to several green spaces and parks, including the renowned Heritage Park, which preserves key elements of local history while offering a vital space for community engagement and recreation.

## 2.2 History

The land that would become the City of Santa Fe Springs was originally inhabited by the Tongva people, also known as the Gabrielino-Tongva, whose territory spanned much of what is now Los Angeles County and the Southern California coast. Historical and linguistic evidence suggests that the area in or near Santa Fe Springs was home to the Tongva villages of Chokiishgna and Nacaugna. These settlements were part of a vast network of semi-permanent and seasonal Tongva communities that relied on the natural resources of the flatlands and riparian zones, particularly near reliable water sources like the San Gabriel River. The river was vital to the Indigenous communities for food, trade, and spiritual practices.

In 1769, the Spanish Portolá Expedition passed through the area as part of Spain's early colonization of Alta California. This led to the founding of Mission San Gabriel Arcángel in 1771, originally located along the Río Hondo near present-day Montebello. Although flooding caused the mission to be relocated to its current location in San Gabriel, the original site remains a historically significant landmark near the Santa Fe Springs area.

During the Spanish and Mexican periods, the land that now includes Santa Fe Springs became part of Rancho Santa Gertrudes, a Mexican land grant issued in 1834. The rancho covered much of present-day southeastern Los Angeles County. After the Mexican-American War and the signing of the Treaty of Guadalupe Hidalgo, Rancho Santa Gertrudes was subdivided and passed into private hands.

In 1871, the arrival of the Atchison, Topeka and Santa Fe Railway in the area brought increased connectivity and growth. In 1907, the settlement was officially named "Santa Fe Springs" in honor of both the railroad and the natural artesian springs that were once prominent in the area. The springs attracted early settlers and were

considered to have therapeutic properties, though they have since dried up due to development and groundwater depletion.

A defining moment in the city's history came with the discovery of oil in the early 20th century. In 1919, oil was discovered in the Santa Fe Springs Oil Field, leading to one of the most significant oil booms in Southern California. By 1921, the oil field was producing over 10% of California's total oil output. Major companies, including Union Oil (Unocal) and Standard Oil of California, established production facilities in the area. The boom transformed Santa Fe Springs into a major hub of petroleum activity and triggered significant industrial and residential growth.

Santa Fe Springs was officially incorporated as a city on May 15, 1957. By this time, the city had begun to diversify beyond its oil-based economy, emerging as a center for manufacturing, logistics, and light industry. Key transportation improvements, such as the expansion of Telegraph Road and Slauson Avenue, supported this transformation by improving access for freight and workforce mobility. The development of major freeways-including the I-5 and I-605-further cemented Santa Fe Springs' role as a regional industrial and distribution hub.

Today, Santa Fe Springs is a dynamic city with a strong industrial base and a growing retail and service sector. While most oil wells are no longer active within city limits, the city's industrial legacy remains visible in the form of expansive business parks, industrial campuses, and infrastructure adapted to modern logistics. The city's flat terrain continues to support its role as a center of goods movement and production.

In recent years, Santa Fe Springs has placed increasing focus on revitalization and redevelopment, particularly in key corridors such as Telegraph Road and Norwalk Boulevard. Infrastructure improvements, public amenity investments, and green space development have helped reposition the city for the next generation of growth. Heritage Park, a cultural anchor in the community, offers residents and visitors a tangible connection to the region's Indigenous, colonial, and industrial past.

## 2.3 Climate

The City of Santa Fe Springs is located approximately 13 miles inland from the Pacific Ocean and experiences a Mediterranean climate, characterized by mild, wet winters and hot, dry summers. According to the Köppen-Geiger climate classification, the city's climate falls under the Csa category, signifying hot-summer Mediterranean conditions typical of Southern California's interior coastal plain.

Average high temperatures in Santa Fe Springs range from approximately 68°F (20°C) in January to around 89°F (32°C) in August. During summer heatwaves-often influenced by regional high-pressure systems-temperatures can occasionally exceed 100°F (38°C), especially in late summer and early fall. Winters are generally mild, with average low temperatures ranging from about 46°F (8°C) in January to approximately 65°F (18°C) in July.

Santa Fe Springs receives an average of 13.5 to 14 inches (343–356 mm) of precipitation annually, most of which falls between November and March. The wettest months are typically December through February, each averaging 2.5 to 3 inches (64 to 76 mm) of rainfall. In contrast, summers are exceptionally dry, with little to no precipitation from June through September. The city experiences approximately 278 sunny days per year, well above the national average, supporting the warm and sunny conditions typical of the Los Angeles Basin.

Santa Fe Springs' inland location reduces its exposure to direct marine influences, particularly compared to coastal communities such as Long Beach or Santa Monica. However, the city still benefits from occasional late-afternoon and evening sea breezes, which provide modest cooling during summer months. While early morning marine layer clouds are less common than in coastal areas, they can occur intermittently in spring and early summer, briefly moderating morning temperatures before dissipating.

Severe weather events, such as snowfall or intense thunderstorms, are extremely rare in Santa Fe Springs. The region's stable subtropical climate supports year-round outdoor activities and has long contributed to the city's suitability as an industrial and commercial hub. However, Santa Fe Springs is not immune to regional climate stressors. Like other parts of Southern California, the city is increasingly affected by drought conditions, extreme heat events, and air quality degradation, all of which are projected to intensify in the coming decades.

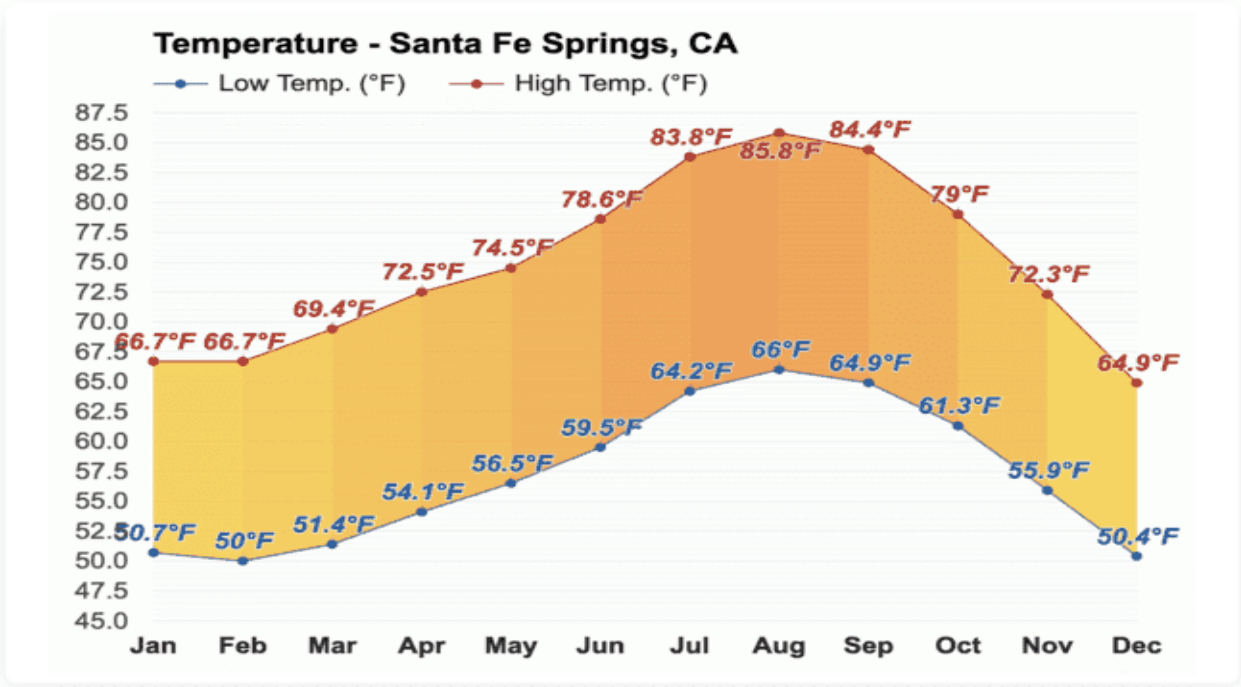


*Figure 2 – Average Temperatures for Santa Fe Springs*

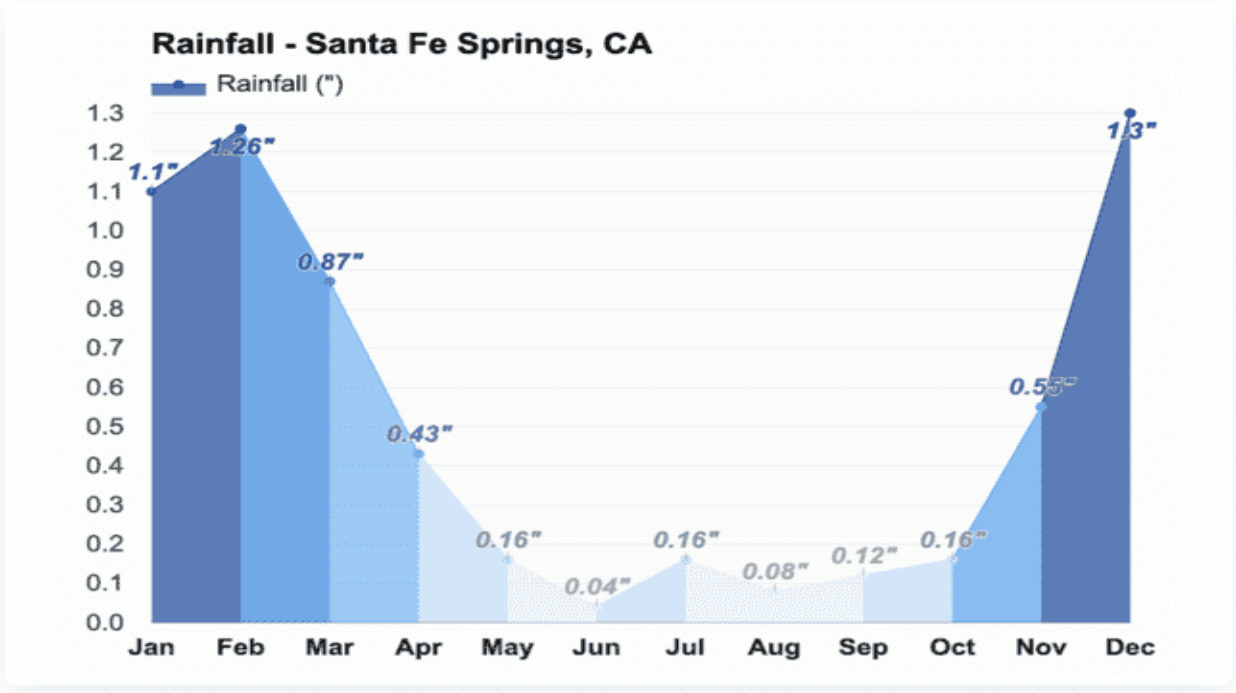


*Figure 3 – Average Precipitation for Santa Fe Springs*
*Source:: https://www.weather-us.com/en/california-usa/Santa Fe Springs-climate (retrieved February 2025)*

## 2.4 Climate Change

Like much of Southern California, Santa Fe Springs is projected to experience significant temperature increases. According to the Fifth National Climate Assessment, average annual temperatures across California are expected to rise by 5-8°F (2.8-4.4°C) by mid-century, compared to historical averages. In Santa Fe Springs, where current summer temperatures peak around 90°F (32°C), these increases will likely result in more frequent and intense heat events, with an elevated number of days exceeding 100°F (38°C). These extreme heat conditions present serious health risks, especially for vulnerable populations such as the elderly, children, and individuals with preexisting health conditions. The combination of rising temperatures and the urban heat island effect, exacerbated by the city's industrial landscape, will intensify heat within the urban core, leading to higher energy demands for cooling. A prolonged power outage during such events could severely impact public health and safety, particularly during peak summer months.

In addition to rising temperatures, the Intergovernmental Panel on Climate Change (IPCC) suggests that climate change will likely cause shifts in precipitation patterns. Currently, Santa Fe Springs receives around 14 inches (355 mm) of rain annually, with the majority falling between November and March. However, future projections indicate greater variability in rainfall, with an increased risk of both extended droughts and sporadic, intense rainfall events. Prolonged droughts could strain local water resources, affecting not only the city's water supply

but also industries reliant on water, such as manufacturing and landscaping. On the other hand, when heavy rain occurs, it may overwhelm the region's drainage systems, heightening the risk of localized flooding, particularly near the San Gabriel River and other low-lying areas. Flooding has the potential to damage residential properties, disrupt transportation networks, and necessitate costly repairs to infrastructure.

Higher temperatures are also linked to an increase in ground-level ozone formation, contributing to worsening air quality. As the industrial areas of Santa Fe Springs already experience air quality challenges, the compounded effects of higher temperatures and greater smog could exacerbate respiratory conditions such as asthma and bronchitis among residents. While Santa Fe Springs is not in a high wildfire risk zone, the frequency and intensity of wildfires across California are projected to increase due to climate change, potentially exposing the city to poor air quality from smoke and particulate matter, even if the fires occur at a distance.

Another critical concern is the anticipated reduction in snowpack in the Sierra Nevada mountains, which will reduce the water supply for much of California, including Santa Fe Springs. The city, like many in the state, ultimately relies on snowmelt for its water needs. This could further strain the city's economy, particularly industries that depend heavily on consistent water access, and may require increased investment in water conservation measures.

Changes in climate patterns will also impact local ecosystems. While urban areas such as Santa Fe Springs have fewer natural habitats, the parks and green spaces that do exist may experience shifts in vegetation. Native species could struggle to adapt to the new climate conditions, while invasive species may become more prevalent, reducing biodiversity and potentially altering the character of these green spaces.

As extreme weather events become more common, the financial burden on both the city and its residents is expected to rise. The increased demand for energy during heatwaves will likely drive up utility costs for households and businesses, particularly those with high cooling needs. Additionally, the costs of implementing necessary climate adaptation and mitigation strategies-such as upgrading infrastructure to handle extreme weather, reinforcing flood control measures, or enhancing water conservation efforts-will place strain on the municipal budget.

## 2.5 Demographics

Santa Fe Springs experienced steady population growth throughout much of the 20th century, particularly during the post-World War II industrial boom. Population growth slowed in the decades following the 1980s, largely due to limited housing development and changing demographic trends. From 2000 to 2023, the city's average annual growth rate remained minimal at approximately 0.4% per year. While the impacts of the COVID-19 pandemic were felt regionally, Santa Fe Springs' population remained relatively stable, increasing slightly by approximately 215 residents, a 1.2% rise between 2020 and 2023.

As of 2023, the population of Santa Fe Springs is estimated to be approximately 17,564, a modest increase from the 17,349 residents recorded in the 2020 Census. This stability reflects broader regional trends in Southern California, with limited new housing supply, aging infrastructure, and affordability pressures influencing household migration patterns.

**Population Estimate (2023)**

- Total population: 17,564 (U.S. Census Bureau, 2023 Estimate)

**Sex**

- Male: 49.1%
- Female: 50.9%

**Age**

- Under 18 years: 22.3%
- 65 years and over: 17.0%

**Race and Hispanic Origin (ACS 2022)**

- Hispanic or Latino (of any race): 84.7%
- White alone, not Hispanic: 10.6%
- Black or African American: 1.1%
- Asian: 9.5%
- American Indian and Alaska Native: 1.5%
- Native Hawaiian and Other Pacific Islander: 0.1%
- Two or more races: 5.6%

**Educational Attainment (Age 25+, ACS 2022)**

- High school graduate or higher: 75.9%
- Bachelor's degree or higher: 13.6%

**Income (ACS 2022)**

- Median household income: $71,250
- Per capita income: $26,971
- Population below poverty line: 13.5%

Based on the most recent data from the U.S. Census Bureau, the estimated median household income in Santa Fe Springs as of 2022 is $71,250. Per capita income is estimated at $26,971. The city's economy, which historically relied heavily on manufacturing and industrial sectors, has diversified somewhat in recent years.

## 2.6 Housing and Development

Santa Fe Springs' early housing stock primarily consisted of modest single-family homes built to accommodate workers in the booming oil and manufacturing sectors. Many of these homes, constructed during the mid-20th century, followed the popular ranch-style architecture of the time, with large lots that catered to suburban living. By 1960, the city had seen significant growth, with a population of over 20,000, prompting the rapid expansion of its housing stock to meet the needs of its workforce. The city's location, at the intersection of major

transportation corridors such as the I-5 and I-605 freeways, made it an attractive place for families and workers commuting to nearby industrial and commercial hubs.

As of the 2022 American Community Survey, Santa Fe Springs had approximately 5,396 housing units, with a diverse mix of single-family homes, condominiums, townhouses, and apartment complexes. Like much of Southern California, Santa Fe Springs has seen substantial home value appreciation in recent years. By early 2024, the median home value in Santa Fe Springs was estimated at $665,000 (based on Zillow), up from a Census-reported value of $536,000 in 2022. This appreciation, while indicative of a robust housing market, has also presented challenges for affordability, especially as demand continues to outpace housing supply.

The rental market in Santa Fe Springs remains strong, driven by the city's strategic location and proximity to major employment centers. As of 2024, the average rent for a one-bedroom apartment was approximately $1,825 per month, varying depending on the specific neighborhood and amenities offered. The city's industrial base, combined with its accessibility to regional transportation routes, has continued to make it an appealing location for renters. Approximately 48.4% of housing units were owner-occupied, while 51.6% were renter-occupied as of the most recent census, indicating a balanced shift toward rental housing as housing costs have risen.

**Current Housing Profile:** As of the 2022 ACS 5-Year Estimates, Santa Fe Springs contained:

- 5,396 total housing units
- 5,174 households
- Persons per household: 3.38

**Tenure**

- Owner-occupied housing units: 48.4%
- Renter-occupied housing units: 51.6%

**Median Value of Owner-Occupied Units**

- $536,000 (ACS 2022) *Note: As of early 2024, third-party estimates (e.g., Zillow) place median home value closer to $665,000.*

**Monthly Owner Costs (with mortgage)**

- $2,775 (ACS + Zillow 2024)

**Rental Market (2024 Estimate)**

- Average rent for a one-bedroom apartment: $1,825 (RentCafe, 2024)

# General Plan Land Use Map

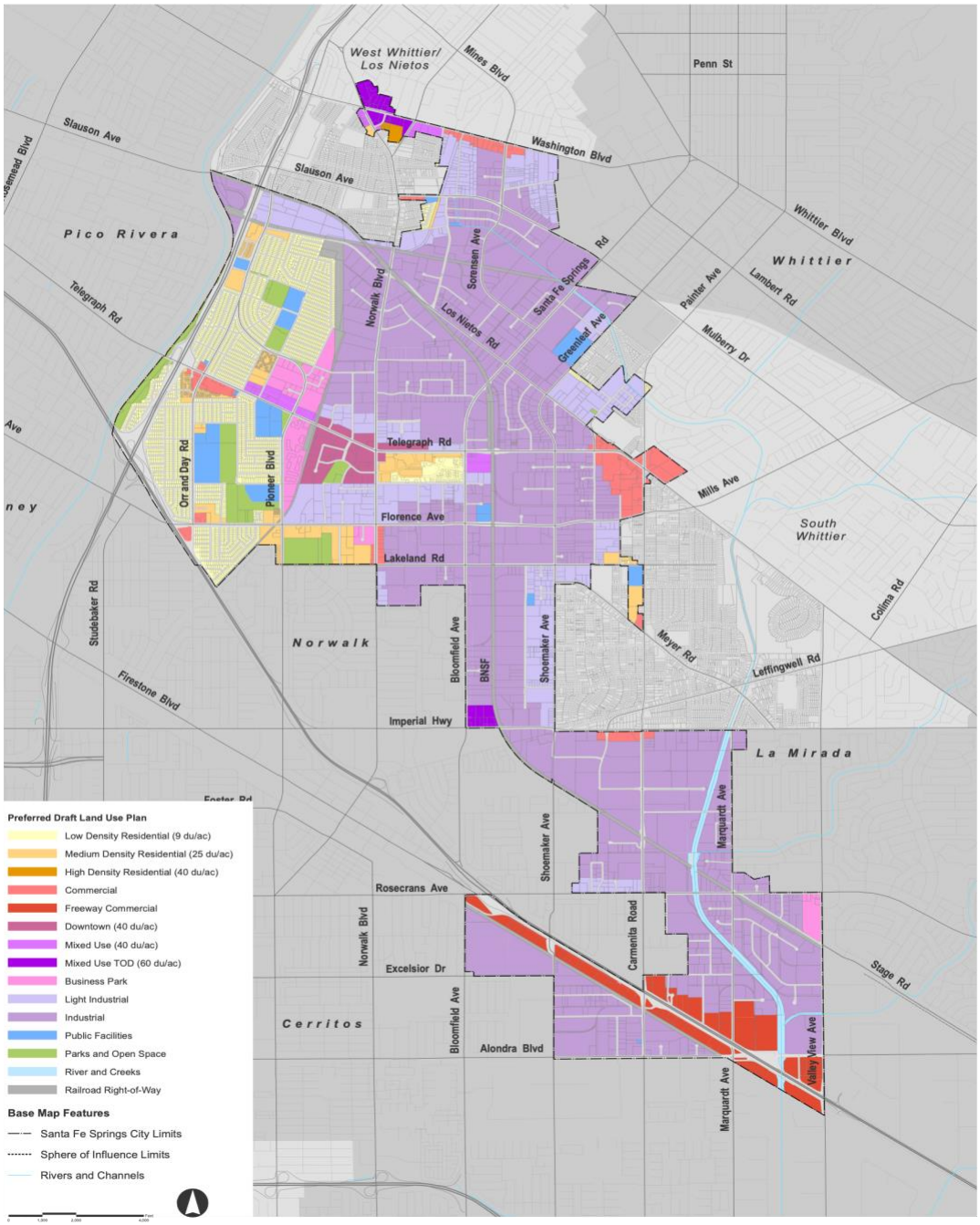


*Figure 4 –City of Santa Fe Springs.Land Use Map (from General Plan)*

# 2.7 Economy

Santa Fe Springs, California, maintains a robust and diversified economy built on its historical foundations in oil production and manufacturing. Today, the city's economy is driven by several key sectors, including manufacturing, industrial services, logistics, healthcare, retail, and professional services. The strategic location of Santa Fe Springs-situated at the intersection of the I-5 and I-605 freeways-enhances its role as a regional industrial and logistics hub, contributing significantly to local employment and economic activity.

## Manufacturing and Industrial Services

Santa Fe Springs has long been a center of manufacturing and industrial services, a legacy of its mid-20th century industrial boom. The city's industrial areas, which occupy a significant portion of its land area, host a wide range of businesses producing everything from consumer goods to specialized industrial components. Key industries include metal fabrication, machinery, food processing, and chemical production. These companies benefit from Santa Fe Springs' proximity to major highways, freight corridors, and rail access, making it a prime location for firms that depend on efficient goods movement.

As of 2023, the manufacturing sector remains one of the largest contributors to the local economy, employing approximately 5,200 workers and accounting for about 15% of the city's workforce. Santa Fe Springs is home to several major business parks and industrial campuses, such as the Golden Springs Business Park and the Santa Fe Springs Business Park, which attract both national and international companies seeking access to Southern California's markets.

## Logistics and Warehousing

The logistics and warehousing sector is another cornerstone of the local economy. Santa Fe Springs' location near major regional arterials and rail lines positions it as a critical node in the regional supply chain. The city supports a high concentration of freight operations, distribution centers, and last-mile fulfillment facilities. Its proximity to the Ports of Los Angeles and Long Beach, as well as access to Union Pacific and BNSF rail lines, enhances its strategic importance.

Major firms, including FedEx, UPS, and third-party logistics providers, maintain operations in the city. As of 2023, the transportation and warehousing sector supports approximately 4,000 jobs, representing roughly 12% of local employment. This sector is expected to remain strong due to continued demand from e-commerce and goods movement across the LA metro area.

## Retail and Commercial Services

While Santa Fe Springs is predominantly industrial, its retail and commercial services sector plays an important role in serving residents and workers. Retail activity is concentrated along Telegraph Road, Norwalk Boulevard, and Washington Boulevard, where shopping centers, restaurants, and service-oriented businesses provide essential amenities and generate tax revenue that supports municipal services.

Notable centers such as Santa Fe Springs Plaza and Marketplace Shopping Center draw both local residents and a large daytime workforce. As of 2023, the retail sector employs approximately 1,900 workers, accounting for around 7% of the city's workforce. Continued demand for food services, health and personal care, and convenience retail is likely to support ongoing investment in the sector.

## Healthcare and Social Services

Healthcare and social assistance services are a growing component of the local economy. Medical offices, rehabilitation centers, and clinics provide critical healthcare infrastructure for residents. The nearby PIH Health Whittier Hospital supports a large share of specialized and emergency medical care for Santa Fe Springs residents.

As of 2023, this sector employs approximately 3,500 workers, or about 10% of the workforce. With an aging population and expanding demand for in-home and community-based care, growth in this sector is expected to continue.

## Education

Education also plays a meaningful role in the city's employment landscape. Santa Fe Springs is served by the Little Lake City School District and Whittier Union High School District, which operate several elementary and secondary schools, including Santa Fe High School. These institutions serve thousands of students and provide employment for educators, administrators, and support personnel.

The city is also located near institutions offering higher education and workforce training, including Rio Hondo College in Whittier and Cerritos College, which support vocational education in trades such as HVAC, automotive repair, and medical technology.

## Santa Fe Springs Industry Breakdown (2024)

| Industry | Estimated Number of Jobs | % of Workforce |
|---|---|---|
| Agriculture, Forestry, Fishing, and Mining | 45 | 0.1% |
| Construction | 950 | 2.8% |
| Manufacturing | 5,200 | 15.0% |
| Wholesale Trade | 1,800 | 5.3% |
| Retail Trade | 1,900 | 7.0% |
| Transportation and Warehousing | 4,000 | 12.0% |
| Information | 320 | 1.0% |
| Finance, Insurance, Real Estate & Leasing | 1,150 | 3.4% |
| Professional, Scientific & Waste Management Services | 2,740 | 8.1% |
| Education, Healthcare, Social Assistance | 3,500 | 10.4% |
| Arts, Entertainment, Food Services | 1,720 | 5.0% |
| Other Services (except Public Administration) | 1,140 | 3.4% |
| Public Administration | 850 | 2.5% |

## 2.8 Infrastructure

### Electricity and Natural Gas

The electricity infrastructure in Santa Fe Springs is an essential component of the city's ability to support its industrial, commercial, and residential sectors. Southern California Edison (SCE) is the primary electricity provider, delivering power to homes, businesses, and the city's extensive industrial base. SCE's infrastructure includes substations, transformers, and an extensive distribution network, ensuring reliable service and grid coverage across the community. SCE is actively implementing upgrades to support grid resilience and climate-related electrification demands, including those related to electric vehicle (EV) adoption and distributed energy storage.

Natural gas in Santa Fe Springs is provided by Southern California Gas Company (SoCalGas), the largest natural gas utility in the United States. The city is served via a network of high- and medium-pressure pipelines that deliver natural gas from regional transmission hubs to local users. These pipelines support residential heating, water heating, and industrial processes. As part of California's decarbonization goals, SoCalGas is also exploring renewable natural gas (RNG) and hydrogen blending strategies in partnership with municipalities across its service area.

### Water Infrastructure

Water service in Santa Fe Springs is delivered primarily by the City of Santa Fe Springs Water Utility, with supplemental imported water provided by the Central Basin Municipal Water District (CBMWD) and the Metropolitan Water District of Southern California (MWD). The city's water supply is drawn from both local groundwater sources (the Central Groundwater Basin) and the Colorado River and State Water Project, via imported allocations from MWD.

Santa Fe Springs maintains an extensive water distribution system, which includes over 100 miles of pipelines, several pump stations, pressure zones, and storage reservoirs. The Florence Reservoir is among the city's key facilities, helping maintain pressure and emergency supply during high-demand periods. In response to regional drought and long-term water reliability challenges, the city has expanded its water conservation and leak detection programs, promoted native landscaping, and supported regional groundwater recharge projects.

## Wastewater Infrastructure

Wastewater collection and treatment in Santa Fe Springs is managed by the Sanitation Districts of Los Angeles County, primarily District No. 2, which operates the regional trunk sewers and treatment facilities. Local sewer lines are maintained by the City and connect to the regional system via a network of mainlines and lift stations.

The majority of the city's wastewater is conveyed to the Joint Water Pollution Control Plant (JWPCP) in Carson, one of the largest and most advanced treatment facilities in the nation. JWPCP treats an average of 260 million gallons of wastewater daily and complies with stringent discharge requirements set by the State Water Resources Control Board and U.S. EPA.

Santa Fe Springs also participates in regional programs to promote water recycling, reduce inflow and infiltration (I&I), and minimize industrial discharge risks. These efforts include smoke testing, sewer rehabilitation, and collaboration on stormwater management to reduce system burden during heavy rainfall.

## Road and Highway Network

Santa Fe Springs benefits from a highly developed roadway infrastructure that facilitates the movement of goods and people. The city lies at the intersection of the Santa Ana Freeway (Interstate 5) and the San Gabriel River Freeway (Interstate 605) - two of Southern California's major north-south corridors. These interstates provide direct access to the Ports of Los Angeles and Long Beach, downtown Los Angeles, and regional industrial centers, supporting both commuter and freight mobility.

Key arterial streets include Telegraph Road, Washington Boulevard, and Norwalk Boulevard, which connect residential neighborhoods, business parks, and industrial zones. These corridors serve as regional truck routes and are prioritized for infrastructure maintenance and pavement preservation under the city's Capital Improvement Program.

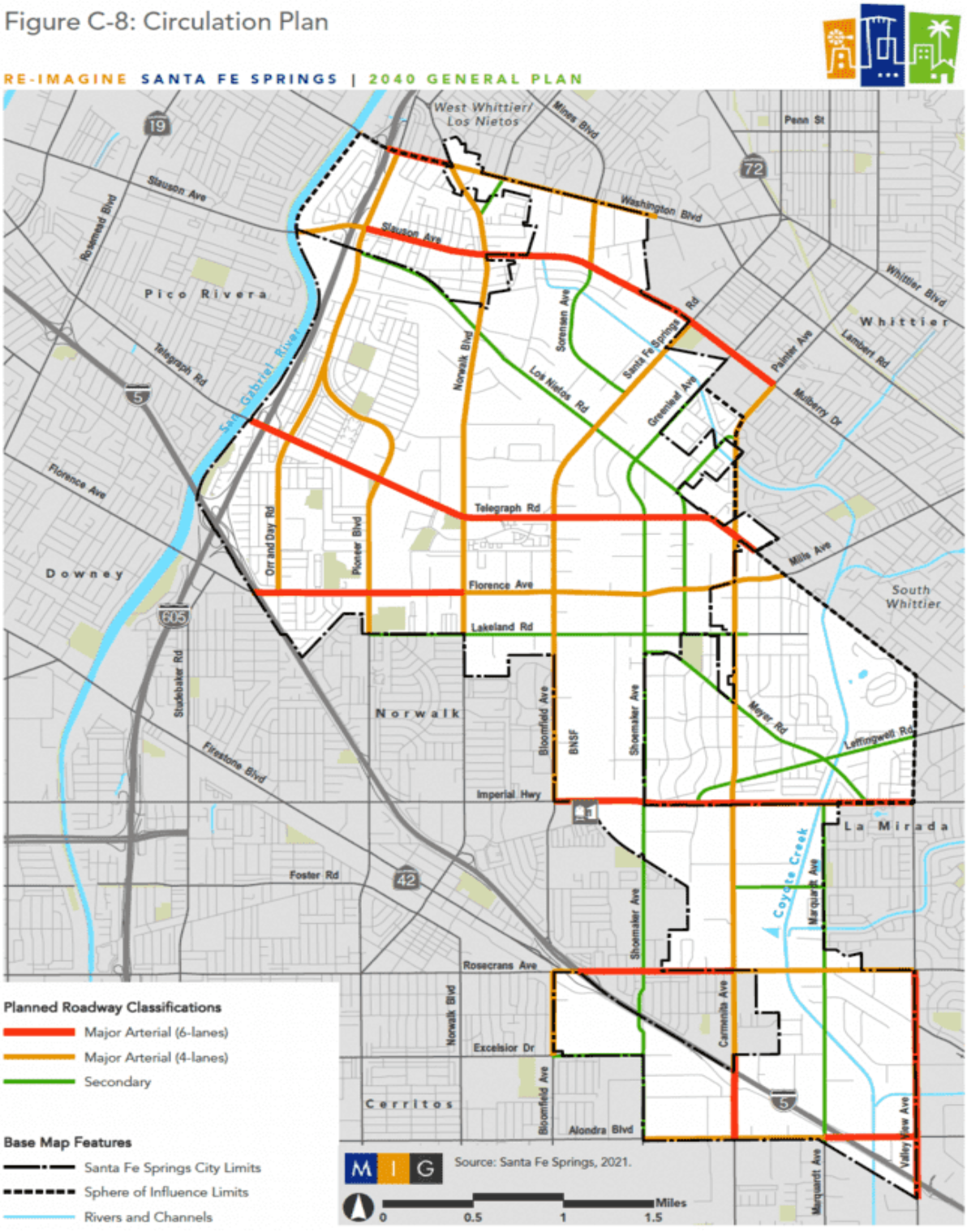


*Figure 5 –City of Santa Fe Springs Traffic Circulation Map*

## Public Transit

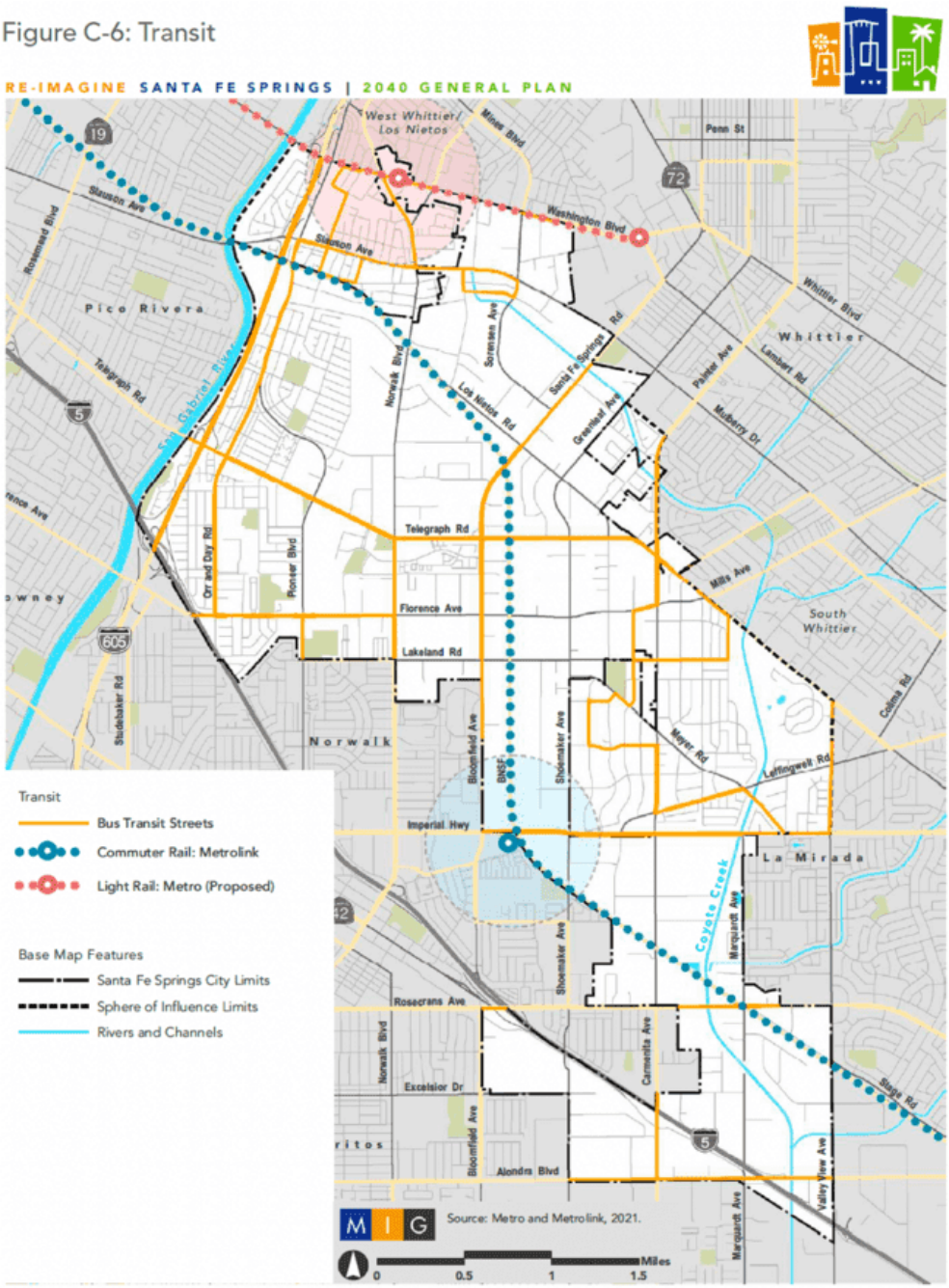


*Figure 6 –City of Santa Fe Springs Transit Map*

Public transportation in Santa Fe Springs is provided by a combination of local and regional systems. The Norwalk Transit System operates multiple fixed-route bus lines that serve Santa Fe Springs and surrounding communities. Additional coverage is provided by LA Metro, which offers both local and express bus service to nearby employment and commercial centers.The Metro C Line (Green) terminates in Norwalk, adjacent to the city, providing light rail access to downtown Los Angeles and the South Bay. Park-and-ride facilities at the Norwalk Station support regional commuters.

Santa Fe Springs is working to improve first-mile/last-mile access, including sidewalk enhancements and bicycle infrastructure along Washington Boulevard and Telegraph Road, to better connect residents to key transit corridors.

## Rail and Freight Transportation

Santa Fe Springs is a critical rail and freight hub, with major lines operated by Union Pacific Railroad (UP) and BNSF Railway running through the city. These freight corridors serve the Ports of LA/Long Beach and link to regional intermodal facilities in Commerce, Vernon, and the Inland Empire. The city's proximity to national distribution networks has long been a competitive advantage for logistics, warehousing, and advanced manufacturing operations.

While rail freight is vital to the local economy, the presence of hazardous materials and close proximity to residential neighborhoods pose public safety risks. The city maintains active coordination with emergency responders and regional partners to monitor hazardous rail traffic and enhance rail safety protocols.

## Stormwater and Flood Control

Santa Fe Springs is located near the San Gabriel River, which forms part of the region's flood management system. The city maintains a comprehensive stormwater management network, including curb inlets, storm drains, retention basins, and flood control channels. These systems are designed to mitigate runoff during storm events and prevent localized flooding, particularly in industrial and low-lying zones.

The city collaborates with the Los Angeles County Department of Public Works and Central Basin Municipal Water District on regional watershed management and stormwater infrastructure upgrades. Future improvements are planned to support compliance with MS4 stormwater permit requirements, enhance green infrastructure, and address increased runoff intensity projected under climate change scenarios.

# 2.9 Historically Vulnerable Populations

## Low-Income Residents (Major Hazards: Extreme Heat, Drought, Earthquake, High Wind/Storms)

Low-income residents in Santa Fe Springs are particularly vulnerable to natural disasters due to limited financial resources, which constrain their ability to prepare for, respond to, and recover from emergencies. According to the U.S. Census Bureau, 13.5% of Santa Fe Springs residents live below the poverty line, slightly higher than the national average. Many of these residents live in older housing stock, which may not meet modern seismic or energy efficiency standards, increasing vulnerability to earthquake damage and heat-related risks. Inadequate access to air conditioning or financial resources for energy bills may also expose residents to extreme heat impacts. Low-income households are less likely to have emergency savings, disaster insurance, or reliable transportation, which can significantly delay recovery after a major event.

## Elderly Individuals (Major Hazards: Earthquake, Power Outages, Infectious Disease/Pandemic)

Elderly individuals represent approximately 17.0% of Santa Fe Springs' population. Older adults often have underlying medical conditions such as cardiovascular disease, diabetes, or limited mobility, which can hinder evacuation and complicate recovery during disasters. In power outages, those dependent on medical equipment (e.g., oxygen concentrators, refrigerated medications) face increased risk of health complications. Heatwaves pose additional risks, as seniors may be more susceptible to dehydration, respiratory issues, and heat stroke. Furthermore, social isolation among some elderly individuals can result in delays in receiving assistance, making them particularly vulnerable during prolonged emergency events.

## People with Disabilities (Major Hazards: Earthquake, Power Outages)

People with disabilities make up 11.4% of Santa Fe Springs' population and are especially vulnerable to natural disasters. Disabilities affecting mobility, communication, or sensory perception can hinder a person's ability to receive emergency notifications, evacuate safely, or access emergency services. For those reliant on medical equipment, power outages can pose significant health risks. Emergency shelters and evacuation plans in Santa Fe Springs must be inclusive, ensuring they accommodate individuals with physical, sensory, and cognitive disabilities. Accessible transportation options and communication tools, such as text alerts and sign language interpreters, should be readily available to ensure that this population receives adequate care and support during emergencies.

## Minority Communities (Major Hazards: Earthquake, Fire, Power Outage)

Santa Fe Springs is a majority-minority city, with Hispanic or Latino residents comprising approximately 84.7% of the population. Minority communities often face structural and linguistic barriers that increase disaster vulnerability. These may include limited English proficiency, lower household incomes, housing in at-risk areas, and reduced access to insurance or healthcare. During emergencies, language barriers can prevent timely receipt of warnings and preparedness guidance. Ensuring culturally and linguistically appropriate outreach is critical, particularly in Spanish-speaking communities. Multilingual signage, materials, and trained outreach workers improve equitable access to life-saving resources.

## Unhoused Populations (Major Hazards: Extreme Heat, Drought, Fire, High Wind/Storms, Infectious Disease/Pandemic)

Like many cities in Los Angeles County, Santa Fe Springs is impacted by the region's homelessness crisis. While city-specific unsheltered population data are limited, the 2023 Greater Los Angeles Homeless Count reported over 75,000 individuals experiencing homelessness countywide. Santa Fe Springs likely includes a proportion of this population, many of whom live in encampments near industrial corridors, freeway underpasses, and flood-prone areas.

The unhoused population is especially vulnerable to extreme weather, poor air quality, and disease outbreaks. Without reliable shelter, individuals face elevated risk of heat exhaustion, hypothermia, and exposure to vector-borne illnesses. Access to healthcare, clean water, and sanitation is limited. Emergency response plans must consider how to reach and protect unhoused individuals, including coordination with county social services, mobile outreach teams, and emergency shelter providers.

## Social Vulnerability Index

Developed by the Centers for Disease Control and Prevention (CDC) and the Agency for Toxic Substances and Disease Registry (ATSDR), the Social Vulnerability Index ranks census tracts based on 15 social factors contributing to vulnerability. These include income, age, disability status, housing type, transportation access, and minority status. The higher the index score (ranging from 0 to 1), the greater the vulnerability of a community.

| Population Group | SoVI Score (0-1) | Description of Vulnerability |
|---|---|---|
| **Low-Income Residents** | 0.78 | Low-income residents face significant economic barriers to disaster preparedness and recovery. Many live in older housing that lacks resilience to seismic events, extreme heat, and flooding. Limited financial resources also reduce their ability to evacuate or access recovery services. |
| **Elderly Individuals (65+)** | 0.81 | Older adults may have mobility and health challenges that limit their ability to evacuate during disasters. Many rely on power-dependent medical devices, increasing vulnerability to power outages. Social isolation further exacerbates risks during emergencies. |

| Population Group | SoVI Score (0-1) | Description of Vulnerability |
|---|---|---|
| **People with Disabilities** | 0.83 | Individuals with mobility, sensory, or cognitive disabilities may struggle to access emergency notifications, evacuation resources, and medical care during disasters. Power outages and transportation disruptions further heighten risks. |
| **Minority Communities** | 0.76 | Hispanic and Latino residents, who make up over 80% of Santa Fe Springs' population, may experience language barriers and economic disadvantages that impact disaster response and recovery. Targeted outreach and multilingual resources are essential to reduce these disparities. |
| **Unhoused Populations** | 0.89 | Unhoused individuals are highly vulnerable to extreme weather events, infectious diseases, and environmental hazards. Many lack access to emergency shelter, clean water, and medical care, compounding their exposure to disaster-related health risks. |

# SECTION 3 – HAZARD IDENTIFICATION AND RISK ASSESSMENT

| Element B: Risk Assessment Requirements |
| --- |
| B1. Does the plan include a description of the type, location and extent of all natural hazards that can affect the jurisdiction? Does the plan also include information on previous occurrences of hazard events and on the probability of future hazard events? (Requirement 44 CFR § 201.6(c)(2)(i)) |

## 3.1 Introduction

### Purpose of the Risk Assessment

The risk assessment process aligns with federal and state regulatory requirements, including the Disaster Mitigation Act of 2000 (DMA 2000) (44 CFR §201.6), which mandates that local jurisdictions conduct a comprehensive, forward-looking risk assessment to maintain eligibility for FEMA's Hazard Mitigation Assistance (HMA) grant programs. Additionally, the assessment incorporates climate adaptation planning requirements outlined in FEMA's 2023 Local Mitigation Planning Policy Guide and California Government Code §65302(g), ensuring integration with state-mandated safety and resilience planning.

From a technical perspective, the risk assessment evaluates hazard probability, severity, and cascading impacts using a multi-layered analytical framework that integrates historical disaster data and FEMA disaster declarations as well as climate projections and future risk modeling.

### FEMA Requirements and Compliance

The City of Santa Fe Springs' risk assessment and hazard mitigation planning efforts are guided by federal regulations established under the Disaster Mitigation Act of 2000 (DMA 2000) (Public Law 106-390), which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.). These regulations, codified in Title 44 of the Code of Federal Regulations (CFR) Part 201, require local jurisdictions to develop and maintain a FEMA-approved Local Hazard Mitigation Plan (LHMP) to remain eligible for federal hazard mitigation funding, including grants under the Hazard Mitigation Grant Program (HMGP) and Flood Mitigation Assistance (FMA) Program.

To achieve compliance with 44 CFR §201.6, this plan includes a risk assessment (§201.6(c)(2)) – a comprehensive analysis of hazard exposure, vulnerability, and potential impacts on people, property, and critical infrastructure.

## Relationship to Other Planning Elements

Hazard identification and risk assessment is a foundational component of the City of Santa Fe Springs' comprehensive planning framework, ensuring that hazard mitigation strategies are fully integrated into broader land use planning, emergency management, infrastructure investment, environmental sustainability, and climate adaptation efforts. This alignment strengthens the City's ability to reduce disaster risks, enhance community resilience, and optimize access to federal and state funding opportunities.

Federal and state regulations, including FEMA's Local Hazard Mitigation Plan (LHMP) requirements (44 CFR §201.6) and California Government Code §65302(g) (as amended by SB 379 and SB 1035), require jurisdictions to incorporate hazard mitigation and climate adaptation strategies into their General Plan Safety Element and other municipal planning documents. By fostering consistency across planning efforts, the City proactively integrates risk reduction principles into growth and development decisions, ensuring a safer, more resilient future.

## Integration with Local and Regional Plans

The City's risk assessment is closely coordinated with the following local and regional planning efforts, ensuring a holistic, cross-sectoral approach to hazard mitigation and resilience:

- **General Plan Safety Element:** Mandated by SB 379 and SB 1035, the Safety Element incorporates hazard risk assessments, climate adaptation strategies, and emergency preparedness measures to reduce vulnerabilities in the built environment. Regular updates ensure that the Safety Element remains aligned with the LHMP, reflecting evolving risks such as wildfire, flooding, seismic activity, and extreme heat. Integration with land use planning supports smart growth strategies, minimizing exposure to high-risk areas.
- **Emergency Operations Plan (EOP):** The EOP establishes operational protocols for disaster response and recovery, ensuring effective coordination among first responders, government agencies, and community organizations. The risk assessment informs
    - Evacuation planning for at-risk populations,
    - Resource allocation for emergency services, and
    - Emergency communication strategies to enhance public safety.
- **Capital Improvement Plan (CIP):** The CIP prioritizes critical infrastructure investments that enhance resilience to hazards, including:
    - Stormwater management projects to mitigate flooding,
    - Seismic retrofits for essential facilities,
    - Transportation network upgrades to improve emergency access, and
    - Energy resilience initiatives, such as microgrids and backup power systems.

The risk assessment informs capital project selection, ensuring that infrastructure investments proactively reduce hazard exposure and long-term recovery costs.

- **Zoning and Building Codes:** The City's Code of Ordinances integrates hazard mitigation considerations into zoning, land use, and building regulations to enhance community safety. The risk assessment directly informs:
  - Seismic safety standards for new and existing structures
  - Fire-resistant building codes to protect against wildfire and urban conflagration risks.

## Data Sources

The risk assessment follows FEMA's Local Hazard Mitigation Plan (LHMP) requirements (44 CFR §201.6) and incorporates California-specific regulations, including:

- **California Government Code §65302(g) (SB 379, SB 1035):** Requires jurisdictions to integrate hazard mitigation and climate adaptation strategies into the General Plan Safety Element.
- **California Adaptation Planning Guide (2020)**: Developed by Cal OES to provide a framework for assessing climate vulnerabilities and future hazard risks.
- **Los Angeles County Climate Vulnerability Assessment (CVA) (2021)**: Evaluates regional climate hazards, social vulnerability, and infrastructure interdependencies.
- **2023 California State Hazard Mitigation Plan (SHMP)**: Provides statewide hazard profiles and risk assessments for wildfire, flooding, drought, extreme heat, earthquakes, and other climate-driven hazards.

By integrating local, regional, and state-level risk assessment frameworks, the City ensures that mitigation planning is comprehensive, equity-focused, and aligned with best practices in climate resilience.

## Historic Disaster Declarations

Since 1969, Los Angeles County has received 81 total Federal disaster declarations. The following data comes from FEMA's Disaster Declarations for States and Counties (https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties)

| Incident Subcategory | County | FEMA Declaration String | Calendar Year of Declaration | Date Month | Declaration Date | Declaration Title | State |
|---|---|---|---|---|---|---|---|

| Incident Subcategory | County | FEMA Declaration String | Calendar Year of Declaration | Date Month | Declaration Date | Declaration Title | State |
|---|---|---|---|---|---|---|---|
| Flood | Los Angeles County | DR-253-CA | 1969 | January | 1/26/1969 | SEVERE STORMS & FLOODING | CA |
| Fire | Los Angeles County | DR-295-CA | 1970 | September | 9/29/1970 | FOREST & BRUSH FIRES | CA |
| Other | Los Angeles County | DR-299-CA | 1971 | February | 2/9/1971 | SAN FERNANDO EARTHQUAKE | CA |
| Flood | Los Angeles County | DR-547-CA | 1978 | February | 2/15/1978 | COASTAL STORMS, MUDSLIDES & FLOODING | CA |
| Fire | Los Angeles County | EM-3067-CA | 1978 | October | 10/29/1978 | BRUSH FIRES | CA |
| Flood | Los Angeles County | DR-615-CA | 1980 | February | 2/21/1980 | SEVERE STORMS, MUDSLIDES & FLOODING | CA |
| Fire | Los Angeles County | DR-635-CA | 1980 | November | 11/27/1980 | BRUSH & TIMBER FIRES | CA |
| Tropical Storm | Los Angeles County | DR-677-CA | 1983 | February | 2/9/1983 | COASTAL STORMS, FLOODS, SLIDES & TORNADOES | CA |
| Other | Los Angeles County | DR-799-CA | 1987 | October | 10/7/1987 | EARTHQUAKE & AFTERSHOCKS | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Other | Los Angeles County | DR-799-CA | 1987 | October | 10/7/1987 | EARTHQUAKE AFTERSHOCKS | CA |
| Flood | Los Angeles County | DR-812-CA | 1988 | February | 2/5/1988 | SEVERE STORMS, HIGH TIDES & FLOODING | CA |
| Fire | Los Angeles County | DR-872-CA | 1990 | June | 6/30/1990 | FIRES | CA |
| Freezing Temperature | Los Angeles County | DR-894-CA | 1991 | February | 2/11/1991 | SEVERE FREEZE | CA |
| Flood | Los Angeles County | DR-935-CA | 1992 | February | 2/25/1992 | RAIN/SNOW/WIND STORMS, FLOODING, MUDSLIDES | CA |
| Fire | Los Angeles County | DR-942-CA | 1992 | May | 5/2/1992 | FIRE DURING A PERIOD OF CIVIL UNREST | CA |
| Flood | Los Angeles County | DR-979-CA | 1993 | February | 2/3/1993 | SEVERE WINTER STORM, MUD & LAND SLIDES, & FLOODING | CA |
| Fire | Los Angeles County | DR-1005-CA | 1993 | October | 10/28/1993 | FIRES, MUD/LANDSLIDES, FLOODING, SOIL EROSION | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Other | Los Angeles County | DR-1008-CA | 1994 | January | 1/17/1994 | NORTHRIDGE EARTHQUAKE | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Severe Storm | Los Angeles County | DR-1046-CA | 1995 | March | 3/12/1995 | SEVERE WINTER STORMS, FLOODING LANDSLIDES, MUD FLOW | CA |
| Severe Storm | Los Angeles County | DR-1044-CA | 1995 | January | 1/10/1995 | SEVERE WINTER STORMS, FLOODING, LANDSLIDES, MUD FLOWS | CA |
| Fire | Los Angeles County | EM-3120-CA | 1996 | October | 10/23/1996 | SEVERE FIRESTORMS | CA |
| Severe Storm | Los Angeles County | DR-1203-CA | 1998 | February | 2/9/1998 | SEVERE WINTER STORMS AND FLOODING | CA |
| Fire | Los Angeles County | FM-2417-CA | 2002 | June | 6/6/2002 | CA - COPPER FIRE - 06-06-2002 | CA |
| Fire | Los Angeles County | FM-2464-CA | 2002 | September | 9/24/2002 | WILLIAMS FIRE | CA |
| Fire | Los Angeles County | FM-2462-CA | 2002 | September | 9/4/2002 | LEONA FIRE | CA |
| Fire | Los Angeles County | DR-1498-CA | 2003 | October | 10/27/2003 | WILDFIRES, FLOODING, MUDFLOW AND DEBRIS FLOW DIRECTLY RELATED T | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Fire | Los Angeles County | FM-2502-CA | 2003 | October | 10/25/2003 | CA-VERDALE FIRE 10-25-2003 | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fire | Los Angeles County | FM-2466-CA | 2003 | January | 1/7/2003 | CA - WILDFIRE (PACIFIC FIRE) - 01-06-2003 | CA |
| Fire | Los Angeles County | FM-2534-CA | 2004 | July | 7/18/2004 | CA-FOOTHILL WILDFIRE-07-18-2004 | CA |
| Fire | Los Angeles County | FM-2535-CA | 2004 | July | 7/21/2004 | CA-CROWN WILDFIRE-07-21-2004 | CA |
| Fire | Los Angeles County | FM-2528-CA | 2004 | July | 7/14/2004 | CA - PINE FIRE - 7-13-2004 | CA |
| Fire | Los Angeles County | FM-2583-CA | 2005 | September | 9/28/2005 | TOPANGA FIRE | CA |
| Tropical Storm | Los Angeles County | EM-3248-CA | 2005 | September | 9/13/2005 | HURRICANE KATRINA EVACUATION | CA |
| Severe Storm | Los Angeles County | DR-1577-CA | 2005 | February | 2/4/2005 | SEVERE STORMS, FLOODING, DEBRIS FLOWS, AND MUDSLIDES | CA |
| Severe Storm | Los Angeles County | DR-1585-CA | 2005 | April | 4/14/2005 | SEVERE STORMS, FLOODING, LANDSLIDES, AND MUD AND DEBRIS FLOWS | CA |
| Fire | Los Angeles County | DR-1731-CA | 2007 | October | 10/24/2007 | WILDFIRES, FLOODING, MUD FLOWS, AND DEBRIS FLOWS | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Fire | Los Angeles County | FM-2732-CA | 2007 | October | 10/21/2007 | CANYON FIRE | CA |

| Incident Subcategory | County | FEMA Declaration String | Calendar Year of Declaration | Date Month | Declaration Date | Declaration Title | State |
|---|---|---|---|---|---|---|---|
| Fire | Los Angeles County | FM-2736-CA | 2007 | October | 10/22/2007 | RANCH FIRE | CA |
| Fire | Los Angeles County | FM-2733-CA | 2007 | October | 10/21/2007 | BUCKWEED FIRE | CA |
| Fire | Los Angeles County | FM-2708-CA | 2007 | July | 7/8/2007 | CANYON FIRE | CA |
| Fire | Los Angeles County | FM-2694-CA | 2007 | May | 5/10/2007 | ISLAND FIRE | CA |
| Fire | Los Angeles County | FM-2691-CA | 2007 | May | 5/9/2007 | GRIFFITH PARK FIRE | CA |
| Fire | Los Angeles County | EM-3279-CA | 2007 | October | 10/23/2007 | WILDFIRES | CA |
| Freezing Temperature | Los Angeles County | DR-1689-CA | 2007 | March | 3/13/2007 | SEVERE FREEZE | CA |
| Fire | Los Angeles County | DR-1810-CA | 2008 | November | 11/18/2008 | WILDFIRES | CA |
| Fire | Los Angeles County | FM-2788-CA | 2008 | October | 10/12/2008 | MAREK FIRE | CA |
| Fire | Los Angeles County | FM-2792-CA | 2008 | November | 11/15/2008 | FREEWAY FIRE COMPLEX | CA |
| Fire | Los Angeles County | FM-2789-CA | 2008 | October | 10/13/2008 | SESNON FIRE | CA |
| Fire | Los Angeles County | FM-2791-CA | 2008 | November | 11/15/2008 | SAYRE FIRE | CA |

| Fire | Los Angeles County | FM-2763-CA | 2008 | April | 4/27/2008 | SANTA ANITA FIRE | CA |
|---|---|---|---|---|---|---|---|
| Fire | Los Angeles County | FM-2828-CA | 2009 | August | 8/28/2009 | PV FIRE | CA |
| Fire | Los Angeles County | FM-2830-CA | 2009 | August | 8/28/2009 | STATION FIRE | CA |
| Fire | Los Angeles County | FM-2851-CA | 2010 | July | 7/30/2010 | CROWN FIRE | CA |
| Severe Storm | Los Angeles County | DR-1884-CA | 2010 | March | 3/8/2010 | SEVERE WINTER STORMS, FLOODING, AND DEBRIS AND MUD | CA |
| Fire | Los Angeles County | FM-5025-CA | 2013 | June | 6/2/2013 | POWERHOUSE FIRE | CA |
| Fire | Los Angeles County | FM-5051-CA | 2014 | January | 1/16/2014 | COLBY FIRE | CA |
| Fire | Los Angeles County | FM-5124-CA | 2016 | June | 6/5/2016 | OLD FIRE | CA |
| Fire | Los Angeles County | FM-5129-CA | 2016 | June | 6/21/2016 | FISH FIRE | CA |
| Fire | Los Angeles County | FM-5132-CA | 2016 | July | 7/9/2016 | SAGE FIRE | CA |
| Fire | Los Angeles County | FM-5135-CA | 2016 | July | 7/23/2016 | SAND FIRE | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Flood | Los Angeles County | DR-4305-CA | 2017 | March | 3/16/2017 | SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fire | Los Angeles County | EM-3396-CA | 2017 | December | 12/8/2017 | WILDFIRES | CA |
| Fire | Los Angeles County | FM-5201-CA | 2017 | September | 9/2/2017 | LA TUNA FIRE | CA |
| Fire | Los Angeles County | FM-5225-CA | 2017 | December | 12/5/2017 | CREEK FIRE | CA |
| Fire | Los Angeles County | FM-5226-CA | 2017 | December | 12/5/2017 | RYE FIRE | CA |
| Fire | Los Angeles County | FM-5227-CA | 2017 | December | 12/6/2017 | SKIRBALL FIRE | CA |
| Fire | Los Angeles County | DR-4407-CA | 2018 | November | 11/12/2018 | WILDFIRES | CA |
| Fire | Los Angeles County | DR-4353-CA | 2018 | January | 1/2/2018 | WILDFIRES, FLOODING, MUDFLOWS, AND DEBRIS FLOWS | CA |
| Fire | Los Angeles County | EM-3409-CA | 2018 | November | 11/9/2018 | WILDFIRES | CA |
| Fire | Los Angeles County | FM-5280-CA | 2018 | November | 11/9/2018 | WOOLSEY FIRE | CA |
| Fire | Los Angeles County | FM-5293-CA | 2019 | October | 10/11/2019 | SADDLE RIDGE FIRE | CA |
| Fire | Los Angeles County | FM-5296-CA | 2019 | October | 10/24/2019 | TICK FIRE | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Fire | Los Angeles County | FM-5297-CA | 2019 | October | 10/28/2019 | GETTY FIRE | CA |
| Fire | Los Angeles County | DR-4569-CA | 2020 | October | 10/16/2020 | WILDFIRES | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Fire | Los Angeles County | FM-5374-CA | 2020 | September | 9/13/2020 | BOBCAT FIRE | CA |
| Other | Los Angeles County | DR-4482-CA | 2020 | March | 3/22/2020 | COVID-19 PANDEMIC | CA |
| Other | Los Angeles County | EM-3428-CA | 2020 | March | 3/13/2020 | COVID-19 | CA |
| Flood | Los Angeles County | EM-3592-CA | 2023 | March | 3/10/2023 | SEVERE WINTER STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES | CA |
| Flood | Los Angeles County | EM-3591-CA | 2023 | January | 1/9/2023 | SEVERE WINTER STORMS, FLOODING, AND MUDSLIDES | CA |
| Flood | Los Angeles County | DR-4683-CA | 2023 | January | 1/14/2023 | SEVERE WINTER STORMS, FLOODING, LANDSLIDES, AND MUDSLIDES | CA |
| **Incident Subcategory** | **County** | **FEMA Declaration String** | **Calendar Year of Declaration** | **Date Month** | **Declaration Date** | **Declaration Title** | **State** |
| Severe Storm | Los Angeles County | DR-4699-CA | 2023 | April | 4/3/2023 | SEVERE WINTER STORMS, STRAIGHT-LINE WINDS, FLOODING, LANDSLIDES, AND MUDSLIDES | CA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Severe Storm | Los Angeles County | DR-4769-CA | 2024 | April | 4/13/2024 | SEVERE WINTER STORMS, TORNADOES, FLOODING, LANDSLIDES AND MUDSLIDES | CA |
| Fire | Los Angeles County | FM-5537-CA | 2024 | September | 9/11/2024 | BRIDGE FIRE | CA |
| Fire | Los Angeles County | FM-5548-CA | 2024 | December | 12/10/2024 | FRANKLIN FIRE | CA |
| Fire | Los Angeles County | FM-5549-CA | 2025 | January | 1/7/2025 | PALISADES FIRE | CA |
| Fire | Los Angeles County | FM-5551-CA | 2025 | January | 1/8/2025 | HURST FIRE | CA |
| Fire | Los Angeles County | FM-5550-CA | 2025 | January | 1/8/2025 | EATON FIRE | CA |
| Fire | Los Angeles County | DR-4856-CA | 2025 | January | 1/8/2025 | WILDFIRES AND STRAIGHT-LINE WINDS | CA |

## Consideration of Future Conditions and Changing Risks

Recognizing the increasing frequency and severity of climate-related hazards, the HIRA incorporates scientific projections from regional, state, and national climate assessments, ensuring that mitigation strategies remain adaptive to future conditions.

Key climate risk projections include:

- **Los Angeles County Climate Vulnerability Assessment (2021)** – Projects:

  - A tenfold increase in extreme heat events by mid-century,
  - A 40% rise in wildfire burn areas,
  - Greater intensity of inland flooding and precipitation-driven landslides.
- **California's Fourth Climate Change Assessment (2018)** – Provides downscaled climate modeling for temperature rise, drought severity, sea-level rise, and extreme weather variability through 2100.
- **First Street Foundation's Climate Risk Data (2024)** – Includes probabilistic modeling for flooding, extreme heat, and air quality deterioration, supporting local infrastructure resilience planning.
- **Santa Fe Springs General Plan and Safety Element (2024 Update)** – Aligns land use policies with projected wildfire, earthquake, and flood risk exposure, ensuring compliance with SB 379 and SB 1035.
- **Southern California Association of Governments (SCAG) Regional Climate Adaptation Framework (2020)** – Establishes regional resilience strategies for:
  - Drought mitigation,
  - Transportation adaptation, and
  - Energy grid reliability.

By integrating both historical disaster data and climate risk projections, the City of Santa Fe Springs ensures that hazard mitigation strategies are grounded in scientific evidence, anticipate future risks, and prioritize long-term resilience.

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# 3.2 Identifying Hazards

## Definition of Hazards

For the purposes of the City of Santa Fe Springs Local Hazard Mitigation Plan (LHMP), hazards are defined as natural, technological, or human-caused events that have the potential to cause loss of life, injury, property damage, economic disruption, and environmental degradation. These hazards can be classified into two primary categories:

- Chronic Hazards – Long-term, ongoing conditions that gradually impact the community over time. These include drought, extreme heat, sea-level rise, and poor air quality, which compound over years or decades and exacerbate vulnerabilities.
- Acute Hazards – Sudden-onset, high-impact events that occur rapidly with little warning. These include earthquakes, flash floods, wildfires, hazardous materials spills, and power outages, which can cause immediate destruction and require emergency response efforts.

## Methodology for Hazard Selection

Hazards for the 2025 LHMP were determined by examining hazards previously analyzed in the most recent LHMP revision as well as additional hazards identified by the City through internal solicitation from participants in the internal interview process for the LHMP.

The National Risk Index identifies 18 specific hazards that may affect communities across the United States. Not all of these hazards were included in the LHMP update. Each hazard is addressed below along with justifications as to why they may not have been included.

| Hazard | Included | Explanation |
|---|---|---|
| Avalanche | No | The City of Santa Fe Springs does not experience significant snowfall; therefore, this hazard Is not applicable to the City. |
| Coastal Flooding | No | The City of Santa Fe Springs does not have any coastline; therefore, this hazard is not applicable to the City. |
| Cold Wave | No | Southern California is known for its temperate and warm climate; therefore, this hazard is not applicable to the City. |
| Drought | Yes | This hazard is included in the LHMP. |
| Earthquake | Yes | This hazard is included in the LHMP. |
| Hail | No | This hazard was not determined to be significant enough to include in the LHMP. Related hazards are included as “High wind/storms”. |
| **Hazard** | **Included** | **Explanation** |

| | | |
|---|---|---|
| Heat Wave | Yes | This hazard is included under “Extreme Heat”. |
| Hurricane | No | Hurricanes rarely impact Southern California; therefore, this hazard is not applicable to the City. Similar impacts are examined under “Heavy Rain” and “Extreme Wind”. |
| Ice Storm | No | Southern California is known for its temperate and warm climate; therefore, this hazard is not applicable to the City. |
| Landslide | No | Due to its topography, the City of Santa Fe Springs does not face significant threats from landslide; therefore, this hazard is not applicable to the City. |
| Lightning | No | This hazard was not determined to be significant enough to include in the LHMP. Related hazards are included as “High wind/storms”. |
| Riverine Flooding | Yes | This hazard is included as “Flooding” |
| Strong Wind | Yes | This hazard is included as “High wind/storms”. |
| Tornado | No | Tornadoes are extremely rare in Southern California; therefore, this hazard is not applicable to the City. |
| Tsunami | No | The City of Santa Fe Springs does not border a major body of water and is sufficiently inland to be insulated from immediate tsunami impacts; therefore, this hazard is not applicable to the City. |
| Volcanic Activity | No | There are no active volcanos in Southern California; therefore, this hazard is not applicable to the City. |
| Wildfire | Yes | This hazard is included under “Fire”. |
| Winter Weather | No | Southern California is known for its temperate and warm climate; therefore, this hazard is not applicable to the City. |

To ensure consistency with best practices, regulatory requirements, and evolving hazard conditions, the Planning Team conducted a comprehensive review of hazard planning documents, integrating scientific data and jurisdictional priorities from the following sources:

## Federal Hazard Planning Sources and Guidance

- FEMA Local Hazard Mitigation Plan (LHMP) Guidance (44 CFR §201.6) – Defines requirements for hazard identification and risk assessment to maintain eligibility for federal hazard mitigation funding.
- FEMA National Risk Index (2023) – Provides a nationwide ranking of hazard exposure, including earthquakes, wildfires, flooding, and extreme heat, which are highly relevant to Santa Fe Springs.
- United States Geological Survey (USGS) Earthquake Hazards Program – Identifies fault systems, seismic activity, and ground shaking potential impacting Santa Fe Springs.

## State of California Hazard Planning Documents

- 2023 California State Hazard Mitigation Plan (SHMP) – Provides a statewide risk assessment, including wildfire, flooding, earthquakes, drought, and extreme heat, with specific implications for Southern California.
- California's Fourth Climate Change Assessment (2018) – Uses downscaled climate models to project future hazard conditions, such as:
    - Increased wildfire risk,
    - More frequent and prolonged heat waves, and
    - Changing precipitation patterns contributing to flood and drought risk.

## Regional and Local Hazard Planning Documents

- **Los Angeles County Climate Vulnerability Assessment (CVA) (2021)** – Identifies high-risk communities and infrastructure vulnerabilities to extreme heat, wildfire, flooding, and drought.
- L**os Angeles County All-Hazards Mitigation Plan (2020)** – Establishes countywide hazard assessments and highlights multi-jurisdictional risk mitigation priorities that align with Santa Fe Springs.
- **Santa Fe Springs General Plan Safety Element (2024 Update)** – Integrates hazard mitigation, land use planning, and emergency preparedness, ensuring compliance with SB 379 and SB 1035.
- **First Street Foundation Risk Factor Data (2024)** – Provides probabilistic modeling for flood, wildfire, and extreme heat risks at the parcel level, supporting localized risk assessment and infrastructure planning.

## Methodology

In January 2025, a hazards and vulnerability assessment workshop was conducted with the City of Santa Fe Springs and with local stakeholders. During the workshop, attendees evaluated the risk of hazards included in previous LHMP documents as well as additional hazards suggested by attendees.

Based in part on elements of the Critical Priority Risk Index, modified for an increased emphasis on future risks using standard climate risk assessment categorization, participants were asked to give their opinion on the assigned scores for each hazard.

This information was used to calculate the Modified Calculated Probability Risk Index score. The CPRI is a common methodology used in hazard mitigation plans to quantify risk. However, it does not give sufficient weight to risks from climate change or other future events.

The Modified CPRI is calculated in the following manner:

> (*(Severity (Present)*0.3)+(Probability (Present)*0.45)+(Severity (Future)*0.3)+(Probability (Future)*0.45))*

Score values assigned are listed below, and the highest possible score was 75:

- 1 – Negligible
- 2 – Minor
- 3 – Moderate
- 4 – Major
- 5 - Extreme

This LHMP will use the following definitions throughout Section 3 to allow policymakers and planners to use the LHMP to inform City priorities and planning decisions.

| Probability | Definition |
|---|---|
| Very Unlikely | Less than 5% probability of occurrence |
| Unlikely | Greater than 5% and less than 30% probability of occurrence |
| Moderate | Greater than 30% and less than 60% probability of occurrence |
| Likely | Greater than 60% and less than 95% probability of occurrence |
| Very Likely | Greater than 95% probability of occurrence |

For the purposes of this LHMP, the timescale for probability, unless otherwise specified, will be 5 years, the current duration of an approved LHMP.

## Hazards Matrix

| | Severity (present) | Probability (present) | Present Risk Score | Severity (future) | Probability (future) | Future Risk Score | Modified CPRI | Comments |
|---|---|---|---|---|---|---|---|---|
| Extreme heat | 3 | 4 | 12 | 5 | 5 | 25 | 6.45 | |
| Drought | 3 | 4 | 12 | 4 | 5 | 20 | 6.15 | |
| Earthquake | 4 | 3 | 12 | 4 | 3 | 12 | 5.1 | |
| High wind/storms | 4 | 3 | 12 | 4 | 3 | 12 | 5.1 | |
| Fire | 3 | 3 | 9 | 3 | 4 | 12 | 4.95 | |
| Power outage | 4 | 2 | 8 | 5 | 3 | 15 | 4.95 | |
| Cyberattack/IT disruption | 3 | 2 | 6 | 5 | 3 | 15 | 4.65 | |
| Flooding | 3 | 3 | 9 | 3 | 3 | 9 | 4.5 | |
| Dam Failure | 3 | 2 | 6 | 3 | 2 | 6 | 3.6 | |
| Terrorism | 3 | 2 | 6 | 3 | 2 | 6 | 3.6 | |
| Infectious disease/pandemic | 3 | 2 | 6 | 3 | 2 | 6 | 3.6 | |

**Severity & Probability Scores**

1 - Negligible
2 - Minor
3 - Moderate
4 - Major
5 - Extreme

**Modified CPRI**

((Severity (present)*0.3)+(Probability (present)*0.45)+(Severity (future)*0.3)+(Probability (future)*0.45))

*Figure 7 – Risk Assessment Matrix*

# 3.3 Hazard Profiles

## 3.3.1 Extreme Heat

### Description

Extreme heat refers to prolonged periods of excessively high temperatures that exceed historical norms for a given region. These events are often intensified by high humidity, minimal nighttime cooling, and persistent heat retention in urban areas. The severity of an extreme heat event is influenced not only by absolute temperature values but also by the duration of sustained heat, elevated humidity levels, and the ability of the built and natural environment to dissipate heat effectively. As temperatures remain high for extended periods, the risks to public health, infrastructure, and ecosystems increase, particularly for vulnerable populations such as the elderly, young children, individuals with pre-existing health conditions, and outdoor workers.

Extreme heat presents cascading risks that extend beyond personal discomfort. Heat-related illnesses, including heat exhaustion and heat stroke, become more prevalent as prolonged exposure to high temperatures strains the human body's ability to regulate heat. Critical infrastructure is also affected, as increased demand for cooling places stress on the power grid, often leading to rolling blackouts and brownouts. Roadways and railways can suffer physical damage due to heat-induced expansion, while urban water systems experience elevated evaporation rates and greater demand for hydration and cooling. Ecosystems are not immune to these effects, as prolonged extreme heat can contribute to drought conditions, reduce soil moisture, and intensify wildfire risks.

The National Weather Service (NWS) defines extreme heat in terms of both daily maximum temperatures and the heat index, which accounts for the combined effects of heat and humidity on human perception of temperature. The heat index, often referred to as the "feels like" temperature, plays a critical role in issuing heat-related warnings and advisories. When the heat index exceeds 105°F for two or more consecutive days, the NWS typically issues an Excessive Heat Warning, signaling that conditions may pose a significant risk to public health. A Heat Advisory is issued at lower thresholds when conditions are expected to cause moderate health risks, particularly for vulnerable populations.

According to Cal-Adapt's Extreme Heat Projections, extreme heat events in California are categorized based on historical climate data and future modeling:

- Extreme Heat Days – A day when the daily maximum temperature exceeds the 98th percentile of historical highs (April–October, based on 1961–1990 records).
- Warm Nights – A night when the daily minimum temperature remains above the 98th percentile of historical nighttime lows, reducing recovery from daytime heat stress.
- Extreme Heat Waves – A period of four or more consecutive extreme heat days and warm nights, leading to increased health risks, higher energy demand, and infrastructure strain.

Urban areas can experience elevated temperatures due to the Urban Heat Island (UHI) effect, a phenomenon in which built environments absorb and retain heat more than surrounding rural areas. Surfaces such as asphalt roads, concrete sidewalks, and dark rooftops absorb solar radiation during the day and release heat more slowly at night, leading to higher ambient temperatures. Additionally, limited vegetation and tree canopy coverage reduce opportunities for natural cooling through evapotranspiration. Waste heat from industrial activity, vehicular emissions, and air conditioning systems further amplifies local temperatures.

According to the Los Angeles County Climate Vulnerability Assessment (2021), the temperature differential between urban and rural areas in the county can reach as much as 10°F. Santa Fe Springs, with its high concentration of paved surfaces and industrial activity, is particularly susceptible to this effect. As climate change accelerates, the urban heat island effect is expected to worsen, increasing both the frequency and intensity of extreme heat events in the city.

## Location and Extent

Extreme heat is a citywide hazard in Santa Fe Springs, affecting all neighborhoods due to rising temperatures, the urban heat island (UHI) effect, and climate change-driven increases in heat waves. While extreme heat affects the entire community, certain areas are more vulnerable based on land cover, infrastructure characteristics, and socioeconomic conditions.

Industrial zones, high-traffic corridors, and neighborhoods with limited green space are particularly susceptible to prolonged heat retention and elevated daytime and nighttime temperatures.

Industrial areas such as the Santa Fe Springs Industrial Park and Los Nietos Business District experience some of the highest heat exposures in the city. These areas contain extensive pavement, asphalt, and metal structures that retain heat well into the evening, preventing cooling at night. The lack of tree cover and vegetation, combined with high energy consumption from manufacturing facilities, exacerbates local heat conditions.

Major transportation corridors, including Interstate 5, Interstate 605, and Telegraph Road, contribute to increased localized temperatures. The heat-absorbing materials of freeways and major roads, combined with vehicular emissions and traffic congestion, intensify surface and ambient air temperatures. Additionally, these corridors create barriers to airflow, trapping heat in adjacent neighborhoods and further amplifying extreme heat conditions.

Neighborhoods with low tree canopy coverage, such as those near Norwalk Boulevard, Florence Avenue, and Pioneer Boulevard, are more susceptible to prolonged heat stress. Santa Fe Springs' overall tree canopy coverage is below the Los Angeles County average, limiting the natural cooling benefits of shade and evapotranspiration. Expanding green infrastructure in these areas is critical to reducing long-term heat exposure.

Residential and commercial areas with older buildings, especially those constructed before 1980 in eastern and central Santa Fe Springs, are more prone to indoor overheating. These structures tend to have lower insulation, outdated cooling systems, and limited energy efficiency, making it more difficult for occupants to maintain safe indoor temperatures during extreme heat events.

## Relationship to Land Use and Development

Land use patterns play a critical role in determining extreme heat vulnerability. Santa Fe Springs' urban and industrial character contributes to higher temperatures, particularly in areas with dense development, widespread impervious surfaces, and limited vegetation.

Santa Fe Springs has one of the highest concentrations of industrial land use in Los Angeles County, with extensive warehouses, distribution centers, and manufacturing plants. These facilities are constructed with heat-absorbing materials and lack natural cooling elements, leading to localized heat islands that contribute to higher energy demands for cooling. The concentration of industrial activity also places increased stress on the power grid, particularly during extreme heat events when air conditioning usage peaks.

Transportation infrastructure is another key contributor to heat retention. The city's freeway network and arterial roadways, including major corridors such as Washington Boulevard and Telegraph Road, absorb and radiate heat throughout the day and night. These paved surfaces trap heat, raising temperatures in surrounding areas. Additionally, major roadways and highways create heat corridors that restrict air circulation, preventing natural cooling and intensifying temperature extremes in adjacent residential and commercial districts.

Older residential and mixed-use neighborhoods face additional challenges due to low-albedo roofing materials and inadequate access to air conditioning. Many homes and apartment buildings constructed before modern energy efficiency standards have dark, heat-absorbing roofs and insufficient ventilation, making it difficult to maintain safe indoor temperatures. Lower-income households in these areas are especially vulnerable, as high cooling costs may prevent residents from running air conditioning during prolonged heat waves.

Parks and green spaces, such as Heritage Park, Little Lake Park, and Lakeview Park, provide some relief from extreme heat, but the existing distribution of green infrastructure is insufficient to offset the city's broader heat retention effects. Expanding tree canopy coverage, implementing urban cooling strategies such as reflective pavements and green roofs, and increasing access to shaded public spaces are essential mitigation measures to reduce extreme heat exposure across Santa Fe Springs.

## Magnitude and Severity

Unlike some other natural hazards, extreme heat lacks a singular, universally accepted intensity scale, such as the Modified Mercalli Intensity Scale for earthquakes or the Saffir-Simpson Hurricane Wind Scale for hurricanes. Instead, the severity of extreme heat events is assessed using a combination of temperature thresholds, heat

indices, and frequency and duration metrics, which collectively provide a comprehensive measure of the hazard's magnitude and potential impacts.

## National Weather Service (NWS) Heat Index

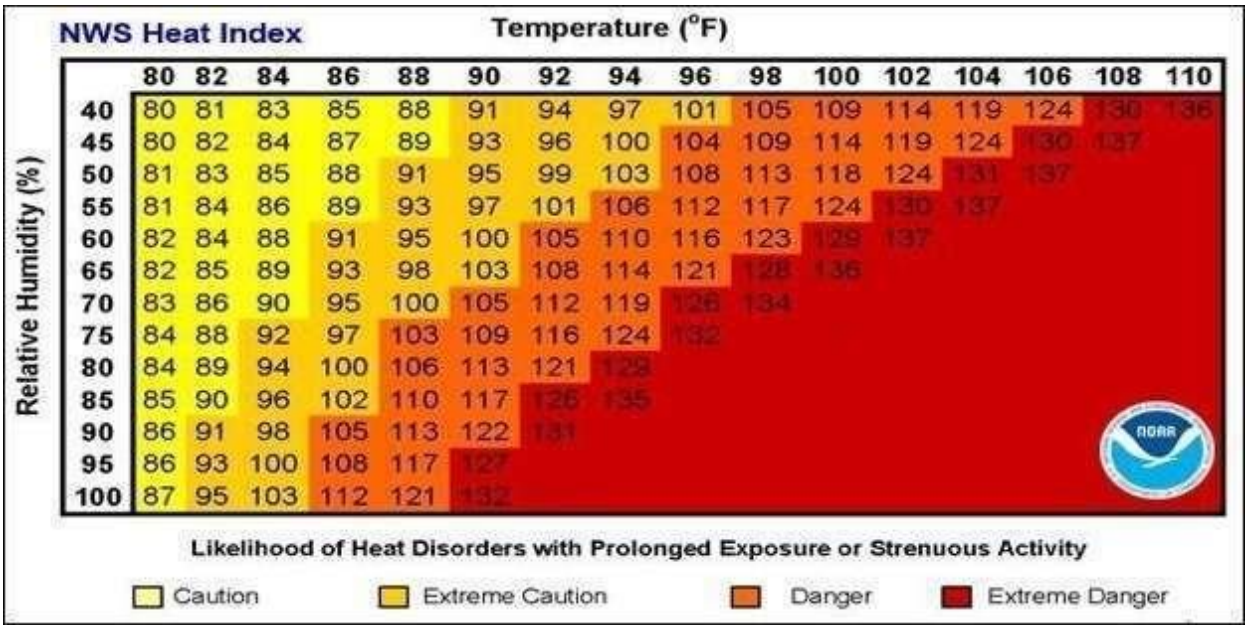


*Figure 8 – National Weather Service Heat Index*

The NWS Heat Index is the primary tool used to quantify how hot it "feels" by factoring in both actual air temperature and relative humidity. This index plays a critical role in issuing heat-related alerts and warnings. The NWS issues an Excessive Heat Warning when the heat index surpasses 105°F for at least two consecutive days. A Heat Advisory may be issued when heat index values pose a moderate risk to public health, particularly for vulnerable populations such as the elderly, outdoor workers, and individuals with pre-existing health conditions.

## Cal-Adapt Extreme Heat Metrics

California's Cal-Adapt system, developed by Cal OES and UC Berkeley's Geospatial Innovation Facility, provides historical and projected climate data to help communities assess and plan for extreme heat risks. Cal-Adapt defines extreme heat through three primary measurements:

- Extreme Heat Days – A day when the maximum temperature exceeds the 98th percentile of historical daily highs (based on 1961–1990 data).
- Warm Nights – A night when the minimum temperature remains above the 98th percentile of historical lows for the same period, limiting nighttime cooling and increasing heat stress.
- Extreme Heat Waves – A period of four or more consecutive Extreme Heat Days and Warm Nights, significantly increasing health risks, energy demand, and infrastructure stress.

### Severity of Extreme Heat

Extreme heat events in Santa Fe Springs are becoming more frequent, prolonged, and intense, largely due to climate change and the urban heat island (UHI) effect. The city's industrial and commercial land use patterns exacerbate heat retention, leading to sustained exposure to high temperatures, particularly in heat-prone areas such as industrial zones, high-density neighborhoods, and communities with limited tree canopy coverage.

### Health and Infrastructure Impacts

The intensification of extreme heat presents severe risks to human health, critical infrastructure, and economic stability. Heat-related illnesses, including heat exhaustion and heat stroke, are expected to rise, particularly among outdoor workers, elderly residents, low-income populations, and individuals with pre-existing medical conditions. The burden on the healthcare system will likely increase as emergency room visits for heat-related conditions become more frequent.

Extreme heat also places significant stress on energy infrastructure. Increased demand for air conditioning can lead to power outages, rolling blackouts, and grid failures, particularly during prolonged heat waves. Additionally, high temperatures accelerate the deterioration of roads, bridges, and rail infrastructure, causing asphalt softening, pavement buckling, and rail track warping, further disrupting transportation networks and economic activity.

## Historical Occurrences

While there have been no formal FEMA disaster declarations for extreme heat in Southern California, Santa Fe Springs and Los Angeles County have experienced multiple extreme heat events over the past several decades, resulting in increased public health risks, surges in energy demand, and cascading infrastructure failures.

- **July 2006 Heat Wave:** In July 2006, Southern California experienced an unprecedented 21-day heat wave, marking the longest recorded extreme heat event in the region since record-keeping began in the San Fernando Valley in 1949. During this prolonged period, temperatures exceeded 100°F across the Los Angeles Basin, placing immense strain on emergency response systems, energy infrastructure, and public health services. The heat wave resulted in a substantial increase in emergency room visits for heat-related illnesses, widespread power outages, and a rise in heat-related fatalities.

- **September 2020 Heat Wave:** In September 2020, Los Angeles County recorded an all-time high temperature of 121°F in the San Fernando Valley, making it one of the most intense heat waves in the region's history. The extreme temperatures led to widespread power disruptions, an increase in 911 emergency calls, and severe health impacts, particularly among vulnerable populations such as seniors, outdoor workers, and low-income residents with limited access to air conditioning. The event also exacerbated air pollution and ground-level ozone formation, increasing the prevalence of respiratory illnesses and cardiovascular complications.
- **August 2020 Rolling Blackouts:** Another significant extreme heat event occurred in August 2020, when electricity demand exceeded the available power supply, triggering California's first rolling blackouts in nearly two decades. As temperatures soared, the state's power grid was unable to meet the demand for air conditioning and cooling systems, forcing rotating power outages across multiple counties, including Los Angeles County and Santa Fe Springs. Nearly 500,000 residents lost electricity, disrupting access to cooling systems, refrigeration, and critical medical equipment, further endangering vulnerable populations already struggling with extreme heat exposure.

## Probability and Effects of Future Conditions


*Figure 9 – Average Daily Maximum Temperature Projection*

Overall probability over next five years: ***Likely.***

Extreme heat in Santa Fe Springs is projected to intensify in frequency, severity, and duration due to the ongoing effects of climate change. Rising global temperatures, coupled with the urban heat island (UHI) effect, will lead to more frequent, longer-lasting, and higher-intensity heat waves, posing serious risks to public health, infrastructure, and economic stability.

According to the Los Angeles County Climate Vulnerability Assessment, extreme heat waves will become significantly more common by mid-century, particularly in inland areas like the Los Angeles Basin. The increasing severity of extreme heat events will strain energy infrastructure, elevate the risk of heat-related illnesses, and disproportionately impact vulnerable communities.

### Projected Temperature Increases

Climate models based on the Representative Concentration Pathway (RCP) 8.5 “business-as-usual” scenario, which assumes continuing trends of greenhouse gas emissions, indicate a substantial rise in extreme heat thresholds for the region.

By mid-century, the 95th-percentile daily maximum temperature for Los Angeles County is projected to increase by an average of 5.4°F. In the San Gabriel Valley region, which includes Santa Fe Springs, historical extreme heat thresholds of approximately 100°F are expected to increase to 105°F or higher. These rising temperatures will make heat waves more intense and prolonged, heightening stress on critical infrastructure, water resources, and emergency response systems.

### Increased Frequency of Heat Waves

Historically, heat waves in Los Angeles County were relatively rare, occurring less than once per year. Under historical conditions, a heat wave is defined as four or more consecutive days exceeding the 98th-percentile temperature threshold of 94.4°F.

By 2050, climate projections indicate that Santa Fe Springs and surrounding areas may experience up to five extreme heat waves per year, representing a tenfold increase from historical averages. These heat waves will disrupt daily life, increase cooling costs, and exacerbate existing health disparities among low-income and medically vulnerable populations.

### Longer Duration and Warmer Nights

Not only will extreme heat waves become more frequent, but their duration will also increase, making multi-day heat waves the norm rather than the exception.

In addition, overnight temperatures are projected to remain significantly higher, reducing opportunities for heat recovery. Historically, Los Angeles County has experienced an average of eight warm nights per year, defined as nights where the minimum temperature remains above 66.4°F. By mid-century, this number is expected to rise to 44 warm nights per year.

Warmer nights are particularly dangerous for vulnerable populations, as they limit the body's ability to recover from daytime heat stress, increasing the risk of heat exhaustion, heat stroke, and cardiovascular complications.

The lack of overnight cooling also heightens energy demand, placing additional strain on the power grid and increasing the likelihood of blackouts.

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# 3.3.2 Drought

## Hazard Description

Drought is a prolonged period of below-average precipitation resulting in water shortages that impact people, agriculture, ecosystems, and industries. Unlike other natural hazards, droughts develop gradually and can persist for months or even years. Drought severity is often exacerbated by high temperatures, low humidity, and increased evaporation rates, further straining natural and human systems.

According to the National Weather Service (NWS), drought is defined as a deficiency of moisture severe enough to adversely affect people, animals, or vegetation over a sizable area. The U.S. Drought Monitor classifies drought conditions on a scale from "Abnormally Dry (D0)" to "Exceptional Drought (D4)," based on multiple indicators such as precipitation deficits, soil moisture levels, and reservoir storage.

Droughts are categorized into five primary types based on their causes and impacts:

**Meteorological Drought**: Occurs when precipitation levels fall significantly below the historical average for an extended period. In California, shifts in climate patterns such as La Niña and El Niño influence drought conditions. The El Niño-Southern Oscillation (ENSO) cycle plays a crucial role in regional precipitation variability, with La Niña phases typically linked to drier conditions.

**Agricultural Drought**: Results from insufficient soil moisture to sustain healthy crop and pasture growth. This is particularly concerning for California's Central Valley, where agriculture relies heavily on surface water and groundwater supplies. Prolonged droughts lead to lower crop yields, increased irrigation demands, and higher food prices.

**Hydrological Drought**: Occurs when surface and groundwater supplies decline due to extended precipitation deficits, leading to reduced river flows, depleted reservoirs, and dropping groundwater tables. In Southern California, where water supplies depend on the Sierra Nevada snowpack, rising temperatures and altered precipitation patterns due to climate change have reduced snowpack accumulation, leading to earlier snowmelt and lower summer water availability.

**Socioeconomic Drought**: Happens when water shortages disrupt economic activities, public infrastructure, and daily life. Drought conditions often result in stricter water use regulations, increased utility costs, and economic losses in sectors such as agriculture, energy production, and tourism. Additionally, extended droughts elevate wildfire risk, increasing emergency response costs and insurance premiums.

**Ecological Drought**: Disrupts natural ecosystems by affecting wildlife, aquatic habitats, and vegetation. Prolonged droughts have contributed to tree mortality and increased vulnerability to pests, such as bark beetle infestations.

## Location and Geographic Extent

Drought is a chronic and pervasive hazard that affects all areas of Santa Fe Springs. Unlike hazards with distinct geographic boundaries-such as floodplains or wildfire-prone areas-drought emerges when precipitation levels fall significantly below historical averages for extended periods, leading to widespread water shortages. Its slow onset and prolonged duration amplify its socioeconomic and environmental consequences, often persisting long after initial precipitation deficits resolve.

The U.S. Drought Monitor and Palmer Drought Severity Index (PDSI) are the primary tools used to assess drought conditions. These indices integrate multiple factors, including precipitation deficits, soil moisture depletion, and reservoir storage, to classify drought intensity from Abnormally Dry (D0) to Exceptional Drought (D4).

Drought-prone areas within Santa Fe Springs are not defined by physical geography but rather by their reliance on vulnerable water sources. The city's primary water supply challenges stem from:

- Groundwater Basins – Santa Fe Springs depends on the Central Basin Groundwater Aquifer, which experiences declining recharge rates during prolonged droughts, reducing available water for municipal and industrial use. Increased groundwater pumping during drought conditions also elevates the risk of land subsidence, threatening infrastructure stability.
- Imported Water Supplies – A significant portion of Santa Fe Springs' water is sourced from the Metropolitan Water District of Southern California (MWD), which imports water from the Colorado River and the State Water Project. Both sources face severe long-term drought risks-the Colorado River Basin has been in persistent drought since 2000, and the State Water Project has delivered only 5%-15% of its allocated supply during extreme drought years.
- Surface Water Bodies – While Santa Fe Springs does not have major natural lakes or reservoirs, regional storage facilities managed by Los Angeles County and the State of California experience heightened evaporation rates and reduced capacity during prolonged drought periods.

Urban development and land use patterns in Santa Fe Springs influence the city's vulnerability and resilience to drought. Several key sectors are particularly impacted:

- Industrial and Commercial Sectors – Santa Fe Springs has a high concentration of industrial facilities, many of which require substantial water use for cooling, processing, and manufacturing. Drought-driven water restrictions may result in increased operational costs, production delays, and economic losses, particularly for industries that depend on steady water supplies.
- Residential Areas – The city's residential neighborhoods rely heavily on outdoor irrigation for landscaping, making them primary targets for mandatory water reductions during drought emergencies.
- Parks and Green Spaces – Public parks, golf courses, and urban green spaces are vulnerable to water shortages, leading to vegetation stress, loss of tree cover, and increased urban heat island effects.

## Magnitude and Severity

Unlike sudden-onset hazards such as earthquakes or hurricanes, drought is a slow-developing phenomenon lacking a universally accepted severity scale. Instead, its magnitude and severity are evaluated using multiple indices that consider precipitation deficits, soil moisture levels, streamflow reductions, and socio-economic impacts.

**Palmer Drought Severity Index (PDSI)**: The PDSI is a widely utilized metric that assesses long-term drought conditions by analyzing precipitation, temperature, and soil moisture data. It classifies drought severity on a scale from +4.0 (extremely wet) to -4.0 (extreme drought). This index is particularly pertinent to Southern California, where prolonged precipitation deficits and rising temperatures contribute to persistent drought conditions.

| Category | Description | Example Percentile Range for Most Indicators | Values for Standard Precipitation Index and Standardized Precipitation-Evapotranspiration Index |
|---|---|---|---|
| None | Normal or wet conditions | 31 or above | -0.49 or above |
| D0 | Abnormally Dry | 21 to 30 | -0.5 to -0.79 |
| D1 | Moderate Drought | 11 to 20.99 | -0.8 to -1.29 |
| D2 | Severe Drought | 6 to 10.99 | -1.3 to -1.59 |
| D3 | Extreme Drought | 3 to 5.99 | -1.6 to -1.99 |
| D4 | Exceptional Drought | 0 to 2.99 | -2.0 or less |

*Figure 10 - US Drought Monitor Classification Scheme.*
*Source: https://droughtmonitor.unl.edu/About/AbouttheData/DroughtClassification.aspx*

**U.S. Drought Monitor Classification**: The U.S. Drought Monitor categorizes drought severity into five levels, serving as a critical tool for emergency declarations, water conservation measures, and agricultural impact assessments:

- **D0 (Abnormally Dry):** Short-term dryness, slower crop growth, and increased fire risk.
- **D1 (Moderate Drought):** Some damage to crops, voluntary water restrictions implemented.
- **D2 (Severe Drought):** Likely crop losses, water shortages, and mandatory restrictions.
- **D3 (Extreme Drought):** Major crop losses, widespread water shortages, and heightened fire risk.
- **D4 (Exceptional Drought):** Widespread water emergencies, ecosystem degradation, and significant economic losses.

**Standardized Precipitation Index (SPI)**: The SPI measures drought intensity over various time scales, ranging from one month to multiple years. It quantifies deviations in precipitation from historical averages and is particularly useful for assessing short-term drought impacts on urban water supplies. Agencies such as the

California Department of Water Resources (DWR) and the National Oceanic and Atmospheric Administration (NOAA) utilize SPI data to project seasonal drought risks for Southern California.

**California Snow Water Equivalent (SWE) Index**: A significant portion of Southern California's water supply depends on the Sierra Nevada snowpack. The SWE Index measures the amount of water stored in the snowpack; lower SWE values indicate reduced runoff and heightened drought risk. Climate projections suggest that by 2050, SWE levels could decline by up to 65%, further exacerbating water shortages.

Santa Fe Springs is classified as a high drought-risk area due to its reliance on imported water from the State Water Project, the Colorado River, and groundwater from the Central Basin Aquifer. The Los Angeles County Climate Vulnerability Assessment (2021) and the 2023 California State Hazard Mitigation Plan (SHMP) project that future droughts in Santa Fe Springs will last longer and occur more frequently due to:

- Higher evaporation rates caused by rising temperatures.
- Declining groundwater recharge rates, leading to lower water table levels.
- More extreme precipitation variability, resulting in prolonged dry periods followed by short bursts of heavy rainfall, which do not sufficiently replenish reservoirs.

## Historical Occurrences

Drought is a recurrent hazard in California, with Santa Fe Springs and the greater Los Angeles region experiencing multiple severe droughts in recent decades. These prolonged dry periods have strained water supplies, increased wildfire risk, and led to mandatory conservation measures. Historical drought occurrences highlight the increasing frequency and intensity of dry conditions, exacerbated by climate change and growing water demand.

- **2011–2017 California Drought**: The 2011–2017 drought was one of the most severe and prolonged in California's history. By 2014, nearly the entire state was classified under D2 (Severe Drought) or worse. This drought led to statewide emergency water conservation mandates, requiring jurisdictions, including Santa Fe Springs, to reduce water usage by at least 25%. The drought persisted until early 2017, when consecutive winter storms helped replenish water supplies.
- **2020–2022 Drought**: Beginning in late 2020, another significant drought developed across California. By 2022, 97% of Los Angeles County was classified under D3 (Extreme Drought) or higher, leading to:
  - Reduced snowpack levels in the Sierra Nevada, which provide a major source of imported water for Southern California.
  - Historic low water levels in key reservoirs, including the Colorado River Basin, which supplies much of the region's drinking water.
  - Increased wildfire risk, with vegetation drying out earlier in the season.

**Long-Term Trends and FEMA Disaster Declarations**: While droughts do not typically result in FEMA Major Disaster Declarations (DR) or Emergency Declarations (EM) in the same way as earthquakes or wildfires, their cascading impacts-such as wildfires, water shortages, and economic disruptions-have contributed to multiple FEMA disaster declarations in California.

- FEMA DR-4323 (2017) included federal assistance for wildfire damages exacerbated by prolonged drought conditions.
- FEMA DR-4558 (2020) was declared in response to wildfires intensified by ongoing drought, highlighting the link between prolonged dry periods and fire risk.

State drought emergency declarations have been issued multiple times, including Governor-declared drought emergencies in 2014, 2015, 2021, and 2022, all of which impacted Santa Fe Springs.

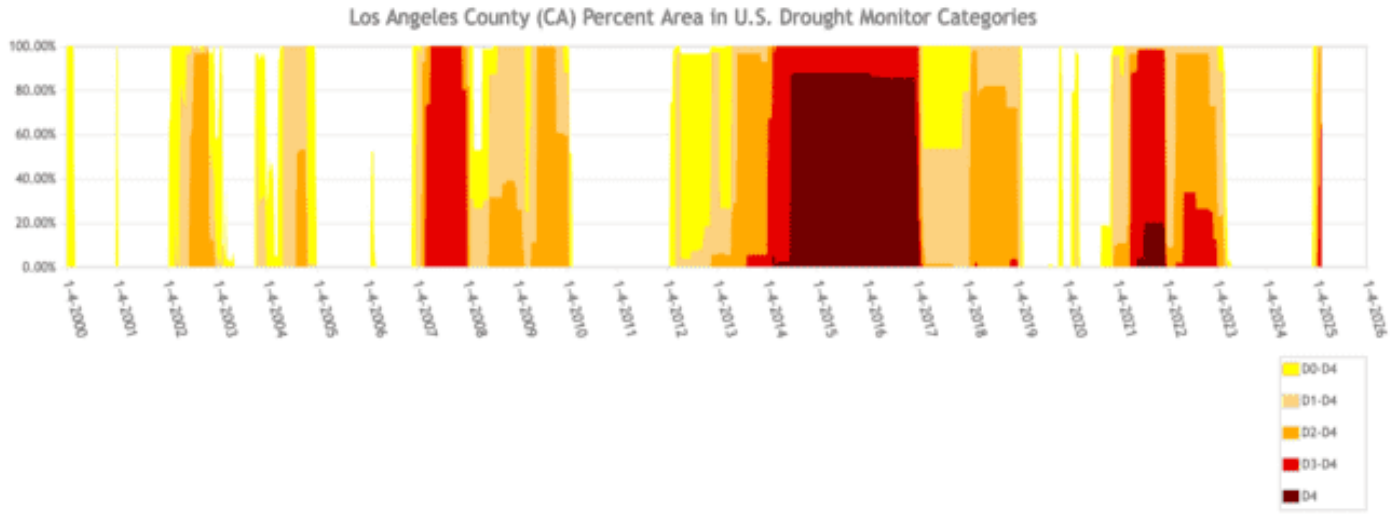


*Figure 11 - Los Angeles County Percent Area in Drought Categories*
*Source: https://droughtmonitor.unl.edu/dmData/Timeseries.aspx*

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Likely.***

Drought conditions in Santa Fe Springs are anticipated to increase in frequency, duration, and severity due to climate change, rising temperatures, and shifting precipitation patterns. Climate models and historical data indicate that Los Angeles County and the broader Southern California region will experience longer and more intense dry periods, punctuated by short, intense rainfall events. These changes are expected to lead to reduced water availability and inefficient groundwater recharge.

### More Frequent and Prolonged Droughts

Projections suggest that by mid-century, Santa Fe Springs may experience drought conditions nearly every decade, a significant increase from historical trends where major droughts occurred approximately every 20 to 30 years. Temperature increases of 4.4°F to 5.4°F by 2050 are expected to accelerate evaporation rates, deplete soil moisture, and increase reservoir losses, thereby intensifying drought severity. The ongoing North American megadrought, which began in 2000, has been identified as the driest period in at least 1,200 years. Such extreme droughts are projected to become twice as frequent by 2060.

### Declining Water Supplies and Increased Dependence on Imported Water

Santa Fe Springs relies heavily on imported water from the Metropolitan Water District of Southern California (MWD), which sources water from the State Water Project (SWP) and the Colorado River Basin. The Sierra Nevada snowpack, which supplies approximately 30% of California's water, is projected to shrink by up to 65% by 2100, leading to significantly reduced runoff into SWP reservoirs. Colorado River Basin is experiencing historic lows, with key reservoirs like Lake Mead and Lake Powell reaching their lowest levels in recorded history in 2022. This situation has prompted federal negotiations on mandatory water cuts for California, Arizona, and Nevada, potentially impacting Santa Fe Springs' supply from the MWD Colorado River Aqueduct.
Groundwater recharge rates in the Central Basin Aquifer, serving Santa Fe Springs, are expected to decline, increasing reliance on costlier imported water. Over-extraction of groundwater during drought periods also contributes to land subsidence risks.

### Extreme Weather and Precipitation Variability ("Precipitation Whiplash")

Climate models indicate that Santa Fe Springs and Southern California will experience more extreme shifts between drought and flooding, known as "precipitation whiplash." This occurs when prolonged dry conditions are abruptly followed by intense rainfall, leading to runoff, erosion, and reduced groundwater replenishment. The frequency of extreme atmospheric river storms, which deliver the bulk of California's precipitation, is expected to increase by 25% by 2070. However, these events will not be evenly distributed throughout the year, meaning that much of the rainfall will not sufficiently replenish groundwater or reservoir storage. Periods of extreme heat during droughts will further increase water demand, stressing local water distribution systems and creating higher costs for residents, businesses, and industrial facilities.

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# 3.3.3 Earthquake

## Hazard Description

An earthquake is a sudden and violent shaking of the ground caused by the release of energy within the Earth's crust due to movement along fault lines. This energy release generates seismic waves that propagate outward, resulting in ground shaking, surface rupture, soil liquefaction, landslides, and, in some cases, tsunamis. Earthquakes vary in magnitude, depth, and duration, with impacts ranging from minor tremors to catastrophic destruction. Their severity depends on factors such as the amount of energy released, proximity to the epicenter, depth of the seismic activity, and local geological conditions. Because seismic events occur without warning, they are among the most unpredictable and destructive natural hazards.

### Types of Earthquakes

**Tectonic Earthquakes:** The majority of earthquakes occur due to the movement of tectonic plates. In California, seismic activity primarily results from strike-slip faults, where plates slide past each other horizontally. The San Andreas Fault, which defines the boundary between the Pacific and North American Plates, is the most well-known fault system in the region. Other significant fault systems in Southern California include the Whittier Fault, the Newport-Inglewood Fault, and the Puente Hills Fault, each capable of producing destructive earthquakes.

**Induced Seismicity:** Human activities, including groundwater extraction, oil and gas drilling, and wastewater injection, can also trigger earthquakes, a phenomenon known as induced seismicity. Such events have been documented in California's oil-producing regions, where subsurface pressure changes have led to small-to-moderate seismic activity.

### Ground Shaking and Secondary Effects

The primary hazard associated with earthquakes is ground shaking, which can lead to structural collapse, damage to critical infrastructure, and widespread disruptions. Additional secondary hazards include:

- **Surface Rupture** – If an earthquake occurs along a shallow fault, ground displacement may damage roads, pipelines, and buildings.
- **Liquefaction** – Areas with loose, water-saturated soils are at risk of liquefaction, where the ground temporarily behaves like a liquid, leading to building collapses and infrastructure failure.
- **Landslides** – Steep slopes and hillsides in the Puente Hills region may be vulnerable to landslides following seismic activity.
- **Fire Risk** – Broken gas lines and electrical failures caused by earthquakes increase the risk of post-seismic fires, a major concern in urbanized areas.

## Location and Geographic Extent

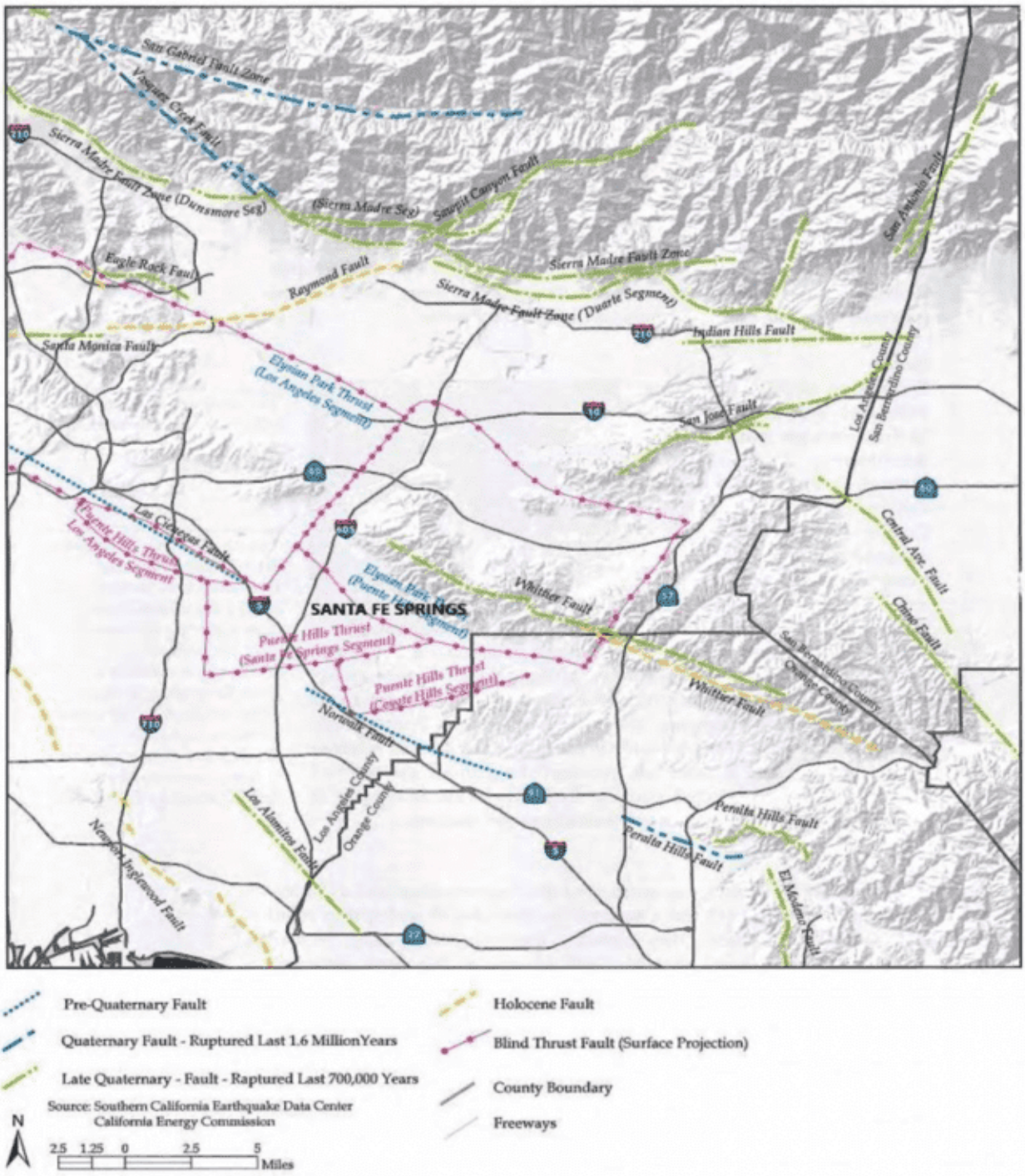


*Figure 12 – Map of Faults Near the City of Santa Fe Springs.*

Santa Fe Springs is located in a seismically active region of Southern California, where multiple active fault systems pose significant earthquake risks. The city is in Los Angeles County, an area classified as having high seismic hazard potential due to its proximity to several major faults. These faults, capable of producing moderate to severe earthquakes, include:

- Whittier Fault – A right-lateral strike-slip fault running through the Puente Hills region, just north of Santa Fe Springs. It is capable of producing magnitude 6.5 to 7.0 earthquakes, which could cause severe ground shaking and structural damage.
- Puente Hills Fault System – A blind thrust fault located beneath the Los Angeles Basin, including areas near Santa Fe Springs. This fault has the potential to generate a magnitude 7.5 earthquake, with significant surface displacement and strong ground shaking.
- Norwalk Fault – A smaller but active fault near the Santa Fe Springs-Norwalk border. Though less studied than the Whittier and Puente Hills faults, its movement could exacerbate localized ground shaking effects.
- San Andreas Fault – Although not immediately adjacent to Santa Fe Springs, the San Andreas Fault presents a regional risk. A magnitude 7.8 or greater earthquake along this fault could trigger widespread damage throughout Southern California, including secondary effects such as liquefaction, power outages, and transportation disruptions affecting Santa Fe Springs.

The California Geological Survey (CGS) and U.S. Geological Survey (USGS) classify Santa Fe Springs as part of a high-liquefaction susceptibility zone, particularly in areas underlain by saturated, loose soils, which could amplify ground shaking and contribute to infrastructure failure during a significant seismic event.

## Relationship to Land Use and Development

Figure S-1: Seismic Hazards

RE-IMAGINE SANTA FE SPRINGS | 2040 GENERAL PLAN

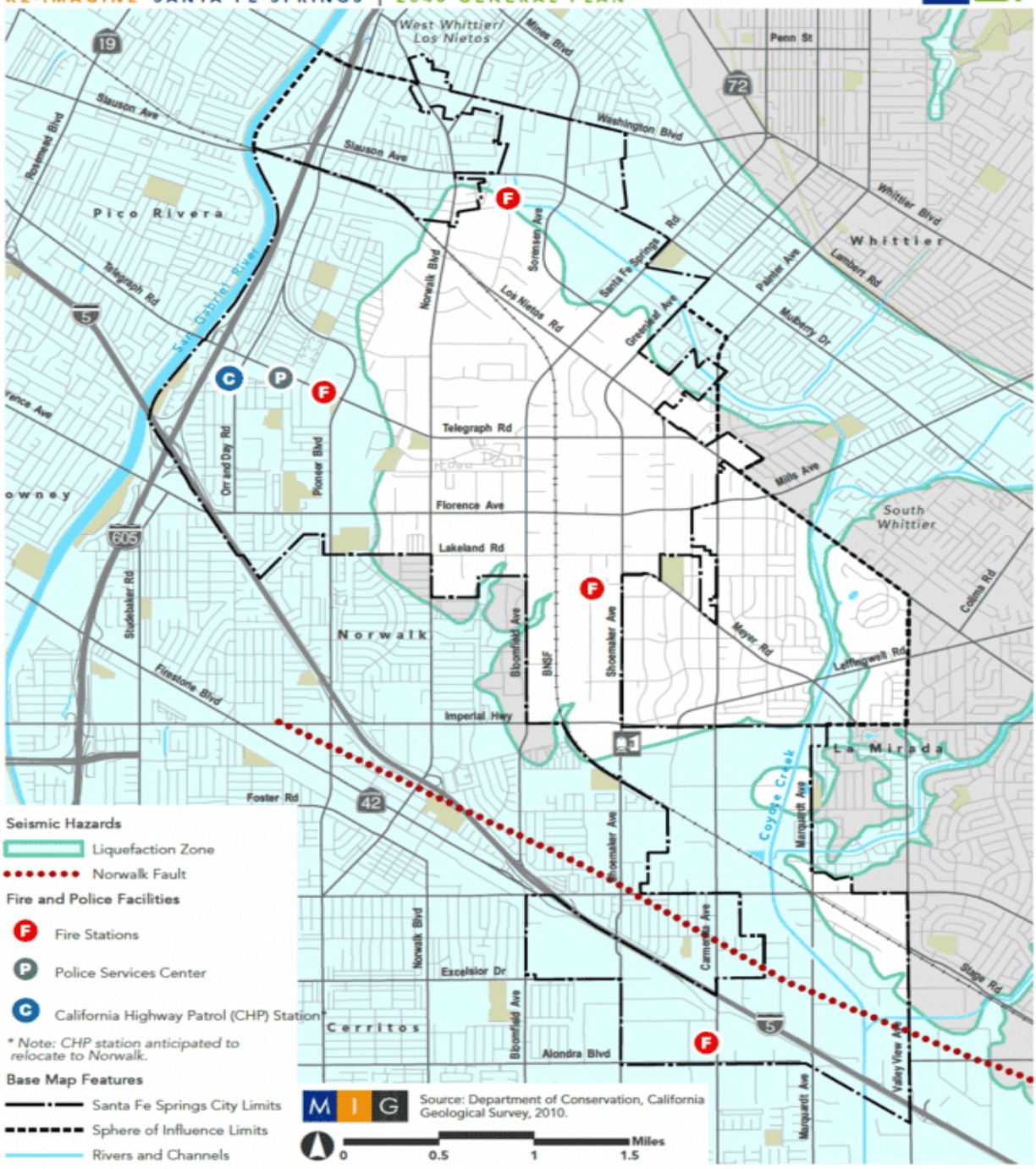


*Figure 13 – Seismic Hazards Map (Source: SCAG).*

Santa Fe Springs' urban environment consists of a mix of residential, commercial, and industrial development, all of which have varying levels of vulnerability to earthquake hazards.

**Industrial and Commercial Corridors:** Santa Fe Springs is home to a large number of industrial facilities, warehouses, and commercial centers, particularly along Telegraph Road, Norwalk Boulevard, and Firestone Boulevard. Many older industrial buildings were constructed before modern seismic codes, making them more vulnerable to structural failure, hazardous materials spills, and disruptions to supply chains in the event of a major earthquake.

**Residential Areas:** The city's residential neighborhoods, including areas near Carmenita Road and Pioneer Boulevard, primarily consist of single-family homes and low-rise apartment buildings. Older homes built before California's 1970s seismic building code updates may be at risk of foundation failure, chimney collapses, and severe structural damage.

**Critical Infrastructure and Public Facilities:** Several critical infrastructure systems in Santa Fe Springs could be severely impacted by strong earthquakes, including:

- Water and Sewer Lines – The city relies on an extensive underground water and wastewater system, which may be damaged by ground displacement, liquefaction, or fault rupture.
- Electric and Natural Gas Utilities – The city's electric grid and natural gas pipelines are susceptible to fire hazards, explosions, and prolonged power outages following a major earthquake.
- Transportation Corridors – Key regional transportation routes, including Interstate 5, Interstate 605, and State Route 60, pass near Santa Fe Springs. A major earthquake could cause overpass collapses, roadway cracking, and traffic disruptions, severely impacting emergency response efforts.

## Liquefaction and Soft-Soil Hazards

Santa Fe Springs has several areas where loose, water-saturated soils could undergo liquefaction during seismic events, leading to severe ground instability and structural collapse. According to the California Geological Survey, the areas most susceptible to liquefaction are near the San Gabriel River floodplain and low-lying industrial zones. Ground shaking in these areas could result in infrastructure damage, utility line failures, and increased costs for post-earthquake recovery.

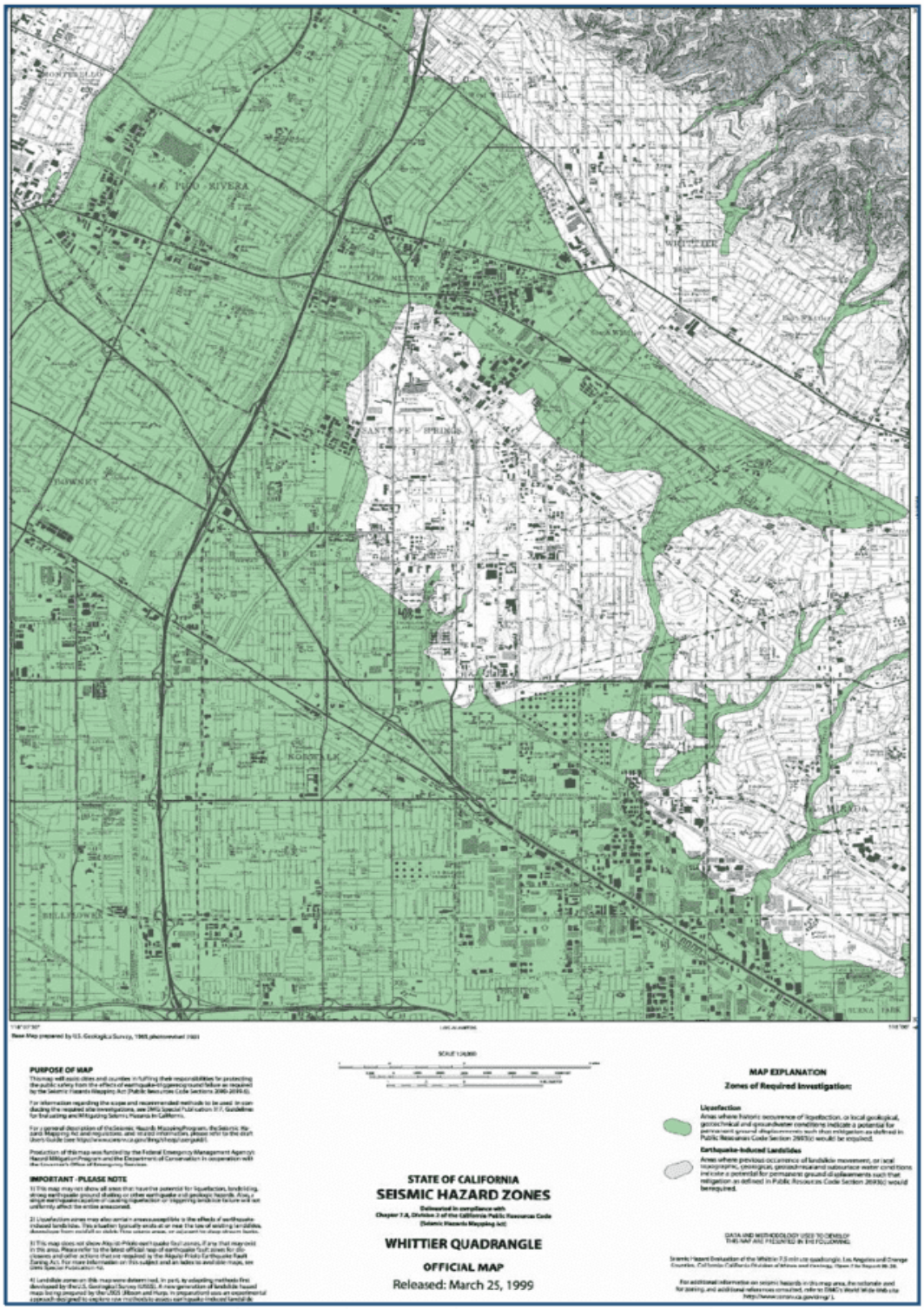


*Figure 14 – Seismic Hazard Zone Map*

## Magnitude and Severity

Earthquake severity is measured using two primary scales: magnitude, which quantifies the energy released at the earthquake's source, and intensity, which describes the observed effects on people, structures, and the environment at different locations.

The Moment Magnitude Scale (Mw) is the most widely used measure of earthquake size, replacing the older Richter Scale. It quantifies the total energy released by an earthquake by considering fault length, slip amount, and rock rigidity. The Richter Scale, developed in 1935, assigns a logarithmic magnitude value to seismic events, where each whole-number increase represents a tenfold increase in amplitude and approximately 32 times more energy release.

Magnitude Classifications:

- Minor (Mw <3.0) – Generally not felt but recorded by seismographs.
- Light (Mw 3.0–4.9) – Often felt, but rarely causes damage.
- Moderate (Mw 5.0–5.9) – Can cause damage to poorly built structures.
- Strong (Mw 6.0–6.9) – Can cause widespread damage, particularly near the epicenter.
- Major (Mw 7.0–7.9) – Causes significant destruction over a large area.
- Great (Mw 8.0+) – Capable of catastrophic damage and widespread impact.

The Modified Mercalli Intensity (MMI) Scale categorizes earthquakes based on their observed effects on people, buildings, and natural features. It is measured on a Roman numeral scale from I (Not Felt) to XII (Total Destruction). Unlike magnitude, which remains constant for a given earthquake, MMI values vary by location based on distance from the epicenter, soil composition, and building vulnerability.

Intensity Levels:

- I – Instrumental: Not felt except by very sensitive instruments.
- IV – Light: Felt indoors by many, outdoors by few; no damage.
- VII – Very Strong: Noticeable damage to buildings; furniture overturned.
- IX – Violent: Severe damage, some buildings collapse.
- XII – Catastrophic: Total destruction; ground movement visible.

Santa Fe Springs is at high risk for strong ground shaking due to its proximity to the Whittier Fault, Puente Hills Fault System, and the Norwalk Fault. Based on USGS ShakeMap projections, a magnitude 6.5–7.5 earthquake on the Whittier Fault could generate MMI VIII (Severe) to MMI IX (Violent) shaking in Santa Fe Springs. This level of intensity could result in:

- Severe infrastructure damage to older buildings, roads, and bridges.
- Widespread power outages due to transmission line failures.
- Potential ruptures in water and gas pipelines, increasing fire risk.
- Liquefaction hazards in areas with water-saturated soils, particularly in industrial zones.

## Historical Occurrences

The following data comes from FEMA's Disaster Declarations for States and Counties (https://www.fema.gov/data-visualization/disaster-declarations-states-and-counties).:

| Incident Subcategory | County | FEMA Declaration String | Calendar Year of Declaration | Date Month | Declaration Date | Declaration Title | State |
|---|---|---|---|---|---|---|---|
| Other | Los Angeles County | DR-299-CA | 1971 | February | 2/9/1971 | SAN FERNANDO EARTHQUAKE | CA |
| Other | Los Angeles County | DR-799-CA | 1987 | October | 10/7/1987 | EARTHQUAKE & AFTERSHOCKS | CA |
| Other | Los Angeles County | DR-1008-CA | 1994 | January | 1/17/1994 | NORTHRIDGE EARTHQUAKE | CA |

Santa Fe Springs is located in one of the most seismically active regions in the United States, with a history of moderate to strong earthquakes that have impacted Los Angeles County and the surrounding areas. Due to its proximity to major fault systems, including the Whittier Fault, Puente Hills Fault System, and Norwalk Fault, the city remains vulnerable to damaging seismic events. Several significant earthquakes have affected the region, leading to FEMA Major Disaster Declarations (DR) for Los Angeles County.

- **1971 San Fernando Earthquake (Magnitude 6.6)**
  - Date: February 9, 1971
  - Epicenter: San Fernando Valley, approximately 30 miles northwest of Santa Fe Springs
  - Impacts: Severe structural damage to buildings, freeway overpass collapses, and hospital failures
  - Casualties: 65 fatalities and more than 2,000 injuries
  - Economic Losses: Estimated at over $500 million
  - FEMA Major Disaster Declaration: DR-299-CA
- **1987 Whittier Narrows Earthquake (Magnitude 5.9)**
  - Date: October 1, 1987
  - Epicenter: Whittier Narrows, approximately five miles northeast of Santa Fe Springs
  - Impacts: Widespread structural damage, particularly in Whittier, Montebello, and Santa Fe Springs
  - Casualties: 8 fatalities, over 200 injuries
  - Economic Losses: Estimated at $358 million
  - FEMA Major Disaster Declaration: DR-799-CA

- **1994 Northridge Earthquake (Magnitude 6.7)**
  - Date: January 17, 1994
  - Epicenter: San Fernando Valley
  - Impacts: Severe shaking (Modified Mercalli Intensity IX – Violent), freeway collapses, structural failures, and widespread power outages
  - Casualties: 57 fatalities, over 9,000 injuries
  - Economic Losses: Exceeded $40 billion, making it one of the costliest earthquakes in U.S. history
  - Santa Fe Springs Impact: Moderate to strong shaking, reports of structural damage to commercial and industrial facilities
  - FEMA Major Disaster Declaration: DR-1008-CA

- **2014 La Habra Earthquake (Magnitude 5.1)**
  - Date: March 28, 2014
  - Epicenter: One mile east of La Habra, four miles north of Fullerton
  - Impacts: Ground shaking recorded throughout Los Angeles and Orange counties, minor structural damage, power outages, and small ground fissures
  - Aftershocks: Included a magnitude 4.1 event in Rowland Heights

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Moderate.***

Seismic risk in Santa Fe Springs is assessed using Probabilistic Seismic Hazard Analysis (PSHA), which estimates the likelihood of different levels of ground shaking over a given time period. The United States Geological Survey (USGS) and the California Geological Survey (CGS) provide earthquake probability models based on historical seismic activity, fault slip rates, and geologic conditions.

The 2024 Uniform California Earthquake Rupture Forecast (UCERF3) estimates a 72% probability of a magnitude 6.7 or greater earthquake in Southern California within the next 30 years. The Whittier Fault, Puente Hills Fault System, and San Andreas Fault pose the greatest risk to Santa Fe Springs. The Whittier Fault has a 20-25% probability of producing a magnitude 6.7+ earthquake within the same period, which could cause significant damage to the city. The Puente Hills Fault System is of particular concern due to its location beneath dense urban areas of Los Angeles County. A magnitude 7.5 earthquake on this fault could produce extreme shaking (MMI IX-X) in Santa Fe Springs, causing major infrastructure failures and economic losses.
Seismic ground shaking intensity maps classify Santa Fe Springs as part of a high-risk zone for strong ground motion, especially in areas with loose alluvial soils near the San Gabriel River floodplain. Liquefaction hazard modeling from the CGS identifies portions of Santa Fe Springs as highly susceptible to ground failure, particularly in industrial zones and near transportation corridors.

Recent research indicates that multi-fault ruptures are more common than previously thought. Future earthquakes could involve simultaneous movement along multiple connected fault segments. A rupture involving both the Whittier and Puente Hills faults could result in a magnitude 7.0–7.5 earthquake, significantly amplifying damage in Santa Fe Springs.

Many industrial and commercial structures in Santa Fe Springs were constructed before California's 1970s seismic building code updates, increasing the probability of severe structural failures in a major earthquake.

Climate change does not directly cause earthquakes, it may influence secondary hazards such as landslides and post-seismic flooding. Prolonged droughts may weaken soil stability, exacerbating landslide risks on steep slopes following seismic events. Extreme precipitation events associated with climate change may contribute to post-earthquake flooding, further complicating emergency response and recovery.

## 3.3.4 High wind/storms

### Hazard Description

High wind events in Santa Fe Springs result from a variety of meteorological phenomena, including thunderstorm inflows and outflows, downburst winds, strong frontal systems, and pressure gradient winds driven by high- and low-pressure systems. These events include Santa Ana winds, severe thunderstorms, and high-intensity frontal storms, all of which pose risks to infrastructure, utilities, and public safety.

**Santa Ana Winds:** Santa Ana winds originate in the Great Basin region of Nevada and Utah and move downslope into Southern California due to high-pressure systems. As these winds descend, they experience compressional heating, warming by approximately five degrees Fahrenheit per 1,000 feet of descent, creating extremely dry conditions. These winds are most common between September and April, with peak activity in the fall and early winter months. During strong events, wind speeds in Santa Fe Springs can reach sustained levels of 50 to 70 mph, with gusts exceeding 100 mph in certain locations. Santa Ana winds significantly increase wildfire risks, as they rapidly spread flames through dry vegetation, leading to large-scale fire disasters and FEMA-declared emergencies.

**Thunderstorm and Downburst Winds:** Thunderstorm-related winds result from rapid downdrafts, creating damaging straight-line winds. Downburst winds occur when storm clouds collapse, forcing a powerful surge of air toward the ground. These winds can reach speeds of 60 to 80 mph and are capable of uprooting trees, damaging power lines, and disrupting transportation networks. The force of these winds poses risks to aviation, utility infrastructure, and buildings, particularly those constructed before modern wind-resistant building codes were in place.

**Gradient Winds from Storm Systems:** Large-scale storm systems moving through Southern California generate strong gradient winds, particularly during winter storms. These winds develop when intense pressure differences drive sustained wind speeds of 40 to 60 mph, with higher gusts in areas with open terrain or near passes and canyons. Winter frontal storms associated with the Pacific jet stream often lead to long-duration high wind events, which can cause widespread utility outages, structural damage, and disruptions to transportation corridors.

### Location and Geographic Extent

Santa Fe Springs is vulnerable to high wind events, including Santa Ana winds and storm-induced windstorms. Regional meteorological patterns indicate that strong easterly winds, particularly Santa Ana winds, are funneled through nearby mountain passes, intensifying as they move into the Los Angeles Basin. These events are most frequent between September and April, with peak activity in the fall and early winter months. The National

Weather Service (NWS) identifies these winds as capable of reaching sustained speeds exceeding 40 mph, with gusts surpassing 60 mph during extreme events.

The city's topography and surrounding landscape influence wind flow and intensity. Santa Fe Springs' location within the Los Angeles Basin, adjacent to inland valleys, creates conditions where high winds accelerate as they move westward. Wind hazards are not evenly distributed across the city. Areas with wide, open spaces, such as industrial corridors, major transportation routes (Interstate 5 and the Santa Fe Springs Metrolink corridor), and commercial districts, experience higher wind exposure. These locations are particularly vulnerable to wind-related damage, including debris hazards, downed power lines, and structural failures.

State and local hazard assessments have classified portions of Los Angeles County, including Santa Fe Springs, as high-risk areas for wind damage. The California State Hazard Mitigation Plan (SHMP) identifies utility disruptions, infrastructure damage, and wildfire ignition from wind-driven embers as primary risks. The Los Angeles County Climate Vulnerability Assessment corroborates these findings, emphasizing the increased frequency and severity of high wind events in urbanized areas with significant electrical infrastructure.

## Relationship to Land Use and Development

**Industrial Areas:** Santa Fe Springs has a significant number of industrial and warehouse facilities, many of which have lightweight roofing materials and large, expansive structures prone to wind damage. These buildings can act as wind catchers, making them particularly susceptible to roof failures, siding detachment, and hazardous debris accumulation during strong wind events. Industrial zones also contain hazardous material storage, which presents additional risks if containment systems are compromised.

**Transportation Corridors:** The presence of major highways, rail lines, and trucking hubs makes Santa Fe Springs vulnerable to wind-related transportation disruptions. High winds can overturn high-profile vehicles, such as trucks and trailers, leading to road closures and accidents. Debris hazards, including fallen trees and damaged signage, frequently obstruct roadways. Rail operations may also experience disruptions due to overhead power line failures or debris accumulation along tracks.

**Residential Neighborhoods:** Residential areas, particularly older neighborhoods with mature trees and above-ground power lines, are at an increased risk of power outages and property damage. High winds can break large tree limbs, causing significant damage to homes and vehicles. Wind-driven debris, such as loose roofing materials and outdoor furniture, can become projectiles that pose additional safety hazards. Older homes constructed before California's modern building code updates may lack adequate wind-resistant features, increasing their susceptibility to structural damage.

**Critical Infrastructure:** High winds present a substantial threat to power distribution infrastructure, communication networks, and emergency response operations. Downed power lines frequently result in extended outages, disrupting businesses and essential services. In extreme cases, power failures can hinder

emergency response efforts by disabling traffic signals, communication towers, and essential public safety facilities. Utility companies have implemented Public Safety Power Shutoffs (PSPS) during extreme wind events to reduce wildfire risk, but these preventive measures also introduce challenges for businesses and residents reliant on uninterrupted power supply.

## Magnitude and Severity

Understanding the magnitude and severity of high wind events in Santa Fe Springs requires the use of standardized meteorological scales that quantify wind speeds, storm intensity, and associated damage potential. While hurricanes and tornadoes are rare, the region experiences significant risks from Santa Ana winds, winter storms, and atmospheric river events, all of which can impact infrastructure, transportation, and public safety.

https://www.icams-portal.gov/resources/ofcm/fmh/FMH1/fmh1_2019.pdf

**Table 8-1. Intensity of Rain or Ice Pellets Based on Rate-of-Fall**

| Intensity | Criteria |
|---|---|
| Light | Up to 0.10 inch per hour; maximum 0.01 inch in 6 minutes. |
| Moderate | 0.11 inch to 0.30 inch per hour; more than 0.01 inch to 0.03 inch in 6 minutes. |
| Heavy | More than 0.30 inch per hour; more than 0.03 inch in 6 minutes. |

**Table 8-2. Estimating Intensity of Rain**

| Intensity | Criteria |
|---|---|
| Light | From scattered drops that, regardless of duration, do not completely wet an exposed surface up to a condition where individual drops are easily seen. |
| Moderate | Individual drops are not clearly identifiable; spray is observable just above pavements and other hard surfaces. |
| Heavy | Rain seemingly falls in sheets; individual drops are not identifiable; heavy spray to height of several inches is observed over hard surfaces. |

## Beaufort Scale

| Beaufort number | Wind Speed (mph) | Seaman's term | | Effects on Land |
|---|---|---|---|---|
| 0 | Under 1 | Calm |  | Calm; smoke rises vertically. |
| 1 | 1-3 | Light Air |  | Smoke drift indicates wind direction; vanes do not move. |
| 2 | 4-7 | Light Breeze |  | Wind felt on face; leaves rustle; vanes begin to move. |
| 3 | 8-12 | Gentle Breeze |  | Leaves, small twigs in constant motion; light flags extended. |
| 4 | 13-18 | Moderate Breeze |  | Dust, leaves and loose paper raised up; small branches move. |
| 5 | 19-24 | Fresh Breeze |  | Small trees begin to sway. |
| 6 | 25-31 | Strong Breeze |  | Large branches of trees in motion; whistling heard in wires. |
| 7 | 32-38 | Moderate Gale |  | Whole trees in motion; resistance felt in walking against the wind. |
| 8 | 39-46 | Fresh Gale |  | Twigs and small branches broken off trees. |
| 9 | 47-54 | Strong Gale |  | Slight structural damage occurs; slate blown from roofs. |
| 10 | 55-63 | Whole Gale |  | Seldom experienced on land; trees broken; structural damage occurs. |
| 11 | 64-72 | Storm |  | Very rarely experienced on land; usually with widespread damage. |
| 12 | 73 or higher | Hurricane Force |  | Violence and destruction. |

*Figure 15 – Beaufort Scale*

**Beaufort Wind Force Scale:** The Beaufort Wind Force Scale classifies wind speeds based on their observed effects on land and structures. In Santa Fe Springs, the most relevant categories include:

- Beaufort Force 6-7 (25-38 mph): Strong winds that can displace unsecured objects, impact high-profile vehicles, and accelerate wildfire spread.
- Beaufort Force 8-9 (39-54 mph): Gale-force winds capable of breaking tree limbs, causing minor structural damage, and resulting in power outages.
- Beaufort Force 10-11 (55-73 mph): Storm-force winds that present significant risks to infrastructure, including damage to mobile homes and lightweight structures.

**National Weather Service (NWS) High Wind Warning Criteria:** The NWS issues alerts based on sustained wind speeds and gusts:

- Wind Advisory: Sustained winds of 31-39 mph or gusts of 46-57 mph for over an hour.
- High Wind Warning: Sustained winds of 40+ mph or gusts exceeding 58 mph, with structural damage likely.
- Extreme Wind Warning: Sustained winds over 115 mph, typically associated with extreme storm conditions.

The severity of high wind hazards depends on several factors, including wind speed, duration, and environmental conditions such as topography and urban development. Santa Fe Springs is particularly vulnerable to three primary types of high wind events:

**Santa Ana Winds:** Santa Ana winds are warm, dry winds that develop from high-pressure systems over the Great Basin, accelerating as they move downslope into Southern California. These winds can persist for several days and create extreme fire conditions due to low humidity and high temperatures.

- Typical sustained wind speeds range from 40-60 mph, with peak gusts exceeding 80 mph in extreme cases.
- Major impacts include wildfire spread, downed power lines, roadway hazards, and airborne debris, all of which increase emergency response demands.
- Historical Santa Ana wind events have resulted in widespread infrastructure damage and FEMA-declared disasters due to fire ignition and rapid flame spread.

**Thunderstorm Winds and Microbursts:** Severe convective storms can generate strong winds, including microbursts and straight-line winds, which are particularly dangerous due to their sudden onset and localized nature.

- Wind speeds in microbursts can reach 60-100 mph, producing damage comparable to an EF0-EF1 tornado.
- Potential impacts include roof failures, structural collapses, and disruptions to aviation and transportation infrastructure.

**Atmospheric River Events:** Atmospheric rivers are long, narrow bands of concentrated moisture that bring heavy precipitation and strong winds to California, particularly during winter storm systems. These events have become more intense due to climate change, leading to increased hazards from both wind and flooding.

- Wind speeds associated with atmospheric rivers typically range from 40-70 mph, especially along storm fronts.
- Secondary hazards include widespread flooding, road closures, and increased soil saturation, which can lead to landslides.

## Historical Occurrences

Several high-wind events have affected Santa Fe Springs and the broader Los Angeles County area, resulting in infrastructure damage, power outages, and transportation disruptions, with some prompting federal disaster declarations.

- **December 2011 Southern California Windstorm:** One of the most severe wind events to impact the Los Angeles Basin occurred on December 1-2, 2011, caused by a strong pressure gradient over the Great Basin. Sustained winds reached 40-60 mph, with gusts exceeding 80 mph in localized areas. The

storm led to widespread power outages, affecting over 400,000 residents, with some outages lasting multiple days. Emergency response teams managed blocked roadways, damaged commercial signage, and structural failures. Although this event did not trigger a federal disaster declaration, it resulted in significant state-level emergency response actions.

- **February 2017 Pacific Storm System:** A powerful atmospheric river event in February 2017 brought damaging winds, heavy rainfall, and localized flooding to Santa Fe Springs and surrounding communities. Wind speeds reached 50-65 mph, causing tree falls, property damage, and power disruptions. The storm contributed to FEMA Disaster Declaration DR-4301-CA, which covered multiple counties in Southern California due to storm-related damages, including wind and flood impacts.
- **January 2023 Winter Storm and Wind Event:** In early January 2023, a series of winter storms driven by atmospheric rivers produced widespread damaging winds and intense rainfall across the region. Santa Fe Springs experienced gusts exceeding 60 mph, leading to damaged signage, utility failures, and transportation slowdowns. The storm contributed to FEMA Disaster Declaration DR-4683-CA, issued due to the widespread damage across California. This event highlighted the increasing frequency of high-impact storm systems and the need for enhanced resilience planning.
- **October 2020 Santa Ana Wind Event:** Santa Ana wind events are a recurring seasonal hazard for Santa Fe Springs, with high wind speeds, dry conditions, and elevated wildfire risks. The October 2020 event was particularly severe, with wind gusts exceeding 70 mph, resulting in power outages and hazardous driving conditions. The event coincided with extreme wildfire conditions, with embers from nearby fires traveling up to one mile, increasing ignition risks in urban areas. While no FEMA declaration was issued, local emergency response teams implemented high wind advisories, wildfire mitigation measures, and power shutoff protocols.

All EMs and DRs for High Winds/Severe Storms are located in the Historic Disaster Declarations table as “Severe Storm” or “Tropical Storm” on pages 29-38.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Likely.***

While hurricanes and tornadoes remain low-probability hazards, Santa Ana wind events, atmospheric river-driven storms, and convective windstorms are projected to undergo significant changes due to climate change, affecting both frequency and intensity.


*Figure 16 – Precipitation Projections for the City of Santa Fe Springs*

## Wind Speed Probability Models

Wind speed probability models integrate historical wind data, meteorological patterns, and climate projections to estimate the likelihood of high-wind events in Santa Fe Springs. Agencies such as the National Weather Service (NWS), FEMA, and Cal OES use these models to predict wind hazards and inform emergency planning.

**Santa Ana Winds**: Historically, Southern California experiences 20-40 Santa Ana wind events per year, with peak gusts ranging from 40-80 mph. Climate projections indicate a potential reduction in frequency but an increase in intensity of strong wind events.

**Severe Windstorms**: The probability of storm-related winds exceeding 50 mph is estimated at once every 5-10 years, mainly from Pacific storm systems.

**Extreme Wind Events (60+ mph)**: Climate models suggest a 1-3% annual probability, typically associated with convective thunderstorms, downbursts, or frontal systems.

Recurrence intervals, or return periods, estimate the likelihood of an event occurring over a given timeframe. Based on historical data from NWS and FEMA:

- **40-50 mph winds**: Expected every 1-2 years.
- **50-60 mph winds**: Expected every 5-10 years.
- **60+ mph winds**: Expected every 10-25 years.

- **80+ mph winds**: Historically rare but possible in Santa Ana wind corridors or during extreme storm events.

Climate models from NOAA's Geophysical Fluid Dynamics Laboratory (GFDL) and the California Climate Assessment indicate shifts in wind patterns due to atmospheric changes. Santa Ana wind events may decrease in overall frequency by 2050, but the intensity and duration of strong wind events will increase. Winter storm wind speeds are projected to rise by 5-10% due to enhanced storm intensities driven by warming Pacific waters and intensified atmospheric rivers. Convective windstorms, including microbursts and downbursts, are expected to become more common, with gusts exceeding 60 mph occurring 30-50% more frequently by 2050.

## Future Projections for Hazard Severity and Frequency

**Santa Ana Winds:** Peak wind speeds may increase by 5-15% by 2050 due to stronger pressure gradients. Multi-day windstorms are expected to become more common, exacerbating wildfire risk and air quality degradation. Urban expansion and climate change may increase wind-driven fire hazards, necessitating stricter vegetation management and infrastructure resilience planning.

**Pacific Storm Systems:** Atmospheric rivers and extratropical cyclones will bring stronger winds, particularly during the winter storm season. Wind speeds exceeding 50 mph may become twice as frequent by 2050, increasing risks of power outages, transportation disruptions, and structural damage. Rain-loaded storm systems will add compounding hazards, including wind-driven tree falls, debris flows, and urban flooding.

**Convective Windstorms:** Short-duration, high-impact wind bursts, including microbursts and straight-line winds, are projected to increase due to shifting atmospheric instability patterns. Severe wind gusts exceeding 60 mph from convective storms could occur 30-50% more frequently by 2050. Localized storm damage will increase, particularly in exposed areas with aging infrastructure.

Structural stress on buildings, power lines, and transportation networks will increase due to higher wind speeds. Wildfire risks will rise as Santa Ana winds become more intense and prolonged. Emergency response challenges will also grow, requiring updated protocols for wind-related power outages, road closures, and infrastructure failures.

# 3.3.5 Fire

## Hazard Description

**Urban fire:** Urban fires occur in developed areas and are fueled by buildings, industrial operations, vehicles, and hazardous materials. Santa Fe Springs, with its high concentration of industrial facilities, faces elevated risks due to fuel storage sites, transportation corridors, and aging infrastructure.

Key risk factors include:

- **Industrial and Commercial Fires**: The city contains refineries, chemical processing plants, and manufacturing facilities, which store flammable and combustible materials. Industrial accidents, electrical failures, or mechanical malfunctions can lead to large-scale fires. Facilities housing petroleum storage sites and chemical processing operations require specialized emergency response protocols to contain fire hazards before escalation.
- **Structural Fire Risks**: Aging commercial and residential buildings may lack modern fire-resistant materials, increasing fire spread potential. Multi-family housing units and mobile home parks present additional risks due to structure proximity and limited evacuation routes.
- **Electrical and Transportation Fire Risks**: Santa Fe Springs hosts major transportation routes, including Interstate 5, Interstate 605, and Washington Boulevard, where high volumes of commercial truck traffic pose fire risks due to hazardous cargo. Freight rail corridors, including BNSF and Union Pacific lines, pose additional fire risks from derailments or mechanical malfunctions.

**Wildfire and Wildfire Smoke:** Although Santa Fe Springs is not located within a primary wildfire hazard zone, indirect wildfire risks remain a concern due to ember transport, infrastructure vulnerabilities, and degraded air quality. Key risk factors include:

- **Ember Transport and Structural Ignition**: Santa Ana wind-driven embers can travel miles from active wildfires in neighboring Los Angeles and Orange Counties, igniting flammable materials in industrial yards, vacant lots, and older buildings.
- **Air Quality Impacts**: Wildfires in California generate widespread smoke plumes carrying fine particulate matter (PM2.5), carbon monoxide, and other harmful pollutants. Recent wildfire seasons have led to "Unhealthy" (AQI 150-200) and "Very Unhealthy" (AQI 200-300) conditions, disproportionately affecting vulnerable populations such as children, the elderly, and individuals with respiratory condition.
- **Urban Vegetation and Fuel Sources**: While the city is not heavily forested, dry vegetation in parks, rights-of-way, and vacant lots increases fire spread potential, particularly under extreme drought conditions

## Location and Geographic Extent

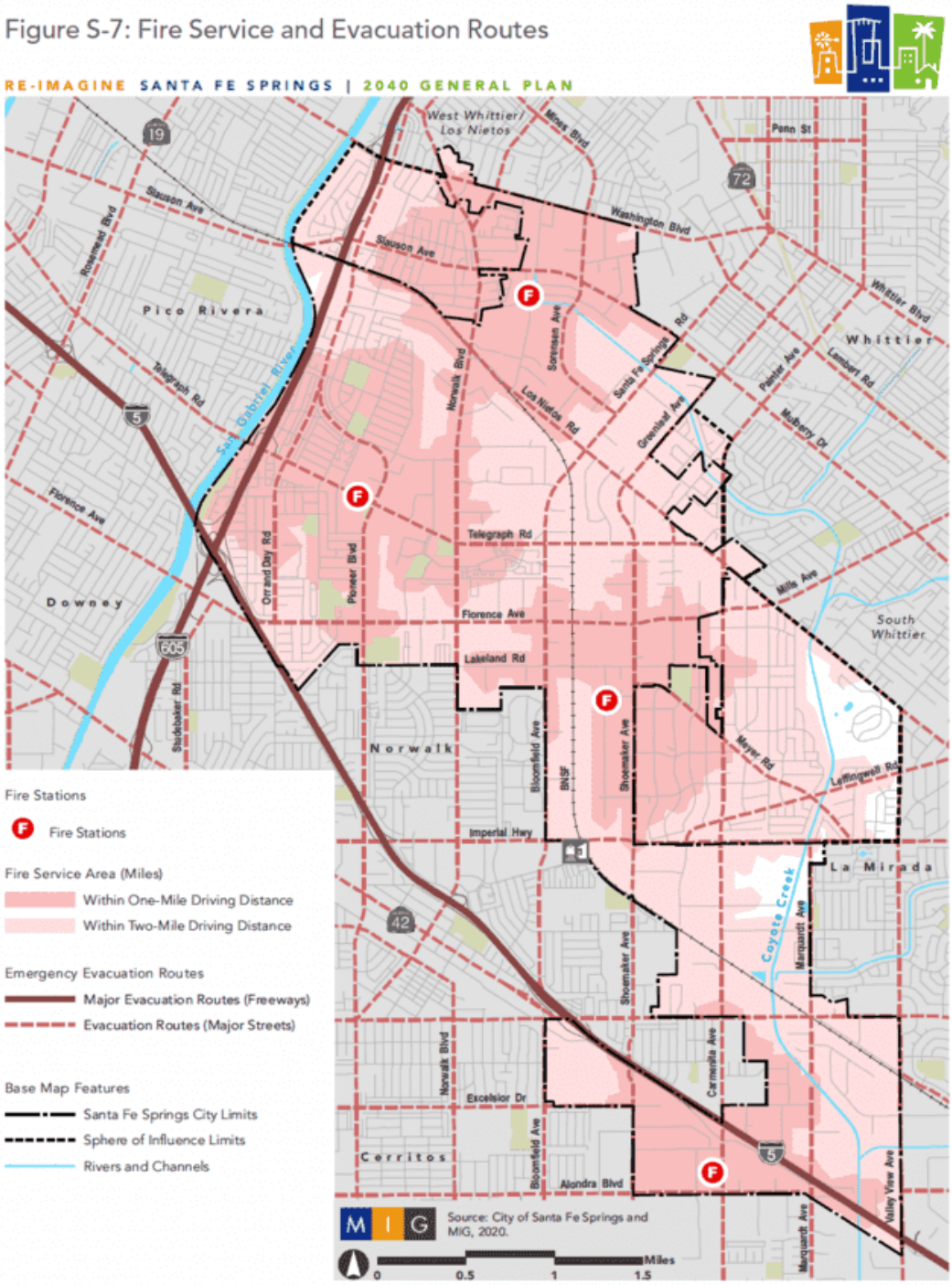


*Figure 17 – Fire Service and Evacuation Routes*

Santa Fe Springs faces fire hazards shaped by land use patterns, industrial activities, transportation infrastructure, and regional wildfire exposure. While the city does not have significant direct Wildland-Urban

Interface (WUI) exposure, it remains vulnerable to industrial and urban fire risks, as well as indirect wildfire impacts such as wind-driven ember transport and degraded air quality. Climate change is projected to increase these risks due to prolonged droughts, extreme heat, and more intense wildfire season

The city's fire hazard areas can be categorized into three primary zones: industrial, residential, and transportation corridors.

**Industrial Fire Risk Zones:** Santa Fe Springs contains a high concentration of industrial facilities, including manufacturing plants, chemical processing sites, and petroleum storage facilities, which elevate fire risk. High-risk areas include:

- **Petroleum storage and refining zones** in the western and central industrial districts, where flammable liquids and combustible gases increase the likelihood of large-scale fire incidents.
- **Chemical processing and hazardous material storage sites** near Telegraph Road and Slauson Avenue, where industrial fires can escalate into hazardous material releases.
- **Warehouse and logistics hubs**, particularly near Los Nietos Road, Pioneer Boulevard, and the eastern industrial corridor, where stored goods create high fuel loads for fire spread.

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**Residential Fire Risk Zones:** Though not at high wildfire risk, residential areas in Santa Fe Springs face structural fire hazards, power line-related ignitions, and ember transport from regional wildfires. High-risk residential zones include:

- **Older neighborhoods with aging electrical infrastructure**, particularly those with wood-frame housing or multi-family units lacking modern fire suppression systems.
- **Mobile home parks and high-density residential complexes**, where close building proximity and limited egress routes increase fire spread potential.
- **Areas near open spaces or vacant lots with dry vegetation**, where illegal dumping and lack of vegetation management elevate fire risks.

**Transportation and Utility Fire Risk Corridors:** Major transportation and utility corridors contribute to fire risk due to vehicle incidents, rail transport of hazardous materials, and electrical infrastructure failures. Key corridors include:

- **Interstate 5 and Interstate 605**, where vehicular fires and hazardous cargo spills pose fire hazards.
- **Washington Boulevard, Florence Avenue, and Telegraph Road**, where high truck traffic increases the risk of engine, tire, and fuel-related fires.
- **Freight rail corridors (BNSF and Union Pacific)**, which transport flammable materials and pose derailment risks.
- **Overhead power transmission lines**, particularly near industrial zones, where high-voltage equipment failures can spark fires in dry conditions or during Santa Ana wind events.

## Relationship to Land Use and Development

The distribution of fire hazards in Santa Fe Springs correlates strongly with land use patterns, particularly where industrial activity, transportation networks, and residential density intersect.

**Industrial Development and Fire Hazard Concentration:** Santa Fe Springs' land use plan designates a significant portion of the city for industrial and commercial uses, increasing vulnerability to hazardous material fires, electrical equipment failures, and large-scale structural fires. As industrial redevelopment occurs, updated fire codes, enhanced suppression systems, and emergency response planning will be required.

**Urban Density and Structural Fire Risk:** High-density development, especially in multi-family residential zones and commercial districts, increases structure-to-structure fire spread risk. Older buildings may lack fire-resistant materials or modern fire suppression systems.

## Magnitude and Severity

**Fire Intensity and Structural Impact – Fire Intensity Scale (FIS):** The Fire Intensity Scale (FIS) classifies fire severity based on energy release, flame length, and suppression difficulty. This scale is particularly relevant to Santa Fe Springs due to its industrial and commercial infrastructure, where high-intensity fires pose significant risks.

- **Class 1 (0-250 kW/m)**: Small, localized fires in structures or open areas, extinguishable with standard firefighting methods. Typically found in residential settings and small commercial spaces.
- **Class 2 (251-1,000 kW/m)**: Moderate-intensity fires in industrial or commercial zones requiring coordinated suppression efforts. Includes fires at warehouses or storage yards with moderate fuel loads.
- **Class 3 (1,001-10,000 kW/m)**: Large warehouse or industrial fires, wind-driven urban fires, and blazes with explosion risks. These fires may require multi-agency response and create hazardous smoke conditions.
- **Class 4 (10,001-50,000 kW/m)**: Hazardous material-related fires producing extreme heat and toxic smoke, requiring specialized response. Found in refinery zones and large industrial plants.
- **Class 5 (50,001+ kW/m)**: Large-scale conflagrations, refinery explosions, and urban firestorms necessitating mass evacuations.

**Wildfire Spread and Impact – National Fire Danger Rating System (NFDRS):** Although Santa Fe Springs is not located within a designated Very High Fire Hazard Severity Zone (VHFHSZ), indirect wildfire risks are present due to ember transport and degraded air quality. The NFDRS categorizes wildfire risk based on weather conditions, fuel moisture, and fire spread potential.

- **Low**: Fires spread slowly and are easily controlled, with minimal potential for regional impact.
- **Moderate**: Fires ignite in dry grass but spread is limited unless wind-driven. Some spot fires may reach urban areas during dry conditions.
- **High**: Fires spread rapidly in dry conditions, requiring enhanced suppression efforts. Embers may ignite flammable materials in industrial storage lots.

- **Very High**: Rapid fire spread under extreme conditions, including Santa Ana wind events. Potential for multi-structure involvement.
- **Extreme**: Explosive fire growth, necessitating multi-agency response and evacuations. Ember storms could significantly impact industrial areas.

**Ember Transport Risk – Spot Fire Probability Model:** Santa Fe Springs' vulnerability to ember transport is heightened by its industrial infrastructure and storage of flammable materials. The Spot Fire Probability Model assesses ember ignition risks based on wind speed and fuel sources.

- **40-60 mph winds**: Embers can travel 1-3 miles, igniting vegetation, wood structures, and flammable materials in open storage lots.
- **80+ mph winds**: Embers can travel over 5 miles, posing risks of spot fires in urban zones, particularly near industrial complexes and high-density housing.

**Air Quality Impact – Air Quality Index (AQI) for Wildfire Smoke:** Wildfire smoke from major California wildfires has previously impacted Santa Fe Springs, with AQI levels exceeding **200+ (Very Unhealthy)**. The AQI system measures pollution levels and associated health risks.

- **AQI 100-150**: Unhealthy for sensitive groups, requiring air quality advisories.
- **AQI 151-200**: Unhealthy for the general population, prompting recommendations to limit outdoor activities.
- **AQI 201-300**: Very unhealthy, necessitating outdoor activity restrictions and emergency health advisories.
- **AQI 300+**: Hazardous, triggering public health warnings, school closures, and emergency response measures.

## Fire Hazard Severity

Urban fire severity is considered high due to the presence of large-scale industrial zones, including facilities handling hazardous materials. These industrial areas present an increased risk of large, difficult-to-control fires that may require specialized suppression methods. Additionally, aging electrical infrastructure in older residential and commercial areas increases the likelihood of fire ignition due to equipment failures. The risk of fire is further heightened in high-density developments, where structure-to-structure fire spread can be a significant concern. Major transportation corridors running through the city also contribute to the overall fire hazard, as they frequently carry hazardous material shipments that pose additional fire ignition risks.

Wildfire and ember transport severity in Santa Fe Springs is considered moderate to high. Although the city does not experience direct wildfires, ember transport from regional wildfires presents an increasing risk. Frequent Santa Ana wind events elevate the likelihood of embers igniting flammable materials in industrial yards and open storage areas. Industrial storage sites containing highly combustible materials, such as lumber and chemicals, are particularly vulnerable under extreme fire weather conditions. The probability of spot fires igniting within the

urban core increases significantly during peak wildfire season, particularly during prolonged drought conditions, when vegetation and debris become more flammable.

## Historical Occurrences

Santa Fe Springs' fire history is shaped by its industrial landscape, hazardous material storage, and exposure to ember-driven wildfires from regional events. Over the past two decades, the city has experienced multiple large-scale fire incidents, including industrial fires, warehouse fires, and wind-driven ember ignitions.

- **2011 Industrial Fire at a Hazardous Materials Facility:** In October 2011, a hazardous materials storage facility near Slauson Avenue caught fire, resulting in multiple explosions and the release of toxic smoke. The fire originated in an area storing flammable chemicals, including solvents and petroleum-based products, which fueled rapid fire spread. Emergency officials ordered evacuations within a half-mile radius due to concerns about toxic fume exposure and potential secondary explosions. Over 100 firefighters from multiple departments responded, with hazardous materials teams monitoring air quality for several days. While the fire did not lead to a FEMA disaster declaration, it prompted regulatory changes in hazardous materials storage and industrial fire code enforcement.
- **2015 Commercial Warehouse Fire on Norwalk Boulevard:** A five-alarm warehouse fire broke out in March 2015 at a commercial distribution facility on Norwalk Boulevard. The fire started in a storage section containing highly flammable goods, including plastics, paper products, and industrial chemicals. Strong winds accelerated the fire's spread, leading to roof collapse and significant damage to adjacent businesses. Firefighters faced challenges in suppression due to limited hydrant access and the high volume of combustible materials. The fire required an eight-hour suppression effort, resulted in over $5 million in property damage, and led to minor injuries for two firefighters. This event underscored the need for improved fire suppression infrastructure in high-density industrial zones.
- **2020 Santa Ana Wind-Driven Ember Fires:** In October 2020, Santa Ana winds gusting between 60 and 70 mph carried embers from the Silverado Fire in Orange County into Santa Fe Springs, igniting multiple spot fires. Burning embers traveled over 15 miles, igniting dry vegetation in vacant lots and along roadways. One small structure fire occurred in an industrial yard, where wind-blown embers ignited flammable storage materials. Wildfire smoke from regional fires resulted in multiple "Very Unhealthy" (AQI 200+) air quality days, prompting health advisories and school closures. While no FEMA disaster declaration was issued specifically for Santa Fe Springs, the Silverado Fire was part of FEMA DR-4569-CA, which provided federal assistance for fire suppression in affected counties.
- **2022 Power Line Fire near I-5 Corridor:** A utility-related fire occurred in July 2022 near the I-5 corridor when a downed power line ignited dry brush along the freeway embankment. High temperatures and dry conditions contributed to rapid fire spread, requiring local fire crews to contain the fire before it spread beyond three acres. Two freeway lanes were temporarily closed to allow emergency responders access to the site. This incident highlighted the ongoing risk posed by electrical infrastructure failures, particularly during peak summer fire season

### FEMA Disaster Declarations Related to Fire Hazards

While the City of Santa Fe Springs has not been the direct recipient of a FEMA fire-related disaster declaration, several regional declarations have impacted the city due to wildfire smoke, ember transport, and emergency response coordination.

- **FEMA DR-4569-CA (October 2020 – Silverado Fire and Blue Ridge Fire):** This federal disaster declaration covered wildfires in Southern California, including the Silverado Fire in Orange County and the Blue Ridge Fire in Los Angeles and San Bernardino Counties. Santa Ana winds carried embers from these fires into Santa Fe Springs, igniting small vegetation fires and causing localized air quality degradation. Emergency services were placed on high alert due to the risk of additional fire spread, while public health officials issued advisories to warn residents about hazardous smoke conditions. While Santa Fe Springs was not directly eligible for FEMA assistance, regional agencies received funding for fire suppression and emergency response efforts.
- **FEMA DR-5285-CA (September 2022 – Statewide Wildfires and Smoke Impacts):** This disaster declaration covered multiple large-scale wildfires across California, including the Fairview Fire and Mosquito Fire. During this period, wildfire smoke caused air quality in Santa Fe Springs to deteriorate to "Unhealthy" (AQI 150-200) levels for multiple days, affecting outdoor activities and increasing emergency room visits for respiratory distress. While Santa Fe Springs did not receive direct federal assistance, regional disaster funding supported firefighting operations and emergency air quality monitoring in Southern California.

All EMs and DRs for High Winds/Severe Storms are located in the Historic Disaster Declarations table as “Fire” on pages 29-38.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Likely.***

Urban fire risk in Santa Fe Springs is influenced by land use density, industrial activity, and electrical infrastructure vulnerabilities. The probability of significant fire events remains high due to hazardous material storage, aging electrical systems, and mechanical failures. Additionally, large-scale warehouse and manufacturing facility fires pose a substantial risk, especially in areas where flammable chemicals and fuel storage are present. Transportation-related fires along I-5, I-605, and major freight rail corridors also contribute to fire hazards, as vehicle collisions or mechanical failures can ignite fires that spread to adjacent properties.

Predictive modeling suggests that while urban fire frequency may remain stable, fire intensity is expected to increase. Factors such as rising industrial activity, infrastructure aging, and increased energy demand leading to

electrical faults contribute to this projection. Enhanced fire-resistant building codes, stringent industrial fire safety regulations, and proactive infrastructure maintenance will be critical in mitigating these risks.

Although Santa Fe Springs is not directly located in a high wildfire risk zone, modeling studies indicate a growing risk from ember transport and regional wildfire activity. The Spot Fire Probability Model, developed by the U.S. Forest Service and CAL FIRE, predicts the likelihood of embers igniting secondary fires based on wind speed, vegetation conditions, and ignition sources. Santa Ana winds, which frequently reach speeds of 40-80 mph, increase the probability of embers traveling long distances and igniting fires in urban settings. Modeling results suggest that embers from regional wildfires in the San Gabriel Valley, Chino Hills, or Orange County have a moderate-to-high likelihood of reaching Santa Fe Springs during peak fire seasons.

In addition to direct fire risks, wildfire-related smoke is a persistent hazard. Data from the California Climate Assessment and historical wildfire events indicate that air quality in Santa Fe Springs frequently deteriorates during major fire events, with AQI levels exceeding 150 ("Unhealthy") multiple times in recent years. This trend is expected to continue, necessitating stronger public health protections, enhanced air filtration measures, and emergency response planning for prolonged smoke exposure

### Future Projections for Hazard Severity and Frequency

The future severity and frequency of fire hazards in Santa Fe Springs will be shaped by climate change, urban development patterns, and infrastructure resilience. Key trends in temperature, precipitation, wind behavior, and fire intensity indicate an overall increase in fire risk factors, particularly for wildfire smoke exposure, ember transport, and industrial fire severity..

**Urban Fire Severity Trends:** Urban fire risk is projected to increase in severity, particularly in high-risk industrial zones where hazardous materials are stored. Electrical grid failures and power equipment malfunctions are expected to rise due to increasing energy demands, infrastructure aging, and more frequent extreme heat events. Large-scale industrial fires, classified as Class 3 or higher on the Fire Intensity Scale, are anticipated to become more severe, particularly when involving flammable chemicals, plastics, or fuel storage. Strengthening building codes and fire safety regulations will be essential in mitigating these risks. Without proactive mitigation efforts, urban fires could result in higher property losses and greater demands on emergency response resources.

**Wildfire Frequency and Climate Change Impacts:** Climate projections from California's Fourth Climate Assessment and NOAA's Climate Prediction Center indicate that regional wildfire frequency will increase due to rising temperatures, prolonged drought, and stronger wind events. The annual number of extreme wildfire days, defined by temperatures exceeding 100°F, humidity below 15%, and winds greater than 40 mph, is expected to increase by 30-50% by 2050. This trend raises the probability of ember transport into Santa Fe Springs, particularly during peak wildfire season.

Santa Ana wind conditions are also expected to last longer each season, increasing by approximately 10-15%, which will further elevate the risk of wind-driven fire spread affecting industrial and urban areas. Additionally, prolonged drought conditions will lead to reduced regional fuel moisture, increasing the probability of larger, more intense wildfires that could indirectly impact Santa Fe Springs through degraded air quality and transportation disruptions. Given these trends, wildfire smoke events with AQI levels exceeding 200 (Very Unhealthy) may occur annually by 2050, requiring expanded public health protections, improved air filtration measures, and strengthened emergency response strategies.

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# 3.3.6 Power outage

## Hazard Description

A power outage, also known as an electrical blackout or power failure, is the loss of electrical service to a given area due to disruptions in the generation, transmission, or distribution of electricity. Outages can be localized, affecting a small neighborhood or facility, or widespread, impacting entire regions for extended periods. The severity of an outage depends on its duration, geographic extent, and the ability of electrical utilities to restore power. Santa Fe Springs' reliance on industrial operations, transportation infrastructure, and critical services makes power reliability a key concern.

Power outages fall into three primary categories, each with unique implications for Santa Fe Springs. Momentary interruptions, lasting seconds to minutes, often occur due to automatic grid protection systems responding to minor faults such as tree branches contacting power lines. While these brief outages are low impact, they can disrupt industrial equipment, traffic signals, and business operations. Sustained outages last from several minutes to hours and are typically caused by localized equipment failures, transformer malfunctions, or downed power lines. These outages can result in traffic congestion, emergency service delays, and disruptions to businesses and residences. Extended blackouts, which last for multiple hours to days or even weeks, often result from major disasters such as earthquakes, extreme wind events, or regional grid failures. Prolonged outages severely impact critical infrastructure, including hospitals, water treatment plants, communication networks, and industrial facilities.

Santa Fe Springs' power infrastructure is vulnerable to multiple outage triggers, including weather-related events, infrastructure failures, and human-caused disruptions. Extreme heat and overloaded electrical grids present one of the most significant risks. High temperatures during summer heat waves increase electricity demand for air conditioning and industrial cooling, straining transformers and substations. Overloaded infrastructure can lead to rolling blackouts or brownouts, particularly from July to September.

Severe wind events and storms, particularly Santa Ana winds, pose another major threat. Wind gusts exceeding 50 mph can topple power lines, damage transformers, or cause airborne debris to strike electrical equipment. These conditions increase fire hazards and contribute to extended outages, particularly in areas with overhead electrical infrastructure. Earthquakes and seismic damage can also disrupt power supply by damaging substations, transmission lines, and underground electrical conduits. A major earthquake could trigger cascading power failures, impacting industrial operations, emergency response capabilities, and water treatment services.

Vehicle collisions and equipment failures frequently cause localized outages. Given the high volume of commercial traffic along I-5, I-605, and major arterial roads, the risk of vehicle-related damage to power infrastructure is elevated. Additionally, cyberattacks and physical security threats pose growing concerns. As part of the Los Angeles County power grid, Santa Fe Springs relies on digitally connected electrical systems that

could be targeted by cyberattacks. Intentional or accidental attacks on substations or grid control centers could cause both localized and widespread outages.

Utility-initiated Public Safety Power Shutoffs (PSPS) add another layer of complexity. To reduce wildfire ignition risks, Southern California Edison (SCE) may preemptively shut off power during high wind and dry conditions. While Santa Fe Springs is not within a designated high wildfire risk zone, PSPS events in adjacent areas can affect power supply and disrupt local businesses and residents.

## Location and Geographic Extent

Power outages in Santa Fe Springs can occur throughout the entire city but have a higher probability and greater consequences in specific locations based on infrastructure vulnerabilities, land use, and population density.

Industrial and commercial zones have a high concentration of facilities reliant on uninterrupted power, making them particularly vulnerable to grid strain, electrical equipment failures, and cascading disruptions. The heavy industrial areas south of Telegraph Road and west of Carmenita Road contain manufacturing plants, refineries, and chemical storage facilities that require large amounts of electricity for operations. A prolonged outage in these zones could disrupt production, increase fire hazards, and result in hazardous material containment issues.

Warehousing and logistics hubs near the I-5 corridor and the southeastern portion of the city depend on automated systems, refrigeration, and data processing centers, all of which are highly sensitive to power disruptions. Unplanned outages in these areas can lead to supply chain disruptions, financial losses, and spoilage of perishable goods. Commercial corridors along Telegraph Road, Washington Boulevard, and Norwalk Boulevard contain retail businesses and service providers that lack backup power capabilities. These businesses may experience immediate financial losses and operational shutdowns if outages persist beyond a few hours.

Residential neighborhoods in Santa Fe Springs experience power outages at varying frequencies and severities, depending on factors such as electrical grid design, infrastructure maintenance, and proximity to major substations. Older residential areas in the northern and western portions of the city are particularly vulnerable due to aging distribution lines, overhead power infrastructure, and historical underinvestment in grid modernization. These areas face increased risks during high wind events and extreme heat conditions, which can overload transformers or cause physical damage to power lines. High-density residential developments and mobile home parks may face greater impacts from power failures, especially during heatwaves, when cooling systems become critical for public health. Many low-income households lack backup power sources, making them more susceptible to heat-related illnesses and financial hardships.

Power outages can also disrupt key transportation corridors, public transit systems, and telecommunications infrastructure, leading to traffic congestion, communication failures, and increased accident risks. Major freeways (I-5, I-605) and arterial roads (Florence Avenue, Washington Boulevard) rely on electronic traffic signals and

street lighting, which become non-functional during outages unless backup power is available. Freight rail lines operated by BNSF and Union Pacific depend on electrified signaling and switching systems, making them vulnerable to disruptions that could impact cargo movement. Additionally, electrical substations and transmission infrastructure serving Santa Fe Springs are located at key grid connection points within the city and along its periphery. Damage or failure at any major substation or transmission line could cause widespread blackouts affecting multiple sectors simultaneously.

### Relationship to Land Use and Development

As new development occurs and energy demand rises, mitigating power outage risks will require proactive urban planning, resilience investments, and improved electrical grid management. The expanding industrial and logistics sectors are expected to increase electricity demand, placing additional strain on existing electrical infrastructure. Large-scale industrial facilities, including warehouses and manufacturing plants, require consistent, high-capacity power sources. Without adequate grid upgrades and emergency backup systems, power outages could result in escalating operational risks, production losses, and hazardous material incidents.

With rising temperatures and more frequent heatwaves, Santa Fe Springs is expected to see an increase in peak electricity demand, especially during summer months. If grid capacity is not expanded to meet future demand, the likelihood of rolling blackouts and localized transformer failures will grow.

## Magnitude and Severity

Unlike natural hazards that have well-defined measurement scales (e.g., the Modified Mercalli Intensity Scale for earthquakes or the Saffir-Simpson Scale for hurricanes), power outages are classified based on their geographic scope, duration, and cascading effects. While momentary service interruptions are common and manageable, prolonged and widespread outages can have severe consequences for public health, emergency response, industrial operations, and economic stability.

### Standardized Measurement Scales for Power Outages

The severity of a power outage is typically evaluated based on the number of customers affected, the geographic extent, and the duration of service disruption. While no universal scale exists for measuring power outage intensity, two primary classification frameworks are commonly used:

**Outage Scope and Geographic Extent – U.S. Department of Energy (DOE) Classification**
The U.S. Department of Energy (DOE) classifies power outages based on the number of customers affected and the extent of grid failure. The classifications range from localized disruptions to large-scale blackouts with widespread societal impacts:

- Localized Outage (Level 1): Affects a single building, block, or small neighborhood due to equipment failure, minor weather impacts, or scheduled maintenance. These outages typically last under two hours and have minimal community-wide impacts.
- Substation-Level Outage (Level 2): Impacts hundreds to thousands of customers within a defined geographic area, often due to transformer failures, high wind damage to power lines, or extreme heat grid stress. Outage duration varies from a few hours to a full day, with traffic signal failures, business disruptions, and increased emergency service calls.
- Citywide or Regional Outage (Level 3): Affects tens of thousands of customers due to a major transmission failure, wildfire-related public safety power shutoffs (PSPS), or severe storms. These outages last from several hours to multiple days and can cause significant economic and emergency response impacts.
- Grid Failure or Blackout (Level 4): A widespread, prolonged outage impacting multiple cities, counties, or states, typically caused by major weather disasters, earthquakes, or cyberattacks. Outages in this category can last for weeks, leading to severe economic losses, public health emergencies, and security concerns.

Santa Fe Springs is most frequently affected by Level 1 and Level 2 outages, though Level 3 outages have occurred during extreme weather events and regional grid failures.

**Outage Duration and Restoration Complexity – IEEE 1366 Reliability Indices**

The Institute of Electrical and Electronics Engineers (IEEE) Standard 1366 provides reliability indices that measure the frequency and duration of power outages, which help utilities and emergency planners assess service reliability and outage severity. Key indices include:

- System Average Interruption Duration Index (SAIDI): Measures the total duration of power interruptions per customer per year. In Santa Fe Springs, the SAIDI has historically ranged from 60 to 120 minutes per year, though this increases significantly during heat waves and wind-driven events.
- System Average Interruption Frequency Index (SAIFI): Measures how often the average customer experiences a power outage. In Santa Fe Springs, SAIFI values suggest that customers experience 1-2 outages per year under normal conditions.
- Customer Average Interruption Duration Index (CAIDI): Evaluates the average time it takes to restore power after an outage. The CAIDI for Santa Fe Springs is typically under 90 minutes, though this can increase significantly during extreme weather or seismic events.

## Severity of Power Outages

The severity of a power outage is determined by its duration, the number of customers impacted, and the cascading effects on critical infrastructure. In Santa Fe Springs, outages vary in scale from short-term service interruptions to multi-day disruptions affecting entire neighborhoods, industrial zones, and emergency services.

**Short-Term Outages (Less than 2 hours – Low Severity):** Short-term outages are the most common type of power failure in Santa Fe Springs and typically result from localized transformer failures, minor equipment malfunctions, or temporary weather-related disruptions. While these outages cause minimal long-term impact, they can disrupt traffic signals, interfere with business operations, and create safety concerns for residents reliant on medical equipment.

**Medium-Term Outages (2 to 12 hours – Moderate Severity):** Power outages lasting several hours are often due to heat-related grid overloads, vehicle collisions with power infrastructure, or downed power lines during wind events. These outages can result in:

- Traffic congestion and increased risk of accidents due to non-functioning traffic lights.
- Business closures and financial losses, particularly for restaurants, grocery stores, and industrial facilities reliant on continuous power.
- Medical risks for individuals dependent on electricity-powered medical devices.

**Long-Term Outages (12 hours to multiple days – High Severity):** Extended outages are typically caused by severe storms, wildfires, or regional grid failures and can have widespread, cascading effects on public safety and infrastructure. The impacts include:

- Loss of refrigeration for food and medication, increasing health risks for vulnerable populations.
- Emergency service delays, including 911 call center disruptions and decreased police/fire response efficiency.
- Shutdowns of water and wastewater treatment facilities if backup generators fail, leading to potential public health risks.

**Catastrophic Power Outages (Multiple Days to Weeks – Extreme Severity):** A catastrophic, prolonged power outage-such as one caused by a major earthquake, cyberattack, or statewide grid failure-could create a widespread humanitarian and economic crisis. In such cases:

- Hospitals and emergency services would rely solely on backup generators, which could fail if fuel supplies run out.
- Mass evacuations may be necessary if essential services such as water, fuel, and communication systems become inoperable.
- The financial impact on businesses, particularly in the industrial sector, could result in millions of dollars in losses due to production stoppages, supply chain failures, and perishable inventory losses.

## Historical Occurrences

Santa Fe Springs has experienced several major power outages over the past two decades, often caused by heatwaves, high winds, equipment failures, or regional grid instability.

- **July 2006 California Heatwave Power Outages:** In July 2006, an extreme heatwave struck California, causing widespread rolling blackouts due to record-breaking temperatures exceeding grid capacity.

Santa Fe Springs experienced rolling blackouts lasting between two to six hours, affecting residences, industrial facilities, and commercial districts. Transformer failures and substation overloads were particularly severe in industrial zones, where high energy demand contributed to cascading failures.

- **December 2011 Santa Ana Wind Event and Power Failures:** A powerful Santa Ana windstorm in December 2011, with gusts exceeding 80 mph, caused widespread power outages across Southern California, including Santa Fe Springs. Downed power lines and damaged transmission infrastructure led to prolonged blackouts, requiring several days for full restoration. Traffic signals at major intersections failed, increasing accident risks, while industrial and commercial facilities suffered economic losses due to halted production.
- **September 2015 Heatwave and Local Grid Overloads:** A late-summer heatwave in September 2015 resulted in localized power failures across Los Angeles County, including Santa Fe Springs. Temperatures exceeding 105°F led to transformer failures in residential neighborhoods and industrial zones, causing outages lasting four to eight hours.
- **July 2018 Southern California Power Grid Strain:** In July 2018, a statewide heatwave led to emergency grid conditions, triggering rolling blackouts that affected Santa Fe Springs. Outages lasted between one to three hours, primarily in residential areas and commercial corridors. Industrial energy users were required to reduce consumption, leading to temporary production slowdowns.
- **January 2023 California Winter Storm and Power Outages:** A series of atmospheric river storms in early 2023 caused extensive flooding, high winds, and power outages across Southern California. Winds exceeding 50 mph damaged power lines and transformers, leading to service disruptions for thousands of residents and businesses in Santa Fe Springs. Most power was restored within 24 to 48 hours, though industrial districts faced extended outages due to high-voltage infrastructure damage.

## FEMA Disaster Declarations Related to Power Outages

While power outages themselves do not typically trigger standalone FEMA disaster declarations, they are often secondary impacts of federally declared disasters, including extreme heat, wildfires, and windstorms. Santa Fe Springs has been affected by several FEMA disaster declarations involving major power failure.

- **FEMA DR-4301-CA (February 2017 – Winter Storms and Infrastructure Damage)** Severe winter storms impacted Southern California, causing flooding, high winds, and power disruptions. Santa Fe Springs experienced localized outages due to downed power lines and water-damaged electrical equipment. FEMA assistance was provided for public infrastructure repairs, including electrical system restoration.
- **FEMA DR-4569-CA (October 2020 – Wildfires and PSPS Events)** Wildfires across California prompted Public Safety Power Shutoffs (PSPS), affecting electricity service in parts of Los Angeles County. While Santa Fe Springs was not directly impacted by wildfires, PSPS measures disrupted portions of the regional grid, leading to brief service interruptions in some industrial zones.

- **FEMA DR-4683-CA (January 2023 – Winter Storm Power Failures)** A severe atmospheric river storm system resulted in high winds, flooding, and power outages across multiple counties. Santa Fe Springs was affected by power failures lasting up to 48 hours in some industrial districts.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Likely.***

Santa Fe Springs is projected to experience an increase in both the frequency and severity of power outages due to rising energy demand, climate change impacts, and vulnerabilities in aging electrical infrastructure. While short-term, localized outages will continue to result from equipment failures and minor weather disturbances, the likelihood of prolonged and widespread blackouts is growing. Extreme heat events, high windstorms, seismic activity, and cyber or physical attacks on power infrastructure all contribute to this trend.

Risk assessments for power outages rely on historical outage data, climate projections, and grid reliability modeling. Santa Fe Springs, as part of the Southern California Edison (SCE) service territory and the California Independent System Operator (CAISO) power grid, is subject to forecasts by CAISO, the U.S. Department of Energy (DOE), and the North American Electric Reliability Corporation (NERC), which track grid stability, energy demand trends, and outage risks.

Santa Fe Springs is located in a seismically active region, making its electrical infrastructure highly susceptible to earthquake-related damage. A magnitude 6.5 or greater earthquake on the Whittier or Puente Hills faults could result in severe disruptions to substations, high-voltage transmission lines, and underground power conduits. Restoration efforts following a major earthquake could extend for several days or weeks, depending on the extent of infrastructure damage and available repair resources.

Climate models predict that rising temperatures, prolonged heatwaves, and more intense storms will significantly impact electrical grid stability. By 2050, the number of extreme heat days exceeding 95°F in Southern California is projected to double, leading to an estimated 30% increase in heat-related grid overloads. The frequency of rolling blackouts is expected to rise as electrical demand peaks during extreme weather event. Santa Ana wind events, a leading cause of power line damage, are anticipated to become more intense due to climate change, further increasing the probability of wind-driven outages. Additionally, PSPS events, designed to prevent wildfire ignition, are expected to become more frequent, potentially disrupting Santa Fe Springs despite the city's relatively low direct wildfire risk.

By 2045, CAISO projects that peak electricity demand in Southern California will increase by 25–30%, raising the likelihood of power shortages during heatwaves. If renewable energy generation and grid modernization efforts fail to keep pace, rolling blackouts could become an annual occurrence during periods of extreme heat. Businesses and industrial facilities may face significant economic impacts, with extended power outages

potentially resulting in annual losses ranging from $5 million to $10 million due to production delays, business closures, and supply chain disruptions.

PSPS events, which preemptively cut power to reduce wildfire risks, are expected to increase in both duration and geographic coverage by 2030. While Santa Fe Springs may not face direct wildfire threats, regional power disruptions could have widespread economic consequences.

Cybersecurity threats to electrical infrastructure are projected to rise significantly in the coming decades. National security assessments estimate that by 2040, the probability of a major cyberattack affecting the power grid will increase by 50%. Additionally, physical attacks on substations, similar to those that have already occurred in California, could lead to localized or widespread power failures.

# 3.3.7 Cyberattack/IT disruption

## Hazard Description

A cyberattack is a deliberate attempt to infiltrate, damage, or disrupt computer networks, digital infrastructure, or electronic systems. Cyber incidents can result from malicious activities, technical failures, or human error, compromising the confidentiality, integrity, and availability of critical data and services. Cyber threats pose risks to municipal government operations, emergency response services, utilities, transportation networks, and private sector businesses.

### Types of Cyberattacks and IT Disruptions

Cyber threats take multiple forms, each with distinct impacts on essential services and infrastructure.

- Ransomware attacks remain one of the most pervasive threats. In a ransomware incident, attackers use malware to encrypt data and systems, demanding payment for decryption. The 2019 Baltimore ransomware attack, for example, cost the city over $18 million and disrupted municipal services for weeks. If a similar attack occurred in Santa Fe Springs, essential city services, police communications, and business operations could be severely impacted.
- Distributed Denial-of-Service (DDoS) attacks flood online services and networks with excessive traffic, causing widespread service outages. In municipal systems, DDoS attacks could cripple online payment portals, emergency alert systems, and public communication platforms, impeding critical operations.
- Phishing and social engineering attacks exploit human vulnerabilities to steal credentials, financial information, and other sensitive data. Government agencies, businesses, and residents remain frequent targets of phishing schemes. In 2022 alone, phishing accounted for nearly 40% of all cyber breaches nationwide.
- Malware and spyware attacks involve malicious software that disrupts operations or steals sensitive data. These threats target public and private networks, increasing the risk of system failures and data breaches. A major cyber intrusion could compromise city databases, exposing confidential resident information.

Cyberattacks on critical infrastructure pose one of the most significant risks. Power grids, water treatment facilities, and transportation networks rely on automated control systems vulnerable to hacking. The 2021 Colonial Pipeline ransomware attack, which disrupted fuel supply across the East Coast, highlighted the vulnerabilities of essential services. A similar attack on Santa Fe Springs' infrastructure could result in widespread outages, water service disruptions, or traffic control failures.

## Location and Geographic Extent

Unlike traditional hazards, cyber threats are not geographically confined but instead target digital infrastructure, networks, and interconnected systems that support government operations, businesses, emergency services, and critical utilities. Cyber disruptions can originate locally, regionally, or globally, affecting systems that extend far beyond municipal boundaries. Certain sectors and locations in Santa Fe Springs are more prone to cyber-related disruptions due to their reliance on IT systems, data networks, and automated control mechanisms.

**Municipal Government and Emergency Services:** The City of Santa Fe Springs' government offices, police and fire departments, emergency dispatch centers, and public safety systems depend on secure IT networks and digital communications infrastructure. A cyberattack targeting these systems could disrupt 911 call centers, delaying emergency response coordination; compromise police and fire department databases, affecting investigations and resource deployment; or lock city employees out of municipal IT systems, hindering service delivery, financial operations, and public communication.

**Critical Infrastructure and Utility Networks:** Santa Fe Springs' power grid, water treatment facilities, wastewater systems, and industrial utility services rely on Supervisory Control and Data Acquisition (SCADA) systems to monitor and regulate infrastructure operations. A cyberattack targeting these systems could shut down power distribution or water supply operations, manipulate water treatment settings-potentially causing contamination-and disable industrial process controls, affecting energy efficiency, emissions monitoring, and equipment safety.

**Industrial and Commercial Facilities:** Santa Fe Springs hosts large industrial facilities, warehouses, and distribution centers that depend on automated logistics systems, digital inventory management, and online supply chain coordination. A cyberattack on industrial networks could disrupt manufacturing and supply chain operations, causing financial losses and shipment delays; shut down automated equipment, leading to safety hazards and operational inefficiencies; and expose sensitive trade secrets and business data, affecting competitiveness and regulatory compliance.

**Financial Institutions, Retail Businesses, and Healthcare Services:** Banks, commercial businesses, and medical facilities rely on digital payment systems, financial networks, and electronic health records. A cyberattack could block access to financial transactions, preventing payroll processing, credit card payments, and ATM withdrawals; compromise confidential customer and patient data, leading to identity theft and regulatory violations; and cause business shutdowns or service disruptions, leading to economic losses and reduced public confidence.

## Relationship to Land Use and Development

Cybersecurity risks are not influenced by traditional land use patterns in the same way as natural hazards such as earthquakes or flooding. However, the expansion of digital infrastructure, smart city technologies, and industrial automation has created new cybersecurity vulnerabilities that must be considered in future urban planning and development.

**Industrial Growth and Smart Infrastructure:** Santa Fe Springs' industrial sector is increasingly adopting automated technologies, cloud computing, and Internet of Things (IoT) devices to enhance efficiency and productivity. While these advancements improve operations, they also increase exposure to cyber threats.

**Municipal Services and Smart City Initiatives:** The City of Santa Fe Springs is incorporating smart technologies into public services, including traffic management, public utilities, and emergency response coordination. While these systems improve efficiency, they also create potential cyber vulnerabilities.

**Commercial and Residential IT Vulnerabilities:** With expanding broadband access, remote work infrastructure, and digital communication platforms, residents and businesses face increased cyber risks from phishing scams, data breaches, and financial fraud.

## Magnitude and Severity

To assess the severity of cyberattacks, standardized classification models focus on factors such as the scale of disruption, duration of system outages, data integrity compromise, financial impact, and potential threats to public safety.

Several government agencies and cybersecurity organizations have developed frameworks to categorize cyber incidents based on their impact and response level. Santa Fe Springs can use these classification models to assess and respond to cybersecurity threats that could affect municipal operations, critical infrastructure, and private sector functions.

**Cyber Incident Severity Schema (CISA/US-CERT):** The Cybersecurity and Infrastructure Security Agency (CISA) and the United States Computer Emergency Readiness Team (US-CERT) use a five-level Cyber Incident Severity Schema to classify cyberattacks based on their impact on national security, public safety, and critical infrastructure:

- **Emergency (Level 5):** A catastrophic cyberattack causing nationwide or regional infrastructure failures, such as disabling power grids, financial networks, or emergency response systems. Immediate federal response and emergency actions are required.
- **Severe (Level 4):** A major cyberattack causing widespread system outages, financial losses, or threats to public safety, such as ransomware shutting down a city's government network or a cyberattack on water treatment facilities. Federal and state resources are activated.

- **High (Level 3):** A significant cyberattack affecting one or more critical services, such as 911 dispatch, hospital networks, or major business operations, requiring multi-agency coordination to restore affected systems.
- **Medium (Level 2):** A targeted cyberattack or IT disruption affecting municipal departments, business systems, or industrial networks without immediate threats to public safety.
- **Low (Level 1):** A minor cyber event such as phishing attempts, website defacement, or a localized malware infection with limited operational impact.

Santa Fe Springs' most severe potential cyber threats include ransomware attacks on city services, data breaches exposing sensitive resident information, and disruptions to power or water infrastructure via cyber intrusions into industrial control systems.

**National Institute of Standards and Technology (NIST) Cyber Impact Scale:** The National Institute of Standards and Technology (NIST) classifies cyber incidents based on their impact on confidentiality, integrity, and availability of information systems:

- **Critical Impact:** The attack completely disables essential public services, such as emergency dispatch, law enforcement systems, or critical utilities, leading to immediate risks to life and safety.
- **High Impact:** The attack compromises sensitive data, disrupts major government or business operations, or causes significant financial harm, requiring prolonged recovery efforts.
- **Moderate Impact:** A cyberattack partially disrupts operations but does not fully compromise critical services, causing delays and operational inefficiencies.
- **Low Impact:** The attack is minor and contained, such as a brief website outage or a phishing attempt detected before damage occurs.

## Severity of Cyberattacks

Cyber threats vary in severity, ranging from low-impact phishing attempts to high-impact critical infrastructure disruptions. The most significant threats include:

**Municipal and Emergency Services Disruptions:** A ransomware attack or data breach targeting city government IT systems could disrupt financial transactions, permit processing, emergency services, and law enforcement databases. If 911 dispatch services, police records, or fire department communication networks were compromised, this could lead to delayed response times, compromised public safety, and legal liabilities for the city.

**Critical Infrastructure Attacks:** If cybercriminals or nation-state actors targeted Santa Fe Springs' power grid, water treatment facilities, or industrial SCADA (Supervisory Control and Data Acquisition) systems, the resulting outage or contamination event could create a public health emergency. An attack of this nature would require state and federal emergency response coordination to restore essential services.

**Business and Industrial Cyber Disruptions:** Industrial facilities in Santa Fe Springs rely on automated control systems and cloud-based logistics operations. A cyberattack on an industrial network could shut down manufacturing production lines, disrupt supply chains, or expose proprietary business data. This could result in millions of dollars in economic losses and potential job disruptions for local employees.

**Widespread Personal Data Breaches:** If a data breach exposed personally identifiable information (PII) from municipal databases, financial institutions, or healthcare providers, it could lead to identity theft, financial fraud, and regulatory penalties. A large-scale breach affecting thousands of residents or businesses could result in long-term legal and reputational consequences for the city and affected organizations.

**Transportation and Traffic Management System Disruptions:** An attack on Santa Fe Springs' smart traffic control systems, transit networks, or freeway communication systems could create major congestion, increase accident risks, and disrupt freight movement through the city. A cyberattack affecting highway sensors, traffic signals, or public transit payment systems would require urgent mitigation efforts to prevent secondary transportation hazards.

## Historical Occurrences

Although Santa Fe Springs has not been directly targeted, past cyber incidents in California and across the United States illustrate the types of cyber threats that could impact the city.

**2018 City of Atlanta Ransomware Attack:** In March 2018, a ransomware attack crippled the City of Atlanta's IT infrastructure, locking city employees out of email accounts, financial processing systems, and public service databases.

- The attackers demanded approximately $51,000 in Bitcoin, but the total cost of recovery exceeded $17 million due to system restoration, data recovery, and security enhancements.
- 911 dispatch systems, municipal court records, and online payment systems were rendered inoperable for weeks.
- This attack demonstrated how a single cyber incident can disrupt government functions and require extensive emergency response measures.

**2019 Los Angeles County Phishing Attack:** In 2019, Los Angeles County experienced a large-scale phishing attack that compromised email accounts of county employees, including those in the Department of Public Works, Sheriff's Department, and health services.

- More than 1,000 employees were affected, with attackers gaining access to sensitive county records and resident information.
- The breach exposed social security numbers, financial records, and personal medical data, creating risks of identity theft and fraud.

**2021 Colonial Pipeline Cyberattack:** In May 2021, the Colonial Pipeline, which supplies nearly 50% of the East Coast's fuel, was shut down due to a ransomware attack carried out by criminal hacking group DarkSide.

- The attack disrupted fuel distribution for several days, causing shortages and price spikes across multiple states.
- The attackers gained access through a compromised VPN password, highlighting vulnerabilities in remote access systems used by industrial control networks.

**2022 Los Angeles Unified School District Ransomware Attack:** In September 2022, the Los Angeles Unified School District (LAUSD) suffered a major ransomware attack that encrypted data across its entire school network, affecting over 600,000 students.

- Class schedules, student records, and payroll systems were disrupted, forcing emergency IT restoration efforts.
- The attack targeted a weak point in LAUSD's cybersecurity protocols, emphasizing the need for multi-layered protection and regular system updates,

**2023 U.S. Healthcare Cyberattacks:** Healthcare providers, including hospitals and emergency medical networks in California, have been targeted by ransomware groups, causing disruptions to patient care, medical records access, and emergency response coordination.

- In February 2023, a cyberattack on a hospital system in Southern California delayed emergency room services and patient admissions.
- In August 2023, a ransomware attack on a major health insurance provider disrupted payment processing and patient scheduling for multiple medical facilities.

## FEMA Disaster Declarations Related to Cyberattacks

While cyberattacks do not traditionally trigger standalone FEMA disaster declarations, they are increasingly being incorporated into federal emergency response planning. FEMA recognizes cyber incidents as potential components of broader disaster scenarios, such as coordinated attacks on power grids, financial institutions, or emergency communication networks.

- **FEMA DR-4569-CA (October 2020 – Wildfires and Public Safety Power Shutoffs):** Although this disaster declaration was issued due to wildfires in California, it included cybersecurity concerns related to the Public Safety Power Shutoff (PSPS) system, which could be targeted by cybercriminals to create artificial outages.

- **Presidential Policy Directive 21 (PPD-21) – Critical Infrastructure Cyber Resilience:** This directive, issued in 2013 and expanded in 2021, identifies 16 critical infrastructure sectors, including energy, water, transportation, and communications, that require federal cybersecurity protection. Under PPD-21, state and local governments, including Santa Fe Springs, are encouraged to adopt cybersecurity frameworks to prevent service disruptions.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Moderate.***

Cyber threats are a rapidly evolving hazard that poses a significant risk to municipal governments, critical infrastructure, businesses, and residents. As Santa Fe Springs continues expanding its digital infrastructure, adopting smart city technologies, and increasing its reliance on cloud-based services, the city's vulnerability to cyberattacks is expected to rise. The sophistication of cyber threats, combined with the interconnectivity of IT systems across essential services, presents an escalating challenge. Future risks will be further compounded by the intersection of climate-driven disruptions, geopolitical instability, and the continued advancement of cyberattack techniques.

Reports from the Cybersecurity and Infrastructure Security Agency (CISA) and the Federal Bureau of Investigation (FBI) highlight that ransomware, phishing, and denial-of-service (DoS) attacks have been responsible for disrupting city services, financial systems, and emergency response capabilities at an accelerating pace. Between 2018 and 2023, ransomware incidents against U.S. municipalities doubled, largely due to cybercriminals exploiting vulnerabilities in remote-access software, cloud-based storage, and legacy municipal IT systems. Additionally, the rise of industrial cyberattacks has placed critical infrastructure at heightened risk, particularly as utilities and government services transition toward automation and greater digital integration.

Given these trends and the growing attack surface created by digital modernization, Santa Fe Springs is at a high probability of experiencing a cyberattack affecting municipal operations, emergency services, and critical infrastructure systems.

The frequency and severity of cyberattacks are projected to increase due to several emerging trends. The expansion of artificial intelligence (AI) in cybercrime will allow threat actors to automate attacks, improve malware evasion techniques, and escalate the volume of cyber intrusions. AI-driven ransomware and social engineering campaigns are expected to become more sophisticated, making detection and prevention more challenging for local governments. At the same time, threats to industrial control systems (ICS) will continue to rise, particularly within water and power utilities that rely on Supervisory Control and Data Acquisition (SCADA) systems. These systems, which are essential for infrastructure automation, present attractive targets for cybercriminals seeking to disrupt essential services.

The rapid expansion of smart city technologies further increases cyber vulnerabilities. Internet of Things (IoT) devices, used for traffic management, emergency response coordination, and municipal surveillance, create additional entry points for attackers. As interconnected urban infrastructure becomes more commonplace, cyber risks will extend beyond traditional IT networks, directly affecting public safety and urban operations. If a

cyberattack were to disable Santa Fe Springs' IT networks, cascading failures could disrupt power distribution, water treatment systems, and emergency communication channels. The potential for such disruptions reinforces the need for heightened cyber resilience across municipal agencies.

Cyberattacks pose significant financial risks to municipalities, with the cost of ransomware attacks on mid-sized cities averaging over $3.5 million per incident. These costs encompass system restoration, legal expenses, data recovery, and operational downtime. In addition to direct recovery expenses, local governments are facing a sharp rise in cybersecurity insurance premiums, with municipal cyber liability policies increasing by 300% since 2020. The economic implications of prolonged IT disruptions extend beyond city hall, affecting residents and businesses that rely on municipal services. A single cyberattack on a city's financial system can result in revenue losses ranging from $5 million to $25 million, depending on the extent of downtime, data loss, and service disruption. These escalating costs highlight the urgent need for robust cybersecurity investments to mitigate financial and operational risks.

The intersection of climate change and cybersecurity presents additional challenges for municipal resilience planning. Natural disasters such as wildfires, extreme heat events, and severe storms have been increasingly exploited by cybercriminals, who time attacks to coincide with emergency situations when response capabilities are already strained. The growing reliance on digital emergency management tools, including cloud-based crisis coordination platforms, introduces further vulnerabilities that must be addressed.

Energy grid vulnerabilities also represent a growing concern, as increasing temperatures and extreme weather conditions lead to surging electricity demand. With power distribution networks becoming more digitized, cyber threats targeting grid infrastructure could result in prolonged blackouts during critical periods. In a worst-case scenario, a cyberattack on a power utility during a climate-driven emergency could significantly delay response efforts, exacerbating the overall impact on public health and safety.

# 3.3.8 Flooding

## Hazard Description

Flooding in Santa Fe Springs arises from various factors, including heavy precipitation, stormwater runoff, infrastructure failures, and rising groundwater levels. The city's flat topography, urban development patterns, and proximity to the San Gabriel and Rio Hondo River flood control systems significantly influence its flood risk profile.

**Urban and Stormwater Flooding:** Santa Fe Springs is highly urbanized, with extensive impervious surfaces such as concrete and asphalt limiting natural water absorption. During heavy rainfall, the stormwater drainage system can become overwhelmed, leading to temporary standing water in streets, parking lots, and low-lying areas. Industrial and commercial zones with poor drainage or clogged storm drains are particularly susceptible to localized ponding and road hazards. Common locations for urban flooding include intersections, underpasses, and areas near storm drains.

**Flash Flooding:** Intense rainfall over a short period can lead to flash flooding, where rapid water accumulation overwhelms local drainage systems. In Santa Fe Springs, severe storm events depositing multiple inches of rain within a few hours can exceed the capacity of the city's storm drain system, resulting in temporary flash flooding. Industrial areas face additional risks, including potential chemical spills or water contamination if floodwaters infiltrate storage sites containing hazardous materials.

**Riverine Flooding:** Although Santa Fe Springs is not directly adjacent to major rivers, its proximity to the San Gabriel and Rio Hondo River flood control systems presents potential indirect impacts. Extensive flood control infrastructure has minimized the risk of widespread riverine flooding; however, upstream failures or extreme weather events could elevate water levels in these channels, potentially causing localized flooding along drainage corridors or stormwater backups into urban areas.

**Infrastructure-Related Flooding:** Flooding can also result from malfunctions or failures in stormwater management infrastructure, such as storm drains, retention basins, or pumping stations. Aging drainage systems or blockages can cause localized flooding where water cannot drain efficiently. Heavy rainfall events may exceed the design capacity of the stormwater system, leading to backups in street-level drains and catch basins. Additionally, industrial and commercial developments with limited on-site stormwater retention contribute to increased runoff volumes, exacerbating urban flooding risks.

## Location and Geographic Extent

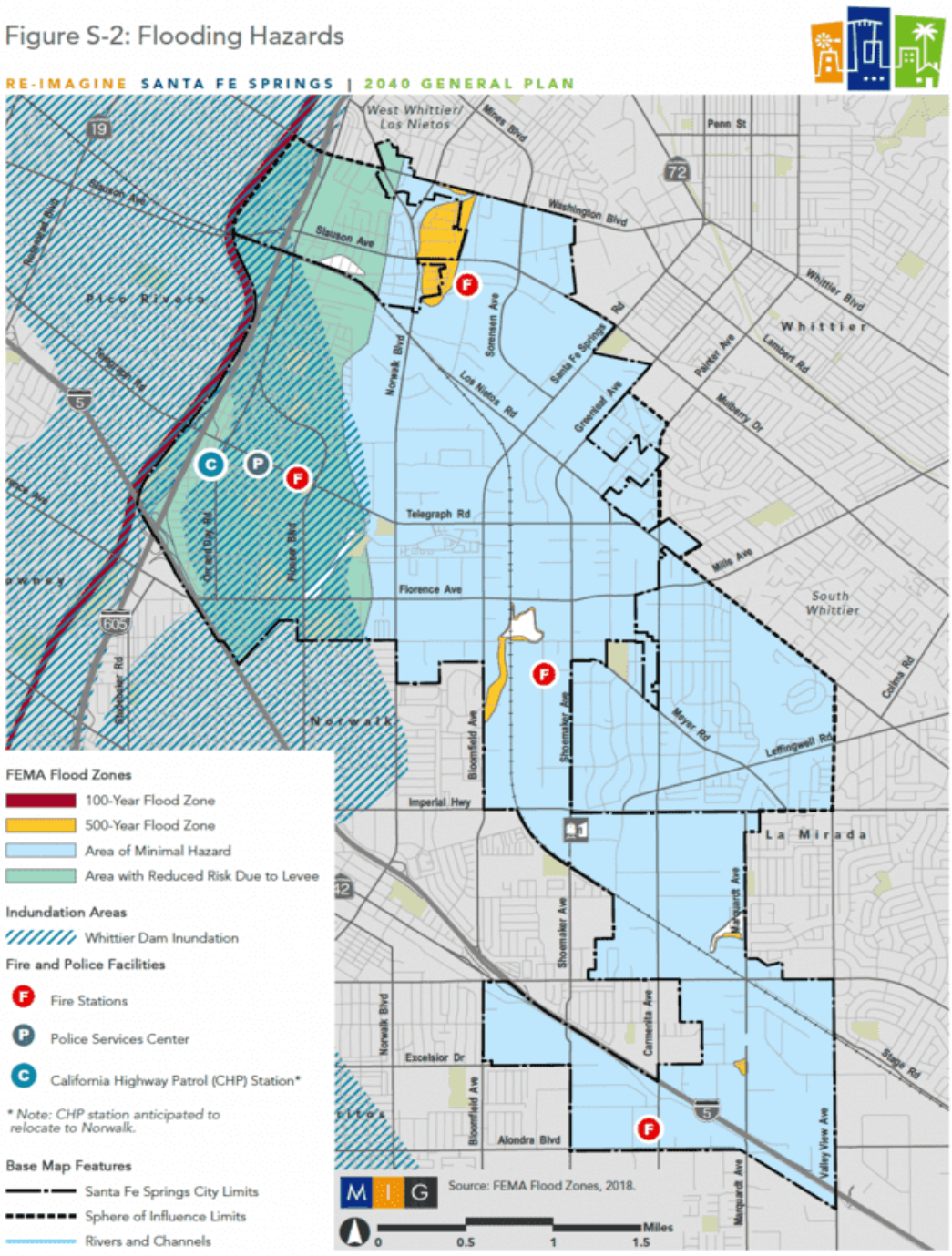


*Figure 18 – Flood Zones*

Flooding within the city is not uniformly distributed, with specific locations more vulnerable due to drainage limitations, elevation differences, and surrounding land use.

**Roadways and Intersections with Recurring Flooding Issues:** Certain streets, intersections, and underpasses in Santa Fe Springs experience frequent temporary flooding during heavy rain events, especially in areas where storm drains have limited capacity or become blocked by debris. Major arterial roads with extensive paved surfaces and limited natural absorption areas are particularly susceptible.

- Telegraph Road, Washington Boulevard, and Florence Avenue consistently experience water accumulation in low-lying sections, where stormwater drainage is challenged by high impervious surface coverage. During heavy storms, portions of Telegraph Road between Norwalk Boulevard and Pioneer Boulevard have been known to flood, affecting traffic flow and increasing road hazards.
- Industrial corridors along Norwalk Boulevard, Slauson Avenue, and Pioneer Boulevard are prone to localized ponding due to high volumes of stormwater runoff from large warehouse rooftops and extensive paved lots. Flooding in these areas can be exacerbated by inadequate storm drain capacity, leading to temporary road closures or restricted access to industrial facilities.
- Underpasses and freeway ramps near Interstate 5 (I-5) and Interstate 605 (I-605) may experience temporary flooding when storm drain infrastructure is overwhelmed. The underpass at Florence Avenue and the I-5 interchange has a history of flooding during heavy rainfall, creating hazardous conditions for motorists and disrupting local traffic patterns.

**Industrial and Commercial Zones with High Runoff Volume:** The city's industrial and commercial areas contain large impervious surfaces, which prevent rainwater infiltration and increase stormwater runoff. Many warehouses, logistics hubs, and manufacturing plants contribute to runoff challenges, particularly in areas with older stormwater infrastructure.

- Warehouses and industrial facilities along Norwalk Boulevard, Los Nietos Road, and Carmenita Road generate high stormwater runoff volumes due to expansive roof areas and paved loading zones. These areas are especially vulnerable to localized flooding when heavy rainfall exceeds the storm drain system’s capacity.
- Retail centers and shopping plazas along Telegraph Road and Florence Avenue experience flooding risks in parking lots and loading docks, particularly where drainage infrastructure is insufficient. The Santa Fe Springs Marketplace has been impacted by stormwater pooling in parking areas, affecting access to businesses and increasing vehicle damage risks.
- Industrial sites storing hazardous materials face additional concerns. In areas along Los Nietos Road and Slauson Avenue, floodwaters could potentially infiltrate containment areas, raising the risk of chemical spills or hazardous material releases into stormwater runoff.

**Storm Drain Infrastructure and Flood Control Channels:** Santa Fe Springs relies on an extensive stormwater drainage system consisting of an underground storm drain network and open-channel flood control systems, which connect to the San Gabriel River and Rio Hondo River flood channels. These channels provide regional drainage for stormwater runoff and reduce the risk of large-scale riverine flooding.

Storm drain outfalls along the Rio Hondo and San Gabriel River flood control channels may experience temporary backups during heavy rainfall, causing localized street flooding in adjacent neighborhoods. Areas

near the storm drain outfall at Norwalk Boulevard and Los Nietos Road have experienced street flooding when the system reaches capacity.

Retention basins and detention ponds within Santa Fe Springs serve as temporary storage for excess runoff. However, extreme rainfall events may exceed their design capacity, leading to additional flooding risks. The retention basin near Heritage Park on Telegraph Road plays a key role in flood mitigation but has seen occasional overflow during prolonged storms.

## Relationship to Land Use and Development

Flood hazards in Santa Fe Springs are closely tied to land use and development patterns, particularly in industrial, commercial, and transportation corridors where high levels of impervious surface coverage exacerbate stormwater runoff. Future urban development, combined with projected climate change impacts, will further influence flood risks, necessitating improved land use planning and infrastructure adaptation.

**Industrial and Commercial Development Impact on Flooding:** The city's extensive industrial base has significantly altered natural drainage patterns, increasing reliance on engineered stormwater management solutions. Industrial growth in Santa Fe Springs Industrial Park has led to the expansion of impervious surfaces, raising concerns about increased stormwater runoff during major storm events.

Older industrial zones with outdated drainage infrastructure remain particularly vulnerable. Facilities along Norwalk Boulevard and Los Nietos Road were developed before modern stormwater retention requirements, leading to periodic flooding when storm drain systems become overwhelmed. Future redevelopment projects in these areas must incorporate enhanced stormwater management strategies, such as permeable pavement, retention basins, and bioswales, to reduce runoff contributions to the city's drainage system.

**Transportation Infrastructure and Flood Exposure:** Santa Fe Springs' major transportation corridors, including I-5, I-605, and key arterial roadways, are critical to regional mobility and commerce. Flooding on these routes can disrupt commuter traffic, emergency response operations, and freight movement, causing economic and logistical disruptions.

Flooding on Florence Avenue and Washington Boulevard has previously led to traffic slowdowns and temporary lane closures, affecting access to industrial and commercial areas. The I-605 interchange at Slauson Avenue has also been identified as a high-risk area for stormwater accumulation during extreme weather events.

## Magnitude and Severity

Flood severity is assessed using standardized hydrologic and meteorological classification systems, which evaluate factors such as flood depth, frequency, and flow velocity. These systems provide a framework for understanding potential flood impacts and informing mitigation strategies.

**National Weather Service (NWS) Flood Severity Scale**

The NWS classifies flooding events based on their impact on property, transportation, and public safety:

- **Minor Flooding**: Involves some road closures and nuisance flooding in low-lying areas, with no significant property damage.
- **Moderate Flooding**: Characterized by widespread street and intersection flooding, with potential damage to commercial and industrial properties.
- **Major Flooding**: Entails severe impacts on transportation networks, with floodwaters affecting critical infrastructure, emergency services, and business operations.

**FEMA Flood Zone Designations**

FEMA's Flood Insurance Rate Maps (FIRMs) categorize areas based on flood probability and expected inundation levels:

- **Zone X (Minimal Risk)**: The majority of Santa Fe Springs falls into this category, indicating a low probability of large-scale flooding.
- **Zone AE (High-Risk 100-Year Floodplain)**: While Santa Fe Springs does not have extensive AE flood zones, adjacent communities with higher flood risks may experience runoff impacts that affect the city's storm drainage system.

Although Santa Fe Springs is not within a FEMA-designated high-risk floodplain, localized stormwater flooding remains a persistent hazard during extreme precipitation events.

Local flood severity is also assessed using urban hydrology models that evaluate:

- **Runoff Coefficient**: Higher values indicate more runoff and a greater potential for flooding. Santa Fe Springs' high proportion of impervious surfaces contributes to elevated runoff.
- **Stormwater System Capacity Exceedance**: Flooding occurs when precipitation intensity surpasses the design limits of storm drains, leading to water accumulation in streets and intersections.
- **Flow Velocity Measurement**: Higher velocity floodwaters pose greater risks to public safety and infrastructure.

In Santa Fe Springs, urban flooding generally involves low-velocity floodwaters, but ponding and drainage system overflows can create hazardous conditions for pedestrians and motorists.

### Severity of Flooding

The severity of flooding in Santa Fe Springs varies based on storm intensity, drainage system performance, and land use factors. The most significant impacts occur when stormwater drainage infrastructure is overwhelmed, leading to ponding, road closures, and business disruptions.

- **Minor Flooding (Common, Low Impact)**: Occurs during moderate rainstorms when storm drains experience temporary overflows, causing localized ponding in intersections and parking lots. These situations typically resolve within hours once drainage systems resume normal function.
- **Moderate Flooding (Less Frequent, Medium Impact)**: Results from high-intensity rainstorms exceeding 1 inch per hour, temporarily overwhelming drainage systems. This can lead to street closures along major roadways such as Telegraph Road, Washington Boulevard, and Florence Avenue, impacting emergency response times and traffic flow. Water infiltration into industrial and commercial properties may cause business interruptions and minor structural damage. There are also potential contamination risks in areas storing hazardous materials if floodwaters breach containment facilities.
- **Major Flooding (Rare, High Impact)**: Possible during extreme storm events, such as atmospheric river storms or consecutive heavy rainfall events, leading to sustained flood conditions. Severe infrastructure disruptions may occur, including potential failures of storm drain systems or blockages in flood control channels. Floodwaters could inundate commercial and industrial zones, resulting in significant economic losses. Public health and environmental concerns may arise due to potential stormwater contamination and hazardous material runoff.

## Historical Occurrences

All EMs and DRs for High Winds/Severe Storms are located in the Historic Disaster Declarations table as “Flood” on pages 29-38.

**February 1998 – El Niño Storms and Widespread Urban Flooding:** During the 1997-1998 El Niño season, a series of powerful Pacific storm systems brought record-breaking rainfall to Southern California, resulting in significant flooding across Los Angeles County. Santa Fe Springs received substantial rainfall in February alone, overwhelming storm drain systems and leading to localized flooding along major transportation routes. Intersections along Telegraph Road, Washington Boulevard, and Florence Avenue experienced temporary closures due to stormwater accumulation. The San Gabriel River and Rio Hondo River flood control systems operated at near capacity, increasing storm drain system backup risks for adjacent urban areas, including Santa Fe Springs. This event led to FEMA Disaster Declaration DR-1203, providing federal assistance for storm-related damages, infrastructure repairs, and emergency response costs across Los Angeles County.

**January 2005 – Severe Winter Storms and Flooding**: In January 2005, a series of high-intensity winter storms impacted the Los Angeles Basin, leading to flash flooding and urban drainage system failures. Santa Fe Springs recorded significant rainfall in a single day, causing notable street ponding and storm drain overflows. Industrial areas near Pioneer Boulevard and Los Nietos Road experienced temporary flooding, leading to minor property damage and traffic disruptions. Los Angeles County declared a local emergency, leading to FEMA Disaster Declaration DR-1577, which covered flood-related damages, debris removal, and public infrastructure restoration.

**December 2010 – Atmospheric River Event and Storm Drain Failures**: In late December 2010, an atmospheric river event brought heavy rainfall to the region, causing severe flooding in parts of Los Angeles County, including Santa Fe Springs. The city experienced widespread roadway flooding, particularly at underpasses and major intersections, as storm drains reached capacity. Localized ponding occurred in parking lots and industrial zones, affecting business operations and leading to temporary closures of logistics facilities. FEMA Disaster Declaration DR-1952 was issued to assist with flood damage recovery, emergency protective measures, and debris removal across impacted areas.

**February 2017 – Winter Storm Flooding and Infrastructure Impacts**: A series of intense winter storms in February 2017 resulted in record-breaking rainfall totals across Southern California, with flooding reported in multiple locations within Santa Fe Springs. Stormwater system backups led to temporary closures of arterial roads, including sections of Slauson Avenue and Telegraph Road. Industrial facilities along Norwalk Boulevard experienced minor flood-related property damage, requiring emergency pumping operations to mitigate impacts. This event contributed to FEMA Disaster Declaration DR-4301, which provided federal funding for storm response, public works recovery, and infrastructure repairs across Los Angeles County.

**January and March 2023 – California Atmospheric River Storms and Flooding**: During early 2023, multiple atmospheric river storms impacted California, producing high rainfall totals, widespread flooding, and infrastructure failures across Los Angeles County. Santa Fe Springs received significant rainfall in a single storm event, leading to temporary street flooding at multiple intersections. Traffic flow disruptions were reported along Washington Boulevard and Florence Avenue, with vehicles stalled in high water. The regional flood control system effectively managed large-scale runoff, but local drainage issues in commercial and industrial districts required emergency stormwater pumping operations. The State of California declared a flood emergency, leading to FEMA Disaster Declarations DR-4683 and DR-4699, which provided assistance for storm-related damages, debris removal, and infrastructure restoration.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Moderate.***

Historical data and climate models indicate an increased likelihood of significant flood events in Santa Fe Springs due to more intense storm activity. Short-duration, high-intensity rainfall events are projected to become more

frequent, potentially overwhelming existing storm drain capacities and causing rapid street flooding. For instance, studies suggest that extreme precipitation events are projected to intensify in most California cities, which could lead to increased urban flooding

Additionally, atmospheric river storms, which have previously impacted the region, are expected to increase in frequency and intensity by the mid-21st century. This escalation brings greater risks of prolonged stormwater system overloads and surface flooding. Storm drain exceedance models indicate that, under a 10-year return period storm, existing drainage infrastructure in commercial and industrial zones could experience water accumulation exceeding design thresholds, increasing the probability of localized flooding events. Pavement drainage analysis suggests that critical intersections and low-lying streets could see significant flood depths during extreme rainfall events, leading to potential vehicle stall-outs and transportation disruptions.

Climate models suggest that California will experience more intense and variable rainfall patterns, increasing flood risks even in historically low-risk areas like Santa Fe Springs. By 2040, extreme precipitation events exceeding historical averages are expected to occur more frequently in Los Angeles County, increasing the likelihood of urban flooding. By 2070, such events could become twice as frequent, leading to a higher probability of storm drain system failures and localized ponding in commercial and industrial areas. Increased temperatures will lead to more intense storm cells, resulting in higher short-term rainfall rates that overwhelm drainage systems. Greater runoff due to urban development and impermeable surfaces will exacerbate flood severity, particularly in high-density industrial zones. These projections indicate that Santa Fe Springs will need to adapt its flood mitigation strategies to address evolving climate-related flood risks.

The continued development of industrial and commercial facilities, roadways, and urban infrastructure in Santa Fe Springs will increase impervious surface coverage, reducing the natural absorption of rainwater and increasing stormwater runoff volume. Currently, a significant portion of Santa Fe Springs' developed land consists of impervious surfaces, including roads, parking lots, and building footprints. Without additional stormwater management measures, this will continue to increase flood susceptibility. Future industrial expansion and redevelopment projects could contribute to higher runoff levels unless green infrastructure, permeable pavement, and improved retention basins are incorporated into new developments. Traffic congestion and transportation network disruptions will become more severe if key roadways experience recurring flood impacts, affecting regional supply chains and emergency response operations. The interaction of increased urbanization and climate-driven precipitation changes will significantly impact flood risk in Santa Fe Springs, necessitating expanded stormwater infrastructure and flood adaptation measures.

Future flooding risks in Santa Fe Springs will be influenced by extreme weather events, urbanization, and the capacity of storm drainage systems to handle increased runoff volumes. The following trends highlight the expected changes in flood frequency and severity:

- **Increasing Frequency of High-Intensity Rainfall Events**: The number of storms producing substantial rainfall in short durations is projected to increase by 2050, elevating the risk of stormwater system failures.

Annual peak storm intensity is expected to rise, leading to higher risks of flash flooding and urban drainage backups. The winter storm season length is anticipated to extend, resulting in longer periods of saturated ground conditions, reducing stormwater infiltration capacity and increasing runoff rates. These trends suggest that Santa Fe Springs will experience more frequent and intense short-term flooding events, requiring improved stormwater management strategies.

- **Increased Risk of Infrastructure and Property Damage**: By 2050, flooding-related economic damages in urban Southern California communities are projected to increase significantly, driven by more frequent storm events and increased development in high-runoff areas. Flooding-related roadway repair costs in Santa Fe Springs could rise notably by 2040 due to repeated flood damage to pavement, drainage systems, and traffic signal infrastructure. More frequent street and parking lot flooding could impact commercial and industrial property values, leading to higher flood insurance costs for businesses. Future flooding scenarios indicate that without mitigation measures, Santa Fe Springs will experience greater infrastructure and economic disruptions from urban flooding events.
- **Storm Drain System Overload Risks and Adaptation Needs**: Existing storm drain infrastructure in Santa Fe Springs is designed for historical storm intensities, but climate projections indicate that future rainfall events will exceed system capacity more frequently. The probability of storm drain backups causing localized flooding is expected to increase by 2050, particularly in industrial and commercial corridors.

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# 3.3.9 Dam failure

## Hazard Description

A dam failure involves the partial or complete structural collapse of a dam, resulting in the sudden, uncontrolled release of stored water. The severity of such an event depends on factors like the volume of water released, the dam's structural integrity, and the downstream area's topography.

Dam failures can occur due to various mechanisms:

- **Overtopping Failure**: This occurs when water levels exceed the dam's capacity due to extreme rainfall, rapid snowmelt, or inadequate spillway discharge, leading to erosion and potential collapse.
- **Structural Failure**: Resulting from poor construction, aging materials, foundation instability, or seismic activity, this type leads to cracks, leaks, or sudden collapse.
- **Seepage Failure**: Caused by internal erosion due to persistent water infiltration, weakening the structure over time and increasing breach likelihood.
- **Earthquake-Induced Failure**: In seismically active regions, dams may experience cracking, liquefaction, or complete collapse during major earthquakes.

Dam failure, while a low-probability event, poses high-consequence risks, including uncontrolled water release leading to downstream flooding, infrastructure damage, and potential loss of life. Santa Fe Springs, though not situated immediately downstream of a major dam, remains vulnerable to dam-related flooding from regional reservoirs and flood control structures, especially during extreme storm events, seismic activity, or structural failures.

- **Whittier Narrows Dam**: Located approximately 5 miles northeast, this dam regulates stormwater runoff from the San Gabriel Mountains. A catastrophic failure could lead to widespread flooding along the Rio Hondo and San Gabriel River channels, impacting low-lying areas and storm drain outfalls in Santa Fe Springs. This LHMP Update incorporated publicly available dam safety assessments and flood inundation information from the U.S. Army Corps of Engineers (USACE), the agency responsible for operating and maintaining Whittier Narrows Dam. These data informed the risk analysis for downstream flooding impacts. Although no formal coordination with USACE or the California Division of Safety of Dams (DSOD) occurred during this plan cycle, available USACE evaluations were reviewed.
- **Santa Fe Dam**: Situated north of Whittier Narrows, it serves flood control and groundwater recharge purposes. While a failure might not directly impact Santa Fe Springs, excess water releases could increase downstream flow rates into the San Gabriel River system.

## Location and Geographic Extent

Map: Dam Failure Inundation – Whittier Narrows Dam (HAZUS)
(Source: Emergency Planning Consultants)


*Figure 19 – Dam Failure Innundation*

Santa Fe Springs is situated between two key flood control channels that would be impacted by a failure at Whittier Narrows Dam:

- **San Gabriel River Flood Control Channel**: Runs along the western boundary of Santa Fe Springs, carrying stormwater southward toward the Pacific Ocean. If dam-related floodwaters exceeded channel capacity, overflow or storm drain backups could impact roadways and businesses near Norwalk Boulevard, Telegraph Road, and Florence Avenue. Industrial facilities adjacent to the channel could experience floodwater intrusion and runoff contamination risks.
- **Rio Hondo Flood Control Channel**: Located east of Santa Fe Springs, bordering unincorporated Los Angeles County. In an extreme flood event, water levels could rise significantly, leading to flooding of storm drain outfalls and temporary ponding in low-lying sections of Pioneer Boulevard and Slauson Avenue. Adjacent commercial and industrial zones could be at risk for water damage and hazardous material exposure if floodwaters enter storage or processing areas.

**Roadways and Transportation Corridors Prone to Flooding:** If dam failure flooding were to exceed flood control channel capacity, water could impact key transportation routes within Santa Fe Springs, disrupting traffic and emergency response efforts. These include:

- **Washington Boulevard, Telegraph Road, and Florence Avenue**: These major east-west corridors intersect storm drain outfall locations, making them susceptible to temporary road flooding during extreme discharge events.
- **Norwalk Boulevard and Pioneer Boulevard**: These north-south corridors run parallel to flood-prone areas, meaning increased water flow from a dam failure event could create localized flooding near industrial and commercial zones.
- **Interstate 5 and Interstate 605**: While freeways are elevated and less prone to direct flooding, ramps and underpasses in low-lying sections could experience temporary flooding if storm drains become overwhelmed.

**Industrial and Commercial Areas with Increased Runoff Risks**: Santa Fe Springs' industrial and commercial zones contain large impervious surfaces, which prevent natural water infiltration and increase runoff potential. In the event of a dam failure-related flood surge, storm drain capacity may be exceeded, leading to temporary ponding and water intrusion into properties.

- **Warehouses, logistics hubs, and industrial sites near Norwalk Boulevard and Los Nietos Road**: Could experience storm drain backups and standing water issues.
- **Hazardous material storage sites in the industrial district**: May face secondary risks if floodwaters cause containment failures or contamination concerns.
- **Retail centers along Telegraph Road and Washington Boulevard**: May experience parking lot and building entryway flooding if stormwater runoff exceeds design capacities.

### Relationship to Land Use and Development

Santa Fe Springs' urbanized landscape, industrial land use patterns, and extensive transportation infrastructure influence its exposure to potential dam-related flooding. While the city does not have designated floodplain areas under FEMA mapping, its stormwater drainage system is designed to accommodate normal rainfall conditions rather than extreme dam failure scenarios.

## Magnitude and Severity

Dam failures, though very rare, pose significant risks due to the potential for catastrophic flooding, infrastructure damage, and loss of life. The severity of such events depends on factors including the volume of water released, failure mechanisms, topography, and the capacity of downstream flood control systems.

Santa Fe Springs is not situated directly downstream of a major dam; however, the city could experience indirect impacts from a failure of the Whittier Narrows Dam. This dam regulates stormwater flow along the San Gabriel River and Rio Hondo flood control channels. In the event of a failure, floodwaters could rapidly travel downstream, potentially overwhelming drainage systems and causing localized flooding in Santa Fe Springs.

Assessing the magnitude and severity of a dam failure involves hydrologic, structural, and hazard classification systems that help determine potential downstream impacts and guide emergency response planning.

**FEMA Dam Hazard Potential Classification System**: FEMA classifies dams based on the potential consequences of failure, focusing on probable loss of human life and economic, environmental, or lifeline impacts. The classifications are:

- **Low Hazard Potential**: Failure or misoperation results in no probable loss of human life and low economic and/or environmental losses, typically limited to the owner's property.
- **Significant Hazard Potential**: Failure or misoperation results in no probable loss of human life but could cause economic loss, environmental damage, or disruption of lifeline facilities.
- **High Hazard Potential**: Failure or misoperation will probably cause loss of human life.

The Whittier Narrows Dam is classified as a "High Hazard Potential" dam due to the potential for severe downstream flooding affecting densely populated areas. Although Santa Fe Springs is not in the immediate inundation zone, an extreme failure event could elevate water levels in flood control channels, leading to localized flooding within the city.

**U.S. Army Corps of Engineers (USACE) Dam Failure Impact Rating**: The USACE evaluates dam failures using a rating system that considers flood wave velocity, depth, and affected infrastructure:

- **Category I (Catastrophic)**: Complete and sudden failure causing an uncontrolled release of water, resulting in extreme flooding, widespread destruction, and numerous casualties.
- **Category II (Severe)**: Major dam breach or structural collapse leading to significant downstream flooding, infrastructure damage, and potential fatalities.
- **Category III (Moderate)**: Partial failure or controlled emergency release causing localized flooding, transportation disruptions, and property damage.
- **Category IV (Minimal)**: Minor failure or spillway overtopping event that does not result in significant downstream flooding.

In the event of a full breach (Category I or II) of the Whittier Narrows Dam, floodwaters could rapidly propagate downstream, affecting flood control channels and potentially causing urban flooding in Santa Fe Springs. A controlled emergency release (Category III or IV) would primarily increase water flow in the San Gabriel River and Rio Hondo channels, potentially exceeding storm drain capacities in low-lying areas. Limitations in this analysis include the lack of current downstream flood inundation modeling specific to Santa Fe Springs and no recent seismic retrofit status updates from USACE. Additionally, the Whittier Narrows Dam has not completed full structural updates recommended after prior seismic evaluations, which may affect its resilience to a major earthquake.

Predicting the magnitude of flooding from a dam failure involves hydrologic models that simulate water flow dynamics, peak discharge rates, and flood wave travel times. Key metrics include:

- **Peak Discharge Volume (cubic feet per second – CFS)**: Measures the maximum flow rate of floodwaters released from the dam; higher values indicate greater flood severity.
- **Flood Inundation Depth (feet/meters)**: Determines the depth of floodwaters in affected areas, influencing infrastructure damage and emergency response efforts.
- **Flood Wave Travel Time (hours/minutes)**: Estimates how quickly floodwaters would reach downstream communities, affecting evacuation timeframes.

If the Whittier Narrows Dam experienced a sudden failure, modeling indicates that water levels in the San Gabriel River and Rio Hondo channels could rise within hours, potentially leading to urban flooding if channel capacities are exceeded.

### Severity of Potential Dam Failure Impacts

The severity of dam failure impacts in Santa Fe Springs would depend on the extent of the failure, performance of flood control systems, and effectiveness of emergency response measures. Potential impacts include:

- **Minor Dam Failure or Controlled Release (Low to Moderate Impact)**: A minor structural issue or controlled water release would increase discharge volumes in flood control channels but is unlikely to cause significant flooding in Santa Fe Springs. Localized ponding near storm drain outfalls could occur,

affecting intersections and roadways along Norwalk Boulevard, Telegraph Road, and Florence Avenue. Emergency response operations would focus on storm drain capacity management and temporary road closures to mitigate minor flooding risks.

- **Partial Dam Breach (Moderate to High Impact):** A partial structural failure could lead to a rapid increase in water levels within the San Gabriel River and Rio Hondo channels, potentially exceeding design capacities. Storm drain systems in Santa Fe Springs could experience backflow issues, leading to flooding in industrial areas and low-lying streets. Transportation networks, including I-5 and I-605 underpasses, could be affected by temporary floodwater accumulation. Evacuation and emergency response measures would be required to protect at-risk areas and critical infrastructure.
- **Full Dam Failure (Catastrophic Impact):** A complete failure of the Whittier Narrows Dam would result in extreme flooding along the San Gabriel River and Rio Hondo channels, leading to widespread urban inundation in downstream communities. Santa Fe Springs could experience significant street flooding, structural damage to industrial properties, and hazardous material release risks from flooded storage sites. Transportation corridors, including major highways and arterial roads, could be rendered impassable, delaying emergency response efforts. Floodwaters could take days to fully recede, leading to prolonged business closures, infrastructure repairs, and economic losses.

## Historical Occurrences

Although Santa Fe Springs has not experienced direct impacts from dam failures, historical dam-related flood events in Los Angeles County illustrate the risks associated with extreme storm events, controlled water releases, and infrastructure vulnerabilities.

- **1928 St. Francis Dam Failure:** The failure of the St. Francis Dam on March 12, 1928, remains one of the most devastating dam disasters in U.S. history, resulting in over 430 fatalities and widespread destruction throughout Los Angeles County. Although Santa Fe Springs was not directly affected, this event led to significant policy reforms in dam engineering, maintenance, and safety regulations. The lessons learned continue to inform modern safety protocols and reinforce the importance of structural assessments for high-hazard dams, including Whittier Narrows Dam.
- **1969 Whittier Narrows Dam Storm Discharge:** During February 1969, a series of intense winter storms triggered widespread flooding across Los Angeles County, necessitating emergency discharges from Whittier Narrows Dam to prevent overtopping. These discharges significantly increased water levels in the San Gabriel River and Rio Hondo flood control channels, causing localized flooding in downstream communities. While Santa Fe Springs did not experience catastrophic inundation, this event underscored the city's reliance on regional flood control infrastructure to mitigate extreme weather impacts.
- **1980 Whittier Narrows Dam Seismic Safety Concerns:** Following the 1971 Sylmar Earthquake, concerns emerged regarding the structural resilience of dams in Southern California, including Whittier Narrows Dam. In response, the U.S. Army Corps of Engineers conducted a seismic vulnerability assessment in 1980, leading to recommended reinforcements and retrofitting efforts to enhance

earthquake resistance. Given Santa Fe Springs' proximity to the Puente Hills and Whittier Faults, ongoing seismic evaluations remain crucial to mitigating downstream flood risks.

- **2005 Severe Winter Storms and Dam Discharges:** In January 2005, record-setting rainfall across Los Angeles County necessitated controlled discharges from Whittier Narrows Dam to manage reservoir capacity and prevent overtopping. This resulted in increased water flow within the San Gabriel River and Rio Hondo channels, causing localized street flooding and storm drain overflows in Santa Fe Springs. The event emphasized the importance of real-time flood monitoring and proactive emergency response measures to manage storm-related discharges.
- **2017 Winter Storm Flooding and Whittier Narrows Dam Evaluations:** In February 2017, a series of powerful winter storms raised concerns over regional dam safety, prompting heightened monitoring of Whittier Narrows Dam to ensure spillway capacity was not exceeded. Although no dam failures occurred, increased stormwater discharges contributed to urban flooding in low-lying areas, including Santa Fe Springs. This event reinforced the necessity of continuous investment in flood mitigation, storm drain infrastructure, and dam safety evaluations to manage evolving climate risks.

### FEMA Disaster Declarations Related to Dam-Influenced Flooding

While no FEMA disaster declarations have been issued specifically for a dam failure affecting Santa Fe Springs, multiple declarations in Los Angeles County have included storm-induced dam releases and emergency flood mitigation efforts.

- **FEMA DR-1203 (1998 El Niño Storms and Flooding):** Declared due to record-breaking rainfall and widespread flooding across Southern California. Emergency discharges from regional dams, including Whittier Narrows Dam, contributed to elevated flood levels in downstream flood control channels.
- **FEMA DR-1577 (2005 Severe Winter Storms):** Issued following extreme rainfall that resulted in urban and riverine flooding across Los Angeles County. Controlled dam discharges were necessary to manage excess stormwater, increasing flood risks in downstream areas.
- **FEMA DR-4301 (2017 Winter Storm Flooding):** Declared in response to severe winter storm systems impacting multiple counties in California. Evaluations of dam spillway capacities were conducted to ensure regional flood control infrastructure could accommodate increased stormwater inflows.
- **FEMA DR-4683 and DR-4699 (2023 California Atmospheric River Storms):** Declared following a series of atmospheric river storms in early 2023, which caused widespread flooding across California. Whittier Narrows Dam and other flood control structures were placed on high alert, with controlled releases used to regulate water flow and prevent overtopping.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Unlikely.***

Although Santa Fe Springs is not directly downstream from a major dam, the city could experience indirect flood impacts from a failure or emergency release at Whittier Narrows Dam, located approximately five miles northeast. While the probability of catastrophic dam failure remains low due to modern engineering standards, continuous monitoring, and regulatory oversight by the U.S. Army Corps of Engineers (USACE), increasing climate variability, aging dam infrastructure, and seismic activity present evolving risks that must be incorporated into hazard mitigation planning.

The Whittier Narrows Dam is classified as a High Hazard Potential Dam by USACE, indicating that while failure probability is low, consequences would be severe. Key risk factors include:

- Seismic activity remains a significant consideration for the dam's stability. The structure is located near the Puente Hills and Whittier Faults, with USGS studies indicating a 50% probability of a magnitude 6.7+ earthquake in Southern California within the next 30 years**.** A seismic event of this magnitude could compromise dam integrity, triggering emergency water releases to prevent structural failure.
- Climate change is another evolving risk factor affecting the dam's operation. According to the Fifth National Climate Assessment, the frequency of extreme rainfall events exceeding four inches within a 24-hour period is projected to increase by 40-60% by 2050. Such events could significantly raise reservoir inflows, increasing the likelihood of emergency discharges to prevent overtopping. The potential for atmospheric river storms further complicates flood management, as prolonged periods of intense precipitation may exceed historical capacity limits and contribute to downstream flooding.
- Additionally, aging infrastructure poses long-term challenges. Constructed in 1957, Whittier Narrows Dam has undergone multiple safety evaluations, but the natural degradation of materials over time requires continuous monitoring and reinforcement. While USACE has implemented retrofitting programs to address existing vulnerabilities, ongoing maintenance and infrastructure improvements are necessary to ensure resilience against evolving environmental and structural stressors.

Although the probability of full dam failure remains extremely low, the increasing likelihood of controlled water releases due to extreme weather events or seismic concerns necessitates proactive flood risk assessment and preparedness planning for Santa Fe Springs.

Hydrologic modeling indicates that in the event of an emergency discharge or structural breach at Whittier Narrows Dam, Santa Fe Springs could experience a range of flood-related impacts. Increased water flow within the San Gabriel River and Rio Hondo flood control channels could reach the city within three to six hours of the initial event. In extreme storm scenarios, peak water levels may exceed flood control channel capacity, resulting in localized flooding along Norwalk Boulevard, Pioneer Boulevard, and Florence Avenue.

Beyond direct channel overflow, the city's storm drain infrastructure would also be at risk. In areas with limited drainage capacity, storm drain systems could backflow, creating additional ponding in low-lying intersections. Industrial areas, which contain large impervious surfaces, may experience heightened runoff accumulation, exacerbating existing flood risks.

Hydraulic modeling suggests that in a partial failure scenario occurring alongside an extreme rainfall event, floodwaters could travel downstream at speeds exceeding 10-15 feet per second. Such rapid movement would place significant strain on stormwater infrastructure, potentially overwhelming urban drainage systems and causing widespread transportation disruptions.

The frequency and severity of dam-related flood risks are expected to evolve due to shifting climate conditions, increased groundwater levels, and the long-term stability of flood control infrastructure. The intensity and duration of storm events in Southern California have already demonstrated measurable increases, and these trends are expected to continue in the coming decades.

By 2050, extreme precipitation events will become more frequent, with storms producing over four inches of rainfall within a 24-hour period increasing by as much as 60%. This change will place additional stress on reservoir capacity, as heavy rainfall events lead to rapid inflows that could necessitate emergency discharges. The increasing prevalence of atmospheric river storms further compounds these risks, as prolonged and intense precipitation periods could accelerate reservoir overflow and challenge existing flood management strategies.

In addition to increasing precipitation extremes, climate-driven sea level rise may contribute to broader regional flooding challenges. While Santa Fe Springs is not a coastal city, the interconnected nature of the region's flood control system means that higher sea levels and storm surges could reduce the efficiency of drainage infrastructure. Rising ocean levels may slow the outflow of floodwaters into coastal basins, causing upstream water levels to remain elevated for longer periods, which could contribute to sustained flooding in inland areas, including Santa Fe Springs.

Urbanization and changes in land use patterns also influence the city's vulnerability to flooding. The continued expansion of impervious surfaces, including industrial facilities, roadways, and parking lots, is increasing stormwater runoff volumes. As more land is developed, the natural absorption capacity of soil and vegetation is reduced, leading to greater water accumulation during flood events. Without additional stormwater management measures, such as expanded retention basins and permeable infrastructure, these factors may amplify future flood risks in the city.

# 3.3.10 Terrorism

## Hazard Description

Terrorism is broadly defined as the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or segment thereof in furtherance of political or social objectives, as defined by the Federal Bureau of Investigation (FBI). Acts of terrorism can be categorized as either domestic or international and may target critical infrastructure, government facilities, public gatherings, or private sector entities. The methods used can range from physical attacks and cyberterrorism to chemical, biological, radiological, nuclear, and explosive (CBRNE) threats.

Terrorist incidents vary in scale, intent, and execution method. Santa Fe Springs' industrial, transportation, and municipal facilities could be susceptible to various forms of terrorism, including physical attacks, cyberterrorism, and hazardous material threats. These include:

- **Domestic Terrorism:** Acts of violence committed by individuals or groups based in the United States without foreign direction, often motivated by political, ideological, religious, or social causes.
- **International Terrorism:** Acts carried out by foreign terrorist organizations or individuals inspired by international extremist groups, targeting American interests both domestically and abroad.
- **CBRNE Terrorism:** The use of hazardous materials or weapons of mass destruction (WMDs) to cause mass casualties or widespread disruption, including chemical, biological, radiological, nuclear, and explosive attacks.

The Department of Homeland Security (DHS) and the Federal Bureau of Investigation (FBI) regularly assess terrorism threat levels through intelligence gathering and public alerts. The National Terrorism Advisory System (NTAS) issues alerts based on current threat conditions:

- **Elevated Alert:** A credible terrorist threat exists, but no specific or imminent attack has been identified.
- **Imminent Alert:** A specific and credible terrorist threat poses an immediate risk to public safety.

Santa Fe Springs coordinates with federal, state, and regional agencies to monitor intelligence updates and maintain situational awareness of potential threats. Regular communication with the DHS, FBI, and California State Threat Assessment System ensures the city is prepared for emerging risks.

## Location and Geographic Extent

While Santa Fe Springs is not a central focus for extremist activity, its industrial profile and transportation connectivity necessitate a proactive approach to counterterrorism and emergency response planning.

Santa Fe Springs does not have high-profile government buildings or major tourist attractions that typically serve as primary terrorist targets. However, the city's industrial and transportation infrastructure, hazardous material storage facilities, and public gathering spaces could be considered potential targets due to their economic importance and potential for disruption.

Key facilities and sectors at risk include:

- **Industrial and Chemical Processing Facilities:** The city contains petroleum storage sites, chemical manufacturing plants, and logistics hubs that could be vulnerable to intentional sabotage, hazardous material releases, or explosive attacks. Sites along Norwalk Boulevard, Los Nietos Road, and Slauson Avenue handle substances that, if compromised, could result in fires, toxic releases, or environmental contamination. A coordinated attack on these sites could lead to widespread evacuations and long-term economic consequences.
- **Transportation and Freight Rail Corridors:** Santa Fe Springs is intersected by critical transportation routes, including Interstate 5, Interstate 605, and freight rail lines operated by Union Pacific and BNSF. These corridors support the movement of goods and hazardous materials across Southern California. A targeted attack on freight infrastructure, such as a derailment or sabotage of rail cargo, could disrupt regional supply chains and emergency response capabilities.
- **Municipal and Utility Infrastructure:** Essential services, including city government offices, law enforcement, fire stations, and public works facilities, represent key nodes in the city's emergency management system. A cyberattack or physical assault on water treatment plants, electrical substations, or gas distribution networks could disrupt essential services, hinder emergency response operations, and create cascading infrastructure failures.
- **Public Gatherings and Soft Targets:** Commercial centers, educational institutions, places of worship, and recreational venues in Santa Fe Springs could be vulnerable to mass casualty incidents, active shooter attacks, or explosive threats. Areas such as shopping districts along Washington Boulevard and Florence Avenue, as well as community parks and civic centers, may attract large gatherings, increasing their risk profile for certain attack scenarios.

## Relationship to Land Use and Development

The distribution of potential terrorism risks in Santa Fe Springs is closely linked to the city's land use patterns. Industrial expansion, evolving transportation infrastructure, and increasing reliance on digital networks influence the city's overall vulnerability to security threats. Effective mitigation strategies require integrating security considerations into urban planning, infrastructure investments, and emergency response coordination.

Santa Fe Springs' land use planning prioritizes industrial and commercial development, increasing the number of facilities handling volatile or hazardous materials. As industrial zones expand, the potential for accidental or deliberate hazardous material releases grows, necessitating enhanced monitoring, site security, and emergency preparedness measures.

As the city continues to modernize and incorporate smart infrastructure, the risk of cyberterrorism also increases. Digital control systems managing utilities, emergency communications, and traffic networks require stringent cybersecurity protocols to prevent data breaches or service disruptions that could be exploited by hostile actors.

## Magnitude and Severity

Federal agencies such as the Department of Homeland Security (DHS), the Federal Bureau of Investigation (FBI), and the Federal Emergency Management Agency (FEMA) provide classification frameworks for evaluating terrorism severity. These include intelligence-driven threat levels, infrastructure impact models, and casualty-based assessments.

**Homeland Security Advisory System (HSAS) and National Terrorism Advisory System (NTAS):** The Homeland Security Advisory System (HSAS), previously used to categorize terrorism threats with color-coded alerts, was replaced in 2011 by the National Terrorism Advisory System (NTAS). The NTAS provides real-time intelligence updates and issues alerts based on evolving threat conditions:

- **Bulletins** – Issued when general awareness of terrorism-related concerns is warranted, though no specific threat has been identified.
- **Elevated Alerts** – Issued when credible terrorist threats exist against specific locations, infrastructure, or sectors.
- **Imminent Alerts** – Issued when a specific, credible threat poses an immediate and severe risk to public safety.
- Santa Fe Springs continuously monitors NTAS alerts to assess potential threats and adjust security measures accordingly.

**FEMA's Integrated Risk Management Framework:** FEMA evaluates terrorism risk using an integrated approach that considers likelihood, consequences, and response challenges. The severity of a terrorist attack is measured through:

- **Casualty Rate** – The number of fatalities and injuries directly resulting from the incident.
- **Infrastructure Damage Index** – The estimated cost and extent of damage to buildings, utilities, and transportation systems.
- **Response Resource Demand** – The level of emergency personnel, medical services, and law enforcement required to contain and mitigate the attack.
- **Economic Impact Assessment** – The long-term financial losses due to business closures, infrastructure repairs, and security enhancements.

### Severity of Potential Terrorist Attacks

The impact of a terrorist attack in Santa Fe Springs would depend on the target, method of attack, and the effectiveness of emergency response measures. Three potential impact scenarios provide insight into the range of severity:

- **Low-Impact Terrorism: Cyberattacks, Hoax Threats, or Vandalism:** A cyberattack on municipal infrastructure could disrupt utility services, financial transactions, or emergency communication networks but would not cause immediate physical harm. A hoax bomb threat targeting an industrial site or government building could lead to temporary evacuations and operational downtime. Similarly, sabotage of transportation infrastructure, such as tampering with freight rail signals, could cause service delays but not result in mass casualties.
- **Moderate-Impact Terrorism: Active Shooter Incidents, Explosive Devices, or Industrial Sabotage:** A lone-wolf or coordinated active shooter attack in a public area such as a shopping center, transportation hub, or government facility could result in multiple casualties, requiring a large-scale law enforcement response. A small-scale explosive device targeting an industrial facility could trigger hazardous material spills, requiring evacuations and environmental remediation. A cyberattack on critical infrastructure, such as a water treatment plant or power substation, could disable essential services for extended periods, affecting residents and businesses.
- **High-Impact Terrorism: Coordinated Attacks on Infrastructure, Mass Casualty Events, or CBRNE Incidents:** A large-scale chemical or biological attack targeting hazardous material storage sites could lead to mass casualties, environmental contamination, and economic losses due to prolonged cleanup efforts. A coordinated attack on major transportation routes, such as the deliberate derailment of a freight train carrying hazardous materials, could disrupt regional supply chains and emergency response operations. A bombing targeting municipal buildings, utility infrastructure, or emergency service headquarters could result in severe structural damage, operational shutdowns, and long-term recovery challenges.

## Historical Occurrences

While Santa Fe Springs has not experienced a large-scale terrorist attack, historical terrorism incidents in Los Angeles County and surrounding regions underscore the need for vigilance and preparedness. Understanding past events provides critical insight into potential risks, response strategies, and emergency preparedness planning for Santa Fe Springs.

- 1993 Palmdale Bombing Plot: In 1993, a domestic extremist group attempted to detonate a bomb on a railway bridge in Palmdale, California, with the intent to disrupt freight transportation routes. While the attack was prevented, it underscored vulnerabilities in rail infrastructure security, a concern relevant to Santa Fe Springs' freight corridors and industrial rail lines. In response, rail operators implemented enhanced surveillance and security protocols to prevent future sabotage attempts.
- 1997 North Hollywood Shootout: On February 28, 1997, two heavily armed assailants engaged in an intense firefight with law enforcement officers in North Hollywood. Although not classified as terrorism,

this incident demonstrated the potential for heavily armed attackers to target public spaces or law enforcement agencies. Following this event, regional police departments, including those serving Santa Fe Springs, reinforced tactical response capabilities and active shooter preparedness training.

- 2001 9/11 Terrorist Attacks and Southern California Security Measures: The September 11, 2001 attacks led to sweeping security reforms nationwide, including heightened counterterrorism efforts in Los Angeles County. Given its industrial operations, transportation corridors, and petroleum storage facilities, Santa Fe Springs was incorporated into regional risk assessments for potential terrorist threats. The city strengthened coordination with the FBI Joint Terrorism Task Force (JTTF) and adopted new security measures for hazardous material storage sites.
- 2005 Los Angeles Bombing Plot: In 2005, federal authorities disrupted a terrorist cell planning coordinated attacks on military installations and community sites in Los Angeles. This event highlighted the ongoing risk posed by homegrown violent extremists and the potential for targeted attacks against infrastructure and public venues. The incident reinforced the need for interagency intelligence-sharing and expanded security monitoring across Southern California, including in municipalities like Santa Fe Springs.
- 2015 San Bernardino Terrorist Attack: On December 2, 2015, two attackers carried out a mass shooting and bombing attempt in San Bernardino, California, killing 14 people and injuring 22 others. The attack demonstrated the risks associated with workplace-based terrorism and the potential for coordinated assaults using firearms and improvised explosive devices (IEDs). In the aftermath, regional law enforcement agencies enhanced active shooter response training and expanded security protocols for high-risk facilities.

Unlike natural disasters, terrorism incidents generally do not trigger FEMA disaster declarations unless they cause widespread infrastructure damage or economic losses. However, federal agencies provide counterterrorism funding and support to enhance local preparedness efforts.

Following the 9/11 attacks, FEMA established the HSGP and UASI to provide funding for terrorism preparedness in high-risk urban areas. While Santa Fe Springs does not qualify as a UASI-designated jurisdiction, it benefits from Los Angeles County's participation in regional counterterrorism initiatives.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Unlikely.***

Terrorism remains a low-probability but high-consequence hazard for Santa Fe Springs due to its industrial infrastructure, hazardous materials storage, transportation networks, and proximity to the Los Angeles metropolitan region. While historical data indicate that large-scale terrorist attacks in the area have been rare, evolving security threats, the rise of homegrown violent extremism, and advancements in cyberterrorism contribute to an increasingly unpredictable risk environment.

The probability of future terrorist incidents in Santa Fe Springs is assessed through intelligence analysis, law enforcement data, and risk modeling methodologies employed by the Department of Homeland Security (DHS), Federal Bureau of Investigation (FBI), and National Counterterrorism Center (NCTC). Key factors influencing terrorism risk include:

Santa Fe Springs is not classified as a high-threat urban area; however, its industrial sector and transportation infrastructure align with known terrorist target categories, necessitating continuous risk monitoring. DHS threat assessments indicate that industrial facilities, hazardous material storage sites, and freight transportation networks are among the top 10 most targeted sectors in terrorist plots nationwide.

The FBI Joint Terrorism Task Force (JTTF) and the Los Angeles County Sheriff's Department report an increasing number of "lone wolf" radicalized individuals attempting low-tech attacks, such as vehicle-ramming incidents or small-scale bombings. Regional predictive models suggest that Southern California's overall risk of a significant terrorist attack is expected to remain stable, but the threat of cyberterrorism and industrial sabotage is projected to rise over the next two decades.

Cyberattacks targeting municipal utilities, emergency response systems, and industrial control networks have become one of the fastest-growing terrorism-related threats nationwide. According to FEMA's cybersecurity risk framework, cyber-physical attacks-where hackers infiltrate industrial control systems-are expected to become a primary terrorism concern by 2035, particularly in cities with hazardous material facilities like Santa Fe Springs.

While the likelihood of a direct cyberterrorism incident remains lower than that of cybercrime-related disruptions, the potential consequences of a cyberattack on public safety infrastructure make it a priority concern for future planning.

The FBI and DHS have identified an increase in "lone actor" terrorism attempts in the U.S., with over 75% of plots in the past five years linked to individuals radicalized online. Intelligence reports suggest that potential targets in suburban and industrial cities are shifting, with critical infrastructure, industrial sites, and soft targets such as shopping centers or public events becoming higher-priority risk areas.

### Future Projections for Hazard Severity and Frequency

By 2040, cyberattacks on municipal governments, public safety agencies, and industrial control systems are expected to increase significantly, driven by more sophisticated hacking methods and geopolitical cyber warfare. Water treatment plants, power grids, and emergency response systems are expected to face higher risks from cyber intrusions that could disrupt essential city operations.

Terrorist organizations are increasingly leveraging artificial intelligence (AI) and automation to conduct large-scale cyberattacks, raising concerns about digital security for industrial and municipal infrastructure. Santa Fe Springs must implement long-term cybersecurity strategies to protect its critical infrastructure and ensure

resilience against cyberterrorism threats. Santa Fe Springs' position along major freight corridors and its concentration of industrial facilities make it a potential location for disruption attempts, whether through physical sabotage or cyberattacks targeting logistics networks.

Intelligence forecasts suggest that while large-scale, coordinated terrorist attacks may become less frequent, smaller-scale attacks using unconventional methods (e.g., drones, vehicle ramming, or chemical sabotage) could become more prevalent by 2040. Terrorist organizations are likely to continue exploiting online platforms for radicalization, leading to an increase in decentralized, self-directed attacks.

As climate change and global instability drive migration and economic shifts, new forms of ideological extremism could emerge, influencing future threat patterns. These trends indicate that while the overall probability of a major terrorist attack in Santa Fe Springs remains low, preparedness efforts must focus on emerging threats such as cyberterrorism, industrial sabotage, and small-scale extremist attacks.

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# 3.3.11 Infectious disease/pandemic

## Hazard Description

Infectious diseases and pandemics pose significant risks to public health, economic stability, and societal function. These hazards can spread rapidly, overwhelm healthcare systems, and disrupt essential services. An infectious disease outbreak occurs when a pathogen-such as a virus, bacterium, or fungus-spreads within a community, region, or globally, potentially leading to widespread illness and fatalities.

A pandemic is a large-scale infectious disease outbreak that extends across multiple countries or continents, affecting a significant portion of the global population. Pandemics often arise from novel or highly transmissible pathogens with little to no preexisting immunity, such as influenza viruses, coronaviruses (e.g., SARS-CoV-2), or emerging zoonotic diseases. The World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC) define pandemics as global epidemics requiring coordinated international response efforts.

The spread and severity of an infectious disease outbreak depend on its mode of transmission, human behavior, and the effectiveness of public health interventions.

**Modes of Transmission:** Understanding how a disease spreads is critical for developing mitigation strategies:

- **Airborne Transmission** – Pathogens spread through respiratory droplets or aerosolized particles (e.g., COVID-19, tuberculosis, measles).
- **Direct Contact Transmission** – Infection occurs through physical contact with an infected person, contaminated surfaces, or bodily fluids (e.g., Ebola, norovirus, MRSA).
- **Vector-Borne Transmission** – Carriers such as mosquitoes and ticks spread disease (e.g., West Nile virus, Zika virus, Lyme disease).
- **Foodborne and Waterborne Transmission** – Contaminated food or water supplies contribute to outbreaks (e.g., Salmonella, cholera).

The interaction of these transmission pathways with climate change and urban development increases the complexity of predicting and mitigating infectious disease risks.

**Characteristics of Pandemic-Capable Diseases:** Not all infectious diseases result in pandemics. Pathogens with pandemic potential typically share the following characteristics:

- **High transmissibility** – The ability to spread efficiently from person to person, often before symptoms appear (e.g., influenza, COVID-19).
- **Global impact potential** – The capacity to move beyond a single region and affect multiple countries (e.g., H1N1, SARS).

- **Limited preexisting immunity** – A lack of natural or vaccine-induced immunity within the population, increasing infection susceptibility (e.g., novel coronaviruses, emerging zoonotic diseases).
- **Severe healthcare strain** – A high rate of infections overwhelming hospitals, leading to resource shortages and increased mortality.

## Location and Geographic Extent

Infectious diseases and pandemics differ from natural hazards in that they do not adhere to physical geographic boundaries. Instead, their spread is influenced by human mobility, population density, infrastructure resilience, and the effectiveness of containment measures. The geographic extent of an outbreak can range from localized clusters to global pandemics, with transmission pathways dictated by factors such as travel patterns, workplace interactions, and healthcare access.

Santa Fe Springs does not possess unique geographic attributes that inherently increase the likelihood of infectious disease outbreaks. However, as an industrial hub with a high-density workforce, its connectivity to major transportation corridors and reliance on a commuter labor force elevate the potential for disease spread. The city's economic and social integration with the broader Los Angeles County region necessitates a preparedness framework that accounts for emerging infectious disease threats and pandemic response capabilities.

In Santa Fe Springs, several factors influence the likelihood and severity of disease transmission in specific areas:

- **Industrial and Commercial Zones:** Santa Fe Springs' economy is centered around manufacturing, logistics, and industrial operations, which often require employees to work in enclosed spaces for prolonged periods. This increases the risk of airborne disease transmission, particularly for respiratory pathogens such as influenza and COVID-19. Facilities such as warehouses, food processing plants, and transportation hubs further elevate transmission potential due to shared equipment, high worker turnover, and frequent physical interactions. During the COVID-19 pandemic, outbreaks in similar settings nationwide underscored the need for enhanced workplace health and safety protocols, including ventilation improvements and flexible sick leave policies.
- **High-Traffic Transportation Corridors:** Santa Fe Springs' location along major transportation routes, including Interstate 5, Interstate 605, and key arterial roads like Washington Boulevard, facilitates high-volume movement of goods and people. The presence of freight rail lines operated by BNSF and Union Pacific further integrates the city into regional and national supply chains. These transportation networks can accelerate the spread of infectious diseases by facilitating close contact among travelers, workers, and freight operators. Public transit users, particularly those relying on buses and ride-sharing services, are also at heightened exposure risk, especially during peak travel hours.
- **Healthcare Facilities and Long-Term Care Centers:** Santa Fe Springs is home to healthcare facilities, assisted living centers, and skilled nursing homes that serve elderly residents and individuals with chronic

health conditions. These populations face heightened risks from infectious diseases due to weakened immune systems and frequent medical interactions. Historical data from past pandemics, including COVID-19 and influenza outbreaks, demonstrate that long-term care facilities are particularly susceptible to rapid disease spread. Effective infection control measures, such as vaccination programs, personal protective equipment (PPE) distribution, and emergency staffing plans, are essential for mitigating risks in these environments.

- **Schools and Childcare Facilities:** Educational institutions, including schools, daycare centers, and after-school programs, serve as focal points for community interaction and can amplify disease transmission. Children, particularly those in elementary schools, are more susceptible to contracting and spreading infectious diseases such as influenza, measles, and gastrointestinal viruses due to frequent close contact and underdeveloped immune responses. High absenteeism rates during pandemics can disrupt education and burden working families, while school closures-as seen during the COVID-19 pandemic-can have cascading socioeconomic effects.
- **Public Gathering Spaces and Retail Centers:** Santa Fe Springs contains numerous retail establishments, dining venues, fitness centers, and entertainment spaces that serve as community hubs. Crowded environments, especially during peak hours and special events, increase the likelihood of airborne and surface-contact disease transmission. Large-scale public events, religious services, and recreational activities also present potential exposure risks.

## Magnitude and Severity

Infectious disease outbreaks and pandemics pose significant risks to public health, the economy, and societal stability. The severity of an outbreak is determined by multiple factors, including the pathogen's transmissibility, morbidity and mortality rates, impact on healthcare systems, and economic disruption. Unlike natural hazards with standardized intensity scales, infectious disease severity is assessed using epidemiological and clinical metrics, such as the basic reproduction number ($R_0$), case fatality rate (CFR), and excess mortality.

Pandemic classification and response levels are guided by international and national health agencies, including the World Health Organization (WHO), the Centers for Disease Control and Prevention (CDC), and state and local public health departments. The impact of a pandemic also depends on the availability and effectiveness of medical countermeasures, including vaccines, antiviral treatments, and healthcare surge capacity. Pandemic severity is evaluated using epidemiological models, hospital capacity assessments, and economic impact studies. The following frameworks provide a structured approach to measuring and understanding pandemic severity:

- **Basic Reproduction Number ($R_0$):** The Basic Reproduction Number ($R_0$) is a fundamental metric indicating the average number of secondary infections caused by a single infected individual in a fully susceptible population. Higher $R_0$ values correlate with greater transmission potential, necessitating stronger mitigation measures such as vaccination, social distancing, and quarantine protocols.
    - **$R_0 < 1$** – The disease is expected to decline over time.

  - **$R_0 = 1$** – The disease maintains a steady presence without significant outbreaks.
  - **$R_0 > 1$** – The disease spreads exponentially, increasing the risk of a pandemic.
- Past pandemics have exhibited different $R_0$ values, influencing their severity and response measures:
  - **Seasonal Influenza:** $R_0 \approx 1.3$
  - **COVID-19 (original strain):** $R_0 \approx 2.5$
  - **Measles:** $R_0 \approx 12–18$ (one of the most highly contagious diseases known)
- **Case Fatality Rate (CFR):** CFR measures the proportion of deaths among confirmed cases and is a key indicator of pandemic severity. Higher CFR values indicate greater strain on public health infrastructure and higher mortality risk:
  - **Low-Severity Disease (CFR < 0.1%)** – Includes common seasonal influenza strains.
  - **Moderate-Severity Disease (CFR 0.1% – 5%)** – Includes pandemic influenza (H1N1) and certain COVID-19 strains.
  - **High-Severity Disease (CFR > 10%)** – Includes Ebola (CFR ~50%), SARS (CFR ~11%), and MERS (CFR ~34%).

- **Hospitalization and Healthcare System Strain:** A pandemic's severity is also measured by the burden it places on healthcare systems. High hospitalization rates can overwhelm medical facilities, necessitating emergency expansion measures and surge staffing. Metrics include:
  - **Hospitalization Rate** – Percentage of infected individuals requiring hospital care.
  - **ICU Admission Rate** – Proportion of hospitalized patients requiring intensive medical intervention.
  - **Bed Occupancy Rate** – Percentage of available hospital beds occupied by pandemic patients.
- **Pandemic Severity Assessment Framework (PSAF):** The CDC's Pandemic Severity Assessment Framework (PSAF) categorizes pandemics based on transmissibility and clinical severity:
  - **Category 1 (Mild Pandemic):** CFR < 0.1% (e.g., seasonal flu).
  - **Category 2–3 (Moderate Pandemic):** CFR between 0.1% and 1.0% (e.g., 2009 H1N1 pandemic).
  - **Category 4–5 (Severe Pandemic):** CFR > 1.0% (e.g., 1918 Influenza Pandemic, early COVID-19 waves).

## Severity of Potential Infectious Disease Outbreaks

The impact of an infectious disease outbreak in Santa Fe Springs would depend on multiple factors, including public health response capacity, local healthcare infrastructure, and workforce resilience.

**Impact on Workforce and Industrial Sector:** Santa Fe Springs has a high concentration of industrial and logistics facilities, where in-person labor and shared workspaces increase disease transmission risk. Key considerations include:

- High absenteeism during pandemics leading to supply chain disruptions.
- Increased risk of workplace outbreaks in manufacturing and distribution hubs.
- The need for enhanced workplace safety policies, including PPE, remote work accommodations, and staggered shifts.

**Healthcare System and Emergency Response Challenges:** The city relies on regional hospitals in Los Angeles County, which may experience capacity strain during high-severity pandemics. Key risks include:

- ICU bed shortages and increased emergency department congestion.
- Supply chain challenges for critical medical equipment, including ventilators and personal protective equipment (PPE).
- Increased call volumes for emergency medical services (EMS), straining first responder resources.

**Public Health Infrastructure and Vulnerable Populations:** Certain populations within Santa Fe Springs face heightened risks due to age, preexisting health conditions, or economic status. Key vulnerabilities include:

- Older adults and immunocompromised individuals at higher risk of severe disease.
- Long-term care and assisted living facilities requiring stringent infection control measures.
- Low-income and uninsured populations facing barriers to healthcare access, increasing disease spread.

## Historical Occurrences

Throughout history, infectious disease outbreaks and pandemics have had profound public health, economic, and societal impacts. While Santa Fe Springs has not been the epicenter of a pandemic, the city has been affected by past regional, national, and global infectious disease events. These outbreaks have shaped public health policies, emergency response planning, and business continuity strategies.

- **1918 Influenza Pandemic (H1N1, "Spanish Flu"):** The 1918 influenza pandemic was one of the deadliest global disease outbreaks, infecting approximately one-third of the world's population and causing an estimated 50 million deaths worldwide. Los Angeles County experienced high infection rates, with over 30,000 reported cases in a single month. Local governments imposed quarantine measures, business closures, and mask mandates, similar to later pandemics. Industrial and oil production workers in Santa Fe Springs likely faced increased transmission risks due to close working conditions and limited medical resources at the time.
- **1957–1958 Influenza Pandemic (H2N2, "Asian Flu"):** This pandemic resulted in an estimated 1–2 million deaths worldwide and caused severe economic disruptions due to workforce absenteeism.

California's healthcare system was heavily burdened, prompting public health authorities to implement vaccination programs. Industrial areas, including Santa Fe Springs, likely experienced workforce shortages, similar to more recent pandemics such as COVID-19.

- **2009 H1N1 Influenza Pandemic ("Swine Flu"):** The H1N1 pandemic caused an estimated 274,000 hospitalizations and 12,500 deaths in the U.S. Los Angeles County reported thousands of confirmed cases, leading to school closures, vaccination campaigns, and emergency health declarations. FEMA provided funding to local governments for pandemic response, including testing, treatment, and public education efforts. Industrial workplaces and schools in Santa Fe Springs likely experienced operational disruptions due to workforce absences and public health restrictions.
- **2014–2016 West Africa Ebola Outbreak:** While the Ebola virus did not spread widely in the U.S., Los Angeles County health officials implemented emergency response protocols due to the risk of imported cases. Local hospitals and emergency services in Southern California conducted Ebola preparedness drills and enhanced biosecurity protocols. Emergency medical and public health personnel in Santa Fe Springs participated in regional coordination efforts to enhance infectious disease containment procedures.
- **2019–2023 COVID-19 Pandemic:** The COVID-19 pandemic was the most significant infectious disease event affecting Santa Fe Springs in modern history. Over 36,000 fatalities occurred in Los Angeles County alone. Business closures, workforce disruptions, and supply chain delays affected the industrial, manufacturing, and logistics sectors. School closures and remote learning transitions impacted students, educators, and working parents. Mass vaccination campaigns were launched across Los Angeles County, including sites near Santa Fe Springs to ensure vaccine accessibility for residents and essential workers.
- **2022–2023 Monkeypox (Mpox) Outbreak:** In 2022, Los Angeles County declared a public health emergency in response to the global monkeypox (Mpox) outbreak. The outbreak was contained through targeted vaccination efforts and public health education campaigns.

## FEMA Disaster Declarations Related to Infectious Disease Events

FEMA issues disaster declarations for pandemics when they cause widespread infrastructure strain, economic damage, or require large-scale federal assistance. Santa Fe Springs has benefited from federal emergency support during national and statewide pandemic responses.

- FEMA DR-4482 (COVID-19 Pandemic, March 2020 – Ongoing): Provided funding for emergency medical response, PPE distribution, and economic relief programs in California. Los Angeles County and Santa Fe Springs received funding for vaccination sites, hospital support, and small business assistance. Remains one of the most extensive public health emergency responses in FEMA history.
- FEMA H1N1 Emergency Response Funding (2009–2010): Federal assistance helped provide flu vaccines, public health messaging, and antiviral medication stockpiles for state and local governments. Santa Fe Springs' healthcare providers benefited from county-level allocations of medical resources.

## Probability and Effects of Future Conditions

Overall probability over next five years: ***Unlikely.***

Public health agencies, including the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and the Los Angeles County Department of Public Health, use predictive modeling to assess disease transmission patterns and outbreak probabilities. These models integrate a range of factors, including pathogen characteristics, environmental influences, and human movement patterns, to estimate the probability of future pandemics and emerging infectious diseases.

The WHO and CDC have identified that novel infectious diseases are emerging at an increasing rate, with zoonotic viruses-pathogens transmitted from animals to humans-accounting for approximately 75% of new diseases. The probability of another pandemic occurring within the next few decades is considered high, with respiratory viruses, such as influenza and coronaviruses, being the most likely causative agents. Additionally, climate change is altering disease transmission patterns by increasing the spread of vector-borne illnesses like West Nile virus and Zika virus into regions such as Southern California. Santa Fe Springs must incorporate these projections into emergency response planning, considering both airborne diseases and the expansion of vector-borne threats driven by rising temperatures.

Public health models, including the SEIR (Susceptible-Exposed-Infectious-Recovered) model and computational agent-based simulations, provide insights into how infectious diseases spread through different population groups. In urban and industrial communities like Santa Fe Springs, several key factors influence transmission dynamics. Workplace transmission risks are particularly relevant in industrial and manufacturing settings, where employees work in enclosed spaces with shared equipment, increasing the potential for disease spread. The city's proximity to major freeway corridors, rail networks, and intercity commuting routes connects Santa Fe Springs to higher-density urban centers, which could accelerate disease transmission during an outbreak. Population movement patterns, including the congregation of individuals in schools, long-term care facilities, and retail centers, also play a role in determining the likelihood and severity of an outbreak.

The impact of a future pandemic will also depend on the strain placed on the healthcare system and the capacity for medical response. During the COVID-19 pandemic, hospitals in Los Angeles County, which serve Santa Fe Springs, experienced severe strain, with ICU occupancy rates exceeding 90% during peak periods. Future pandemics with high hospitalization rates could similarly overwhelm emergency medical services and necessitate the expansion of surge capacity at regional hospitals.

Although the exact timing of future pandemics cannot be predicted, global epidemiological trends indicate that severe infectious disease outbreaks are likely to occur more frequently due to increased international travel, environmental changes, and microbial evolution. Several key factors shape projections for disease severity and frequency in Santa Fe Springs.

Historical patterns suggest that large-scale pandemics have occurred approximately every 30 to 50 years, but modern factors, such as increased human-animal interactions and climate change, may accelerate this timeline. The CDC and WHO have identified multiple viral families, including coronaviruses, influenza viruses, and paramyxoviruses, with pandemic potential. Los Angeles County's role as a global transportation hub further increases the likelihood of early exposure to emerging diseases, which could affect Santa Fe Springs before containment measures are widely implemented. In response, Santa Fe Springs must maintain an adaptive public health framework that allows for rapid adjustments to emerging disease threats and changing transmission patterns.

Future pandemics could vary widely in severity. Some may cause widespread illness with low mortality rates, similar to the 2009 H1N1 influenza pandemic, while others could result in high fatality rates and healthcare system breakdowns, resembling the early waves of COVID-19 or historical outbreaks such as the 1918 influenza pandemic. WHO and CDC models suggest that a pandemic with a case fatality rate (CFR) between 1% and 3% could lead to significant social and economic disruptions, while a CFR exceeding 5% could trigger global instability. Additional concerns, such as antibiotic resistance and novel pathogen evolution, could further increase the severity of future outbreaks and complicate containment efforts.

Climate change is expected to play a growing role in the emergence and spread of infectious diseases. Rising temperatures and shifting precipitation patterns are expanding the range of vector-borne diseases, such as West Nile virus, dengue fever, and Lyme disease, into new geographic areas. Urban heat islands, including industrial zones in Santa Fe Springs, may create microenvironments conducive to increased mosquito breeding and disease transmission. Additionally, worsening air pollution and wildfire smoke-both of which are becoming more frequent in California-can exacerbate respiratory infections and make populations more vulnerable to airborne diseases.

# SECTION 4 – VULNERABILITY ASSESSMENT

| Element B: Risk Assessment Requirements |
| --- |
| B2. Does the plan include a summary of the jurisdiction's vulnerability and the impacts on the community from the identified hazards? Does this summary also address NFIP insured structures that have been repetitively damaged by floods? (Requirement 44 CFR § 201.6(c)(2)(ii)) |

## 4.1 Introduction

Vulnerability assessments are critical tools for identifying the people, infrastructure, and assets most at risk from natural and human-caused hazards. By systematically analyzing how hazards interact with community characteristics such as demographics, land use, critical facilities, and environmental conditions, the assessment helps determine who and what are most vulnerable to disasters.

### Overall Changes in Vulnerability (2018-present)

Since the previous LHMP update in 2018, the City of Santa Fe Springs has experienced both improvements and emerging challenges that have influenced community vulnerability to hazards. On balance, overall vulnerability has modestly decreased, primarily due to targeted infrastructure upgrades, enhanced public safety capabilities, and better integration of hazard mitigation into planning and development processes. The City's implementation of flood management improvements, critical facility hardening, and public awareness campaigns has reduced exposure in several hazard-prone areas.

Nonetheless, the community faces increasing risk from climate-exacerbated hazards such as extreme heat, drought, and poor air quality, which disproportionately affect vulnerable populations including older adults, lower-income households, and outdoor workers. Additionally, certain industrial corridors and aging housing stock continue to present localized vulnerabilities that require ongoing attention.

Supporting examples include:

- Infrastructure investments in stormwater systems, seismic retrofitting, and emergency power have strengthened community resilience.
- Greater awareness and integration of climate adaptation strategies into planning documents and the Safety Element.
- Enhanced emergency preparedness and coordination among city departments and private-sector partners.
- Completion or progress on several mitigation actions identified in the 2018 LHMP.
- Persistent vulnerabilities in aging multi-family housing and low-income rental units.

- Climate-driven stressors (e.g., heat, drought, air quality) have intensified, particularly for at-risk populations.

While Santa Fe Springs has made measurable progress in reducing vulnerability since the last planning cycle, continued investment and targeted hazard mitigation and adaptation strategies will be necessary to address the evolving hazard landscape and ensure long-term resilience.

# 4.2 Hazard-Specific Vulnerability Analysis

## 4.2.1 Extreme Heat

### Overall Vulnerability and Impact

Santa Fe Springs, like much of Los Angeles County, is increasingly vulnerable to extreme heat events due to rising global temperatures, regional warming trends, and urban heat island (UHI) effects. Climate models project that extreme heat events will become more frequent, prolonged, and intense in the coming decades. According to the Cal-Adapt platform and the Fourth California Climate Change Assessment, the Los Angeles Basin could experience an average temperature increase of 4.6°F to 6.7°F by mid-century (2040–2060) under high-emissions scenarios (e.g., RCP 8.5 or SSP5-8.5).

These conditions will bring sharp increases in extreme heat days-defined in Santa Fe Springs as days above 95°F-which historically averaged 2–3 days annually. By 2050, this number is projected to rise to 15–25 days per year, or higher depending on emissions trajectories.

Beyond direct health risks such as heat exhaustion, heat stroke, and heat-related mortality, extreme heat can:

- Deteriorate local air quality
- Increase electricity demand for cooling
- Worsen drought and water scarcity
- Disrupt workforce productivity and public services

Santa Fe Springs' urban landscape intensifies the heat island effect, compounding exposure for both residents and workers. Industrial zones with limited tree canopy coverage and large expanses of impervious surfaces-such as those near Slauson Avenue and the I-5 corridor-exhibit higher localized heat levels.

### Population

The entire population of Santa Fe Springs is exposed to extreme heat risks. However, vulnerability varies significantly by age, health status, housing conditions, income, and occupation. Approximately 17% of the city's residents are 65 years or older, and 13.5% live below the federal poverty line (ACS 2022), which increases sensitivity to heat-related illness, energy burden, and access to cooling resources.

## Critical Facilities

Critical facilities, including water treatment plants and energy infrastructure, are essential for maintaining public safety and continuity of services during extreme heat events. While extreme heat does not cause direct structural damage to critical infrastructure, it significantly increases the strain on energy and water systems.

Heat waves drive peak electricity demand due to increased use of air conditioning, heightening the risk of power outages. Prolonged power disruptions can impact emergency response capabilities, disrupt medical services, and compromise refrigeration for critical supplies. Additionally, extreme heat can exacerbate mechanical failures in water and wastewater treatment facilities, leading to potential service disruptions. Cooling centers, if not properly equipped, may also struggle to meet demand during prolonged heat events.

## Non-Critical Facilities

Extreme heat can have indirect but substantial impacts on non-critical facilities, including schools, commercial buildings, and industrial operations. Higher indoor temperatures without adequate cooling can create unsafe learning and working conditions, particularly in older buildings with outdated HVAC systems.

Manufacturing and logistics operations, which are central to Santa Fe Springs' economy, may experience increased worker absenteeism and reduced efficiency due to heat stress. Additionally, prolonged heat waves can lead to higher operational costs as businesses invest in cooling systems or modify work schedules to protect employees.

## Environment

Extreme heat has significant environmental consequences in Santa Fe Springs, including:

- **Urban Heat Island Effect**: Large industrial zones, expansive asphalt surfaces, and limited vegetation contribute to higher localized temperatures, exacerbating heat stress in the community. Localized vegetation loss and low tree canopy coverage-especially in industrial areas-further limit natural cooling effects.
- **Air Quality Deterioration**: High temperatures accelerate the formation of ground-level ozone and other pollutants, increasing the risk of respiratory illnesses, particularly for vulnerable populations.
- **Water Supply Stress**: Increased temperatures drive higher water demand while simultaneously exacerbating drought conditions.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last approved plan, Santa Fe Springs has experienced continued industrial and commercial development.

**Land Use and Zoning**: No significant changes in land use policies have been implemented to mitigate the urban heat island effect.

**Population Shifts**: While the city's overall population has remained stable, demographic shifts indicate an increasing percentage of elderly residents, a population with heightened vulnerability to extreme heat events.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Households with limited financial resources may struggle to afford air conditioning, leading to prolonged exposure to unsafe indoor temperatures. High energy costs may force difficult trade-offs between cooling and other essential expenses such as food and healthcare.

**Elderly Individuals**: Older adults are more susceptible to heat stress due to physiological changes that reduce the body's ability to regulate temperature. Many elderly residents live alone or in homes without adequate cooling, increasing their risk during extreme heat events.

**People with Disabilities**: Individuals with mobility impairments, chronic illnesses, or reliance on electrically powered medical devices face heightened risks if power outages occur during heat waves. Transportation limitations may also hinder access to cooling centers.

**Outdoor Workers**: Employees in construction, manufacturing, and logistics industries are at elevated risk due to prolonged exposure to high temperatures. Without adequate heat mitigation measures, productivity losses and health risks will continue to rise.

**Unhoused Individuals**: The unhoused population is among the most vulnerable, lacking shelter, hydration, and access to emergency cooling resources. Heat waves can lead to life-threatening conditions without intervention, requiring targeted outreach and services.

# 4.2.2 Drought

## Overall Vulnerability and Impact

Santa Fe Springs is highly vulnerable to drought due to its reliance on imported water supplies, increasing temperatures, and changing precipitation patterns across California. Drought conditions in the state are projected to become more frequent and severe, with reduced snowpack in the Sierra Nevada and Colorado River Basin leading to diminished water availability. Santa Fe Springs, like much of Los Angeles County, relies heavily on the State Water Project and Colorado River allocations, both of which face long-term reductions due to persistent drought and overallocation.

Drought has widespread implications for public health, economic stability, and infrastructure. Prolonged dry conditions can reduce groundwater recharge, strain water treatment and distribution systems, and increase wildfire risk. Additionally, extreme heat events, which often coincide with drought, exacerbate health risks for vulnerable populations. Water restrictions imposed during drought periods can impact industrial and commercial operations, while prolonged dry conditions contribute to deteriorating air quality and increased dust pollution.

## Population

The entire population of Santa Fe Springs is exposed to drought-related risks. Water availability can directly impact hydration, sanitation, and cooling, leading to increased health risks.

## Critical Facilities

Drought does not cause direct structural damage to critical facilities but poses operational and economic challenges for water-dependent infrastructure. Water treatment plants and distribution systems may experience increased stress as groundwater and reservoir levels decline. Reduced water pressure and availability can also compromise fire suppression capabilities, increasing wildfire risks in adjacent areas.

Hospitals, emergency response facilities, and cooling centers require a consistent water supply to maintain operations and protect public health. Power plants, particularly those reliant on water for cooling, may experience reduced efficiency or increased operational costs during drought periods. Prolonged drought conditions may also lead to water rationing measures that affect public services and government facilities.

The Santa Fe Springs Fire Department relies on municipal water pressure for hydrant operations; pressure reductions during drought can slow fire suppression response times, particularly in industrial corridors with high fire load potential.

## Non-Critical Facilities

Non-critical facilities, including commercial buildings, industrial operations, and residential properties, can experience significant economic and functional impacts during drought conditions. Businesses that rely on substantial water use, such as manufacturing and food processing, may face higher operational costs due to water restrictions and increased utility rates. Landscaping and irrigation-dependent businesses may also experience revenue losses as outdoor water use is curtailed.

Residential areas may experience deteriorating landscape conditions due to water conservation mandates, contributing to urban heat island effects and increased demand for indoor cooling. Schools and recreational facilities may need to modify operations, including limiting outdoor activities or reducing water-intensive maintenance practices.

## Environment

Drought significantly impacts the natural environment, reducing water availability for local ecosystems, increasing wildfire risk, and degrading air quality.

- **Water Availability**: Prolonged drought leads to reduced flow in local rivers and streams, affecting aquatic habitats and reducing groundwater recharge. This can result in increased reliance on imported water, which is itself subject to regional shortages.
- **Wildfire Risk**: Dry conditions contribute to the accumulation of flammable vegetation, increasing the likelihood and severity of wildfires in the region. Even though Santa Fe Springs is not directly at risk for wildfires, nearby wildfire events can degrade air quality and disrupt infrastructure.
- **Air Quality**: Reduced precipitation and increased dryness contribute to higher levels of airborne dust and pollutants. This can exacerbate respiratory conditions and increase the frequency of air quality warnings in the region.
- **Urban Tree Canopy**: Extended drought conditions can weaken trees, making them more susceptible to disease and increasing mortality Areas with limited green infrastructure-such as near Telegraph Road and industrial parks-may experience compounded heat and air quality impacts due to both drought-induced canopy loss and increased surface temperatures.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan update, Santa Fe Springs has continued to see development, particularly in industrial and commercial sectors.

**Land Use and Zoning**: There have been no significant land-use changes that would alter the city's vulnerability to drought.

**Population Shifts**: While the city's overall population has not experienced significant growth, demographic trends indicate an aging population, which may increase the number of residents at heightened risk of dehydration and heat-related illnesses during drought conditions.

## Impacts on Vulnerable Populations

**Low-Income Residents**: These residents are particularly vulnerable to rising water costs associated with drought. Limited financial resources can prevent access to water-efficient appliances and alternative water sources, increasing reliance on costly municipal supplies.

**Elderly Individuals**: Older adults are more susceptible to dehydration and related health complications during drought conditions. Many elderly residents may also live on fixed incomes, making them more vulnerable to rising utility costs.

**People with Disabilities**: Individuals with medical conditions requiring consistent water access, such as dialysis patients, may face significant health risks if water availability is disrupted. Those with mobility limitations may also struggle to access emergency water distribution sites.

**Outdoor Workers**: Employees in construction, logistics, and other outdoor industries are at increased risk of heat-related illnesses due to limited hydration and increased temperatures during drought periods. Without adequate water access, workplace safety concerns rise.

**Unhoused Individuals**: The unhoused population faces critical risks due to limited access to clean water for drinking, sanitation, and cooling. Extended drought conditions can further reduce the availability of public water sources, making this group one of the most vulnerable.

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# 4.2.3 Earthquake

## Overall Vulnerability and Impact

Santa Fe Springs is highly vulnerable to earthquakes due to its location within the seismically active Los Angeles Basin. The city is near several major fault systems, including the Whittier Fault, Puente Hills Blind-Thrust Fault, and Newport-Inglewood Fault, all of which have the potential to generate significant ground shaking. A major earthquake in or near the city could cause severe structural damage, disrupt utilities, and threaten public safety.

Ground shaking is the primary hazard associated with earthquakes in Santa Fe Springs, but secondary hazards such as soil liquefaction, surface rupture, and utility failures may also pose risks. Liquefaction, which occurs when saturated soils lose strength during seismic activity, is a significant concern in areas with loose, water-saturated sediments. According to the California Geological Survey's Seismic Hazard Zone Maps, several portions of Santa Fe Springs-particularly near the I-5 corridor and river-adjacent lowlands-are within designated liquefaction zones. Infrastructure, particularly older unreinforced masonry buildings and structures built before modern seismic codes, is at greater risk of failure. Tilt-up concrete construction, common in the city's warehouse and industrial buildings, may also be vulnerable to wall-panel separation during strong shaking.

A major earthquake could also result in extensive economic losses due to building damage, business interruptions, and increased emergency response costs. Transportation networks, including major highways and rail corridors that pass through Santa Fe Springs, are particularly vulnerable, and disruptions to these systems could significantly impact regional supply chains and emergency response capabilities. The city's industrial corridor includes freight rail lines that routinely transport hazardous materials; derailments or storage tank failures during seismic events may result in multi-hazard emergencies involving fire, air quality degradation, or chemical contamination.

## Population

The entire population of Santa Fe Springs is vulnerable to earthquakes, though certain groups face greater risks. During a major earthquake, injuries and fatalities may occur due to collapsing structures, falling objects, and fires triggered by broken gas lines. Disruptions to public utilities such as water, electricity, and telecommunications can also create cascading risks.

## Critical Facilities

Critical facilities in Santa Fe Springs must remain operational following an earthquake to ensure effective disaster response and recovery. Seismic damage to these facilities could significantly hinder emergency services, disrupt medical care, and compromise public safety. The city's emergency operations center (EOC) and public safety buildings are essential for coordinating response efforts. If these facilities sustain structural damage, the ability to dispatch emergency personnel and provide medical care could be severely impaired. Water and wastewater

treatment plants are also at risk, as broken pipes and damaged pumping stations could lead to service interruptions, water contamination, and sanitation issues.

Additionally, transportation corridors such as Interstate 5 and Interstate 605, which are critical for emergency response and supply distribution, could experience overpasses collapsing, roadway failures, or liquefaction-related damage. Rail lines used for freight transportation may also be disrupted, impacting the movement of goods across the region.

## Non-Critical Facilities

Non-critical facilities, including schools, commercial buildings, industrial operations, and residential structures, are vulnerable to earthquake-related damage, with the extent of impact depending on factors such as building age, construction materials, and retrofitting status. Older buildings constructed before the adoption of modern seismic codes are at higher risk of collapse or significant structural damage. Retrofitting needs remain particularly acute for pre-1980 multi-family residential units and unreinforced masonry buildings located near downtown commercial areas and older industrial tracts.

Schools and community centers serve as important gathering places and emergency shelters following a disaster. If these structures sustain damage, displaced residents may have fewer safe sheltering options. Commercial and industrial operations, which form the economic backbone of Santa Fe Springs, may also face significant losses due to property damage, supply chain disruptions, and prolonged closures. Businesses that store or use hazardous materials may pose additional risks if an earthquake causes chemical spills, fires, or explosions.

Residential properties, particularly multi-family housing units, may experience structural failures, rendering homes uninhabitable. This could increase the number of displaced residents in need of emergency shelter, further straining local resources.

## Environment

Earthquakes can have significant environmental impacts, including ground deformation, slope failures, hazardous material spills, and damage to water bodies. Soil liquefaction and landslides may occur in certain areas, potentially leading to road blockages, utility disruptions, and infrastructure failures. Urban tree canopy and landscaping may suffer damage due to uprooted trees and cracked soil, further contributing to urban heat island effects and declining air quality.

Industrial facilities in Santa Fe Springs store and transport hazardous chemicals, and a strong earthquake could result in spills or leaks, posing risks to air and water quality. Damage to pipelines carrying oil, gas, or chemicals may lead to explosions, fires, or contamination of soil and groundwater.

## Changes in Development Since Last Approved Plan

**Development Trends**: New developments are subject to modern building codes that incorporate seismic safety standards, reducing vulnerability for newly constructed structures. However, older industrial and residential buildings remain at risk.

**Land Use and Zoning**: There have been no significant changes in land use policies that would substantially alter earthquake vulnerability.

**Population Shifts**: While overall population numbers have remained stable, changes in demographics-such as an aging population-could increase vulnerability due to challenges in evacuation and disaster recovery.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Households with limited financial resources may struggle to retrofit their homes, secure earthquake insurance, or recover from property damage. Limited access to emergency supplies and transportation may also delay evacuation and recovery efforts.

**Elderly Individuals**: Older adults may experience difficulty evacuating from damaged buildings or accessing medical care following an earthquake. Preexisting health conditions may worsen due to stress, lack of electricity, or disruptions to healthcare facilities.

**People with Disabilities**: Individuals with mobility impairments, cognitive disabilities, or medical conditions requiring life-sustaining equipment are particularly vulnerable to power outages, transportation disruptions, and inaccessible evacuation routes.

**Unhoused Individuals**: The unhoused population is at severe risk during an earthquake, as they often reside in structurally vulnerable areas, lack access to emergency alerts, and may have difficulty reaching shelters or medical services.

**Non-English-Speaking Populations**: Language barriers may limit access to emergency preparedness information, real-time alerts, and recovery assistance, increasing the likelihood of delayed response and heightened risks.

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# 4.2.4 High Wind/Storms

## Overall Vulnerability and Impact

Santa Fe Springs is vulnerable to high wind events, including Santa Ana winds, winter storms, and occasional strong convective thunderstorms. While hurricanes and tropical storms rarely impact Southern California directly, remnants of Pacific hurricanes and strong low-pressure systems can bring damaging wind gusts, heavy rain, and isolated tornadoes. Santa Ana wind events, which occur primarily in the fall and winter, are particularly hazardous due to their ability to spread wildfires rapidly, topple power lines, and cause structural damage.

Wind speeds in Santa Fe Springs can exceed 50 mph during strong events, posing risks to infrastructure, transportation, and public safety. The city's industrial areas, which include large warehouses and outdoor storage facilities, are particularly susceptible to wind-related damage. Loose debris, unsecured construction materials, and weakly anchored structures can become airborne, increasing the risk of injuries and property damage. Industrial zones along Los Nietos Road, Slauson Avenue, and the I-5 corridor are especially exposed due to large building footprints and open storage yards. Additionally, high winds can exacerbate drought conditions by increasing evapotranspiration, further stressing vegetation and contributing to elevated wildfire risk.

## Population

The entire population of Santa Fe Springs is exposed to the hazards associated with high winds and storms.

## Critical Facilities

Critical facilities must remain operational during high wind and storm events to ensure public safety. Wind-related damage to electrical grids can disrupt emergency response capabilities, impact communication systems, and compromise water distribution.

Emergency shelters require backup power sources to maintain essential services. Water treatment and wastewater facilities may be vulnerable to power disruptions, equipment damage, and debris accumulation in intake systems. The risk of downed power lines increases the potential for fires, traffic disruptions, and extended service interruptions. Past wind events in Santa Fe Springs have led to localized power outages in residential neighborhoods near Telegraph Road and Lakeview Avenue, as well as near commercial centers along Norwalk Boulevard.

## Non-Critical Facilities

Non-critical facilities, such as schools, businesses, and industrial properties, can experience structural damage, broken windows, roof failures, and disruptions to operations during high wind events. Schools may be forced to

close due to safety concerns, particularly if power outages, fallen trees, or transportation disruptions make it unsafe for students and staff to attend.

Industrial and commercial properties, especially those with large outdoor storage areas or lightweight roofing materials, are at risk of wind damage. Loose debris can become airborne, causing additional property damage or injuries. Businesses that rely on just-in-time inventory systems or perishable goods may suffer financial losses if supply chains are disrupted due to transportation delays caused by storm-related damage.

Mobile homes, temporary structures, and older buildings with inadequate structural reinforcements are particularly susceptible to damage. Properties with poorly maintained trees may experience roof and vehicle damage from falling limbs or entire tree failures. The City's Public Works Division has historically responded to tree-fall and limb breakage incidents during Santa Ana wind events, particularly near older residential zones in the northern portion of the city.

## Environment

High wind and storm events can have significant environmental consequences, affecting urban vegetation, air quality, and water management systems.

- **Urban Forestry and Vegetation Damage**: Strong winds can uproot trees, break branches, and cause widespread damage to parks and green spaces. Downed trees and debris can obstruct roadways, damage power lines, and create additional hazards for residents.
- **Airborne Dust and Pollutants**: High winds, especially during dry periods, can increase the spread of dust, pollen, and airborne pollutants. This can exacerbate respiratory conditions such as asthma and allergies, particularly in areas with high industrial activity.
- **Stormwater Runoff and Pollution**: Storms that bring heavy rainfall can lead to excessive runoff, washing pollutants from roadways, industrial sites, and residential areas into local water bodies. Clogged storm drains and inadequate drainage systems can result in localized flooding, compounding storm-related damage.
- **Wildfire Risk**: Santa Ana winds are particularly concerning as they significantly increase wildfire risk by rapidly spreading embers and intensifying existing fires. While Santa Fe Springs itself is not heavily forested, wind-driven embers from nearby wildfires could ignite local vegetation or structures.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last approved plan, Santa Fe Springs has continued to develop industrial and commercial properties, increasing the number of structures and assets potentially at risk from wind damage.

**Land Use and Zoning**: There have been no major zoning changes that significantly alter the city's exposure to high winds and storms.

**Population Shifts**: The overall population of Santa Fe Springs has remained stable, but an increasing percentage of older adults and individuals with health vulnerabilities may increase vulnerability.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Low-income households may have fewer resources to repair wind-related damage, secure temporary housing, or purchase emergency supplies. Power outages may also result in financial strain due to food spoilage and lost work hours.

**Elderly Individuals**: Older adults may have difficulty evacuating during extreme weather events, particularly if fallen trees or debris block roadways. They may also experience increased health risks due to power outages and prolonged exposure to extreme temperatures.

**People with Disabilities**: Individuals who rely on power-dependent medical devices, accessible transportation, or in-home care services may face life-threatening challenges if storms cause extended power outages or transportation disruptions.

**Unhoused Individuals**: The unhoused population faces extreme risks during high wind and storm events, as they often lack access to secure shelter and are exposed to flying debris, falling trees, and hazardous road conditions. Strong winds can destroy makeshift shelters and increase the likelihood of injuries.

**Non-English-Speaking Populations**: Language barriers may limit access to timely emergency alerts and preparedness resources, increasing the risk of delayed response and lack of awareness about storm risks.

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# 4.2.5 Fire (Urban and Wildfire)

## Overall Vulnerability and Impact

Santa Fe Springs faces fire risks from both urban and wildfire sources. While the city itself is not located within a Cal Fire-designated Very High Fire Hazard Severity Zone (VHFHSZ), wildfires in surrounding regions, particularly in the Puente Hills, San Gabriel Mountains, and other areas of Los Angeles County, can pose indirect threats through smoke, poor air quality, and ember transport during extreme wind events. Climate change is expected to increase fire risks by extending periods of extreme heat and drought, which contribute to drier vegetation and heightened ignition potential. Santa Ana winds can further exacerbate fire conditions by spreading embers rapidly, increasing the likelihood of fire outbreaks in urbanized areas.

Urban fire hazards in Santa Fe Springs are largely associated with the city's industrial and commercial sectors, which include numerous warehouses, manufacturing facilities, and transportation corridors. The presence of hazardous materials, flammable substances, and aging electrical infrastructure increases the risk of industrial fires. The zoning designation M-2 (Heavy Manufacturing) covers large swaths of the city's east-central core, which contain facilities with elevated ignition risk and combustible storage. Additionally, older residential structures, particularly those without updated fire suppression systems, are at greater risk of ignition and fire spread.

Notably, past fire incidents such as the 2020 structure fire on Lakeland Road involving plastic materials and the 2017 warehouse fire near Telegraph Road demonstrate the potential for multi-alarm industrial fires in the city's core industrial belt.

## Population

The entire population of Santa Fe Springs is vulnerable to fire-related hazards, though the level of exposure varies by location, housing conditions, and individual circumstances.

## Critical Facilities

Critical facilities, including emergency response centers, power substations, and water treatment plants, must remain operational during fire incidents to support public safety and recovery efforts. A fire event that damages or disrupts these facilities could severely hinder emergency response capabilities and essential services. Medical facilities require consistent power and air filtration systems to manage patient care, particularly during wildfire smoke events. Fire damage to power infrastructure can lead to extended blackouts, which may impact communication networks, traffic signals, and emergency response operations.

Water treatment facilities are also critical during fire events, as increased water demand for firefighting can strain supply systems. Damage to pipelines or pumping stations from extreme heat or direct fire exposure could reduce water availability for fire suppression efforts.

## Non-Critical Facilities

Non-critical facilities, such as commercial properties, industrial operations, and schools, can sustain significant fire-related damage. Industrial fires pose a unique hazard due to the presence of combustible materials, chemicals, and heavy machinery. A fire in one facility can quickly spread to adjacent properties, particularly in densely built industrial zones.

Commercial businesses may experience economic losses due to fire-related closures, property damage, and supply chain disruptions. Warehouses and distribution centers in Santa Fe Springs play a key role in regional logistics, and any fire-related disruption to these facilities can have cascading effects on economic activity and employment.

Poor indoor air quality in classrooms due to wildfire smoke can lead to school closures, impacting student learning and parental work obligations. According to South Coast AQMD historical advisories, wildfire smoke events in 2020 and 2021 caused several days of elevated PM2.5 readings at nearby monitoring sites, prompting health alerts affecting both schools and eldercare facilities.

## Environment

Fire hazards have significant environmental consequences, both in terms of direct fire damage and secondary effects such as air and water pollution.

- **Air Quality Impacts**: Wildfire smoke can contribute to dangerous levels of particulate matter (PM2.5), ozone formation, and toxic air contaminants. Poor air quality can persist for days or weeks, posing long-term health risks for residents.
- **Water Contamination**: Fire events, particularly in industrial areas, can lead to hazardous runoff entering local waterways and seeping into groundwater. Chemical fires may release pollutants that contaminate stormwater systems, affecting regional water quality.
- **Urban Vegetation Loss**: While Santa Fe Springs is not heavily forested, fire events can damage street trees, parks, and landscaped areas, reducing urban cooling benefits and increasing local heat island effects.
- **Wildfire Spread from Nearby Areas**: Although Santa Fe Springs is not directly at risk from wildfires, embers from regional fires could ignite structures, dry vegetation, or exposed fuel sources within the city.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan, Santa Fe Springs has continued to see commercial and industrial development, increasing the number of structures potentially at risk from urban fire hazards. New developments are subject to fire-resistant building codes, but older industrial facilities remain vulnerable.

**Land Use and Zoning**: There have been no significant changes in land use policies that would substantially alter the city's exposure to fire hazards.

**Population Shifts**: While the overall population of Santa Fe Springs has remained relatively stable, an increase in older adult residents may heighten vulnerabilities related to fire evacuations and smoke-related health impacts.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Households with limited financial resources may struggle to recover from fire-related losses, particularly if they lack insurance coverage. Limited access to air conditioning and air filtration systems can also increase health risks during wildfire smoke events.

**Elderly Individuals**: Older adults are at greater risk of injury or death during fires due to mobility limitations and slower response times. Many also have preexisting health conditions that can be exacerbated by smoke exposure.

**People with Disabilities**: Individuals with mobility impairments or sensory disabilities may face challenges in evacuating quickly during a fire. Additionally, those with respiratory conditions may require medical interventions during extended wildfire smoke events.

**Outdoor Workers**: Employees in construction, logistics, and industrial sectors may be at increased risk of fire-related injuries, smoke inhalation, and exposure to hazardous materials during fire incidents.

**Unhoused Individuals**: The unhoused population is particularly vulnerable to both urban and wildfire hazards, as they may have limited access to safe shelter, clean air, and emergency medical services during fire events.

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# 4.2.6 Power Outage

## Overall Vulnerability and Impact

Santa Fe Springs is vulnerable to power outages caused by a range of hazards, including extreme heat, high winds, earthquakes, and wildfires. Power outages can be short-term, lasting only a few minutes, or extended, lasting hours or days, depending on the cause and severity of the disruption.

Climate change is increasing the likelihood of power outages as rising temperatures lead to greater electricity demand for cooling, straining the grid during peak periods. Wildfire-related Public Safety Power Shutoffs (PSPS), implemented by Southern California Edison (SCE) to reduce fire risk, have become more frequent, particularly during Santa Ana wind events. Santa Fe Springs is not located within a Tier 2 or Tier 3 PSPS fire threat zone but may be affected by feeder line outages or regional load-shedding events during peak strain. Earthquakes pose an additional risk, as they can damage substations, transmission lines, and distribution networks, leading to widespread and prolonged outages.

The impacts of power outages extend beyond temporary inconvenience. They can disrupt emergency response operations, hinder economic activity, and create significant public health and safety risks. Critical infrastructure, such as hospitals and emergency response centers, typically have backup power systems, but prolonged outages can test the limits of these resources. Residential impacts are particularly severe for vulnerable populations who rely on electrically powered medical devices, air conditioning, and refrigeration for essential medications.

## Population

The entire population of Santa Fe Springs is vulnerable to power outages, but the impacts vary based on individual circumstances. Households dependent on air conditioning during extreme heat events face increased risk of heat-related illnesses when power is lost.

Businesses and households without backup generators may face economic and logistical challenges during extended outages. Food spoilage, loss of internet and phone communication, and disruptions to remote work and schooling can create widespread inconvenience and financial burdens. Those who work in temperature-sensitive industries, such as refrigerated food storage and healthcare, face heightened economic risks.

Traffic congestion and road hazards can also increase during power outages, particularly if traffic signals are affected. Power loss at gas stations can prevent refueling, limiting mobility for residents and emergency responders. As reliance on electric vehicles grows, power outages may also impact transportation networks.

## Critical Facilities

Power outages pose a significant threat to critical facilities, including fire stations, police departments, emergency operations centers, and water treatment plants. While most of these facilities have backup generators, prolonged outages can deplete fuel supplies, leading to service interruptions. Water and wastewater treatment plants are highly dependent on electricity. Power loss can lead to service interruptions, affecting water pressure, sanitation, and firefighting capabilities. In extreme cases, sewage backups or untreated wastewater discharges can result from prolonged outages.

Emergency communication systems, including 911 dispatch centers and public alert networks, may be disrupted if backup power systems fail. Cellular networks and internet services can also be affected, delaying emergency response and reducing access to real-time hazard information.

In past summer heat events, SCE incident logs noted temporary outages affecting distribution circuits serving Slauson Avenue and the industrial southeast corridor, resulting in equipment cooling failures and partial plant shutdowns.

City facilities designated as emergency cooling centers-such as the Gus Velasco Neighborhood Center-have limited backup power capacity and may not sustain HVAC operations during long-duration outages. This presents a gap in continuity planning for heat-vulnerable populations.

## Non-Critical Facilities

Non-critical facilities, including commercial businesses, industrial operations, and schools, can experience significant disruptions during power outages. Many businesses rely on electricity for point-of-sale systems, security measures, refrigeration, and lighting. A prolonged outage can result in financial losses, inventory spoilage, and supply chain disruptions.

Manufacturing facilities in Santa Fe Springs, particularly those operating heavy machinery or processing perishable goods, may be forced to halt production during power failures, leading to economic losses and potential worker layoffs. Large warehouses and logistics centers may experience delays in processing shipments, impacting regional and national supply chains.

Schools, community centers, and government buildings may close during power outages, affecting education and public services. If outages occur during extreme heat events, schools and community centers that serve as cooling shelters may be unable to operate, increasing health risks for residents.

Residential impacts are particularly severe for households without alternative power sources. Loss of refrigeration can lead to food spoilage, while power-dependent home security systems may be rendered inoperable, increasing concerns about property crime.

## Environment

While power outages do not directly cause environmental damage, they can contribute to secondary environmental hazards. One of the most significant risks is an increased likelihood of hazardous material spills at industrial facilities and manufacturing plants that rely on automated safety systems. If these systems fail due to power loss, the risk of chemical leaks, fires, or explosions may increase.

Widespread generator use during power outages can also contribute to air pollution. Portable generators, which typically run on gasoline or diesel, emit carbon monoxide and particulate matter, which can negatively impact local air quality. Increased reliance on emergency power sources during outages may temporarily elevate pollution levels, particularly in industrial areas.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last approved hazard mitigation plan, Santa Fe Springs has continued to see industrial and commercial growth.

**Land Use and Zoning**: There have been no significant changes in zoning that would alter the city's vulnerability to power outages.

**Population Shifts**: While the overall population has remained stable, an increasing percentage of older adults and medically vulnerable individuals may require additional support during extended power outages.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Households with limited financial resources may struggle to afford alternative power sources such as generators or battery backups. Food spoilage during extended outages can be particularly burdensome for families relying on public assistance or food pantries.

**Elderly Individuals**: Older adults are at heightened risk during power outages, particularly if they rely on electrically powered medical devices. Heat-related illnesses, falls, and isolation may increase if communication and mobility are restricted.

**People with Disabilities**: Individuals with mobility impairments or chronic health conditions may face serious health risks if power-dependent medical devices become inoperable. Power loss can also affect assistive technologies, limiting independence and access to emergency services.

**Unhoused Individuals**: The unhoused population relies on public facilities, such as libraries and community centers, for access to electricity. When these facilities close due to power outages, unhoused individuals may

lose access to essential services such as charging stations, refrigeration for medications, and climate-controlled shelter.

**Non-English-Speaking Populations**: Language barriers may make it more difficult for non-English-speaking residents to receive emergency updates or understand where to access resources such as cooling centers or charging stations.

# 4.2.7 Cyberattack/IT Disruption

## Overall Vulnerability and Impact

Santa Fe Springs, like many urban communities, is increasingly vulnerable to cyberattacks and IT disruptions due to its reliance on digital infrastructure to support government operations, emergency services, public utilities, and business activities. A cyberattack can take many forms, including ransomware, data breaches, distributed denial-of-service (DDoS) attacks, and attacks targeting industrial control systems that manage utilities and transportation networks.

Cyber threats have grown in complexity and frequency, with local governments, financial institutions, healthcare providers, and critical infrastructure operators facing heightened risks. A significant cyberattack could compromise sensitive data, disrupt essential services, and cause economic and reputational harm to the city. Public sector entities, including law enforcement and emergency response agencies, rely on interconnected digital systems, making them susceptible to coordinated attacks that target 911 dispatch systems, public records databases, and real-time traffic management. Power outages, water supply interruptions, and communication failures resulting from a cyberattack could have cascading effects, especially during extreme weather events or other concurrent hazards.

In 2022, nearby jurisdictions in southeast Los Angeles County experienced coordinated phishing and malware incidents that temporarily disrupted police records systems and utility billing platforms. These underscore shared regional vulnerabilities that could also affect Santa Fe Springs.

## Population

The entire population of Santa Fe Springs is exposed to cyberattack risks, particularly as residents and businesses rely on digital communication, financial services, and emergency response systems. The impacts of an IT disruption vary based on the severity and duration of the event. A prolonged outage affecting municipal services could prevent residents from accessing critical information, paying bills, or requesting emergency assistance.

## Critical Facilities

Cyberattacks targeting critical facilities can have widespread and severe consequences. Emergency response operations, hospitals, water treatment plants, and power infrastructure rely on digital control systems to maintain functionality and security. A cyberattack could disrupt:

- **911 and emergency response systems**, delaying dispatch services for law enforcement, fire departments, and paramedics.

- **Hospital networks**, impacting patient records, emergency room operations, and medical equipment reliant on IT infrastructure.
- **Water and wastewater treatment facilities**, where cyber interference with industrial control systems could lead to contamination, pressure loss, or service failures.
- **Electric grid operations**, where cyberattacks on smart grid technology or substations could result in blackouts or power surges, affecting businesses and residences.

Many municipal systems remain partially unsegmented, and business continuity plans for IT recovery are in early-stage development, exposing essential services to prolonged outages in the event of a targeted attack.

## Non-Critical Facilities

Non-critical facilities, including businesses, schools, and community centers, are highly dependent on IT infrastructure for daily operations. A cyberattack disrupting internet access, payment processing, or communication networks could significantly impact economic activity and public services.

Retail businesses and financial institutions could experience financial losses if point-of-sale systems, ATMs, or online banking services are disrupted. Manufacturing and logistics operations in Santa Fe Springs, which depend on automated systems and real-time inventory tracking, may face significant delays and revenue losses in the event of an IT disruption.

Schools rely on digital learning platforms and online administrative systems, meaning a cyberattack could interrupt education, limit access to student records, and compromise data privacy. Government offices that manage public records, business licenses, and utility billing systems could also face operational challenges during an IT disruption.

## Environment

Cyberattacks do not directly cause environmental damage, but they can lead to secondary hazards that impact air and water quality, hazardous material containment, and urban sustainability initiatives.

A cyberattack targeting industrial facilities or chemical plants could disable safety monitoring systems, increasing the risk of accidental hazardous material spills or chemical releases. If an attack disrupts water treatment operations, contamination events could occur, posing risks to public health and natural ecosystems.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last approved hazard mitigation plan, Santa Fe Springs has seen increased digital integration in municipal operations, transportation systems, and public utilities.

**Land Use and Zoning**: There have been no significant land use changes directly affecting cyberattack vulnerability.

**Population Shifts**: While the overall population has remained stable, increased remote work and digital dependency have made residents more vulnerable to cyberattacks targeting personal devices, financial institutions, and online government services.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Cyberattacks targeting financial institutions, municipal services, or identity records can disproportionately affect low-income individuals, who may lack resources to recover from financial fraud, delayed benefit payments, or credit disruptions. Limited access to cybersecurity education may further increase their exposure to phishing scams and online fraud.

**Elderly Individuals**: Older adults may be more susceptible to identity theft, financial scams, and fraudulent activity resulting from data breaches. A cyberattack disrupting healthcare networks or telehealth services could also limit access to medical care.

**People with Disabilities**: Individuals with disabilities who rely on assistive technology, telehealth services, or online transportation scheduling may experience severe disruptions if cyberattacks disable digital accessibility tools. Power outages related to cyberattacks could also impact medical equipment reliant on electricity.

**Unhoused Individuals**: Many unhoused individuals rely on digital services to access social programs, employment resources, and communication tools. Cyberattacks that disrupt government services or nonprofit organizations could create additional barriers for those seeking assistance.

**Non-English-Speaking Populations**: Language barriers may limit awareness of cybersecurity threats and response strategies. A cyberattack on emergency alert systems or public information platforms could further reduce access to real-time hazard updates for non-English-speaking residents.

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# 4.2.8 Flooding

## Overall Vulnerability and Impact

Santa Fe Springs is vulnerable to flooding from multiple sources, including heavy rainfall events, stormwater runoff, and infrastructure failures. Although the city is not located within a high-risk 100-year floodplain as designated by the Federal Emergency Management Agency (FEMA), localized flooding can occur due to inadequate drainage systems, impermeable surfaces, and extreme weather events.

The region's Mediterranean climate typically results in dry conditions for much of the year, with infrequent but intense storm events occurring during the winter months. The city's urbanized landscape, with significant industrial and commercial development, increases flood risks due to large expanses of impervious surfaces that reduce natural water infiltration. Areas along Lakeland Road, Norwalk Boulevard, and portions of Los Nietos Road are recurring sites of nuisance flooding and storm drain backups. Secondary impacts of flooding include damage to transportation networks, disruptions to utilities, and increased risks of mold, structural instability, and economic losses. Flash flooding can also occur when storm drains are overwhelmed, particularly in low-lying areas, parking lots, and industrial zones.

## Population

The entire population of Santa Fe Springs is exposed to potential flooding, though the degree of impact varies by location, housing conditions, and socioeconomic factors. Residents in older neighborhoods with outdated stormwater infrastructure may face higher risks of property damage and displacement. Floodwaters pose direct risks to public safety, including drowning, electrocution, and exposure to contaminated water.

## Critical Facilities

Critical facilities, such as emergency response centers and utility infrastructure, must remain operational during flood events to ensure public safety and continuity of essential services. Facilities that rely on electronic systems and underground utility connections are particularly vulnerable to water intrusion, which can cause equipment failure and extended service disruptions. Power substations and energy infrastructure, which provide electricity to critical facilities, may be at risk of short circuits or outages due to flood-related damage.

## Non-Critical Facilities

Non-critical facilities, such as schools, businesses, and industrial operations, can experience structural damage, utility failures, and operational disruptions during flood events. Businesses located in flood-prone areas may face financial losses due to property damage, inventory loss, and supply chain disruptions. Industrial facilities in Santa

Fe Springs, which include manufacturing and warehousing operations, are particularly vulnerable to flood-related contamination and hazardous material spills.

Facilities subject to SARA Title III Tier II reporting requirements are concentrated in the city's industrial corridor, posing elevated risk of chemical release during a flood event if containment systems fail.

## Environment

Flooding can have significant environmental consequences, including erosion, sedimentation, and water contamination. Industrial zones in Santa Fe Springs contain facilities that store hazardous materials, and flood events can increase the risk of chemical spills or leaks, leading to potential environmental and public health hazards.

The city's limited green infrastructure-such as vegetated swales, bioswales, or detention basins-reduces its ability to absorb stormwater naturally, increasing reliance on aging stormwater conveyance systems that may be undersized for current precipitation patterns.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan, continued industrial and commercial development has increased the amount of impervious surfaces in Santa Fe Springs.

**Land Use and Zoning**: No major zoning changes have significantly altered flood risk.

**Population Shifts**: While overall population growth has been moderate, an increasing number of older adults and individuals with medical needs may require additional support during flood events.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Households with limited financial resources may struggle to recover from flood-related damages, particularly if they lack flood insurance. Temporary displacement due to flooding can create additional economic hardships, including loss of wages and increased transportation costs.

**Elderly Individuals**: Older adults may experience challenges in evacuating flood-prone areas, particularly if they have mobility limitations. Flood-related power outages can also impact those reliant on electrically powered medical devices.

**People with Disabilities**: Individuals with disabilities may face heightened risks during flood events due to evacuation barriers, reliance on accessible transportation, and potential disruption of medical services.

**Unhoused Individuals**: The unhoused population is at critical risk during flooding, as they often lack access to safe shelter, clean water, and emergency services. Flooding can increase exposure to unsanitary conditions, heightening the risk of disease.

**Non-English-Speaking Populations**: Language barriers may prevent some residents from receiving timely flood warnings and evacuation instructions, increasing their risk of harm. Targeted outreach and multilingual emergency communications are essential to address these challenges.

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# 4.2.9 Dam Failure

## Overall Vulnerability and Impact

Santa Fe Springs is vulnerable to dam failure inundation primarily from major reservoirs located upstream, including the Whittier Narrows Dam. The failure of this dam, either due to structural damage, overtopping, or seismic activity, could result in catastrophic flooding within the city. According to Cal OES and USACE Inundation Mapping, most of Santa Fe Springs lies within the Whittier Narrows Dam Inundation Zone, with projected flooding depths exceeding 5 feet in certain industrial and residential areas. The U.S. Army Corps of Engineers has identified Whittier Narrows Dam as a "High Urgency Action" structure and is currently implementing risk reduction measures including seepage control and seismic upgrades.

The potential causes of dam failure include extreme storm events, prolonged heavy rainfall, earthquakes, structural weaknesses, and operational errors. Seismic activity is a primary concern in Southern California, as strong ground shaking could compromise dam integrity. Climate change may also play a role in increasing dam failure risks by intensifying storm events and placing additional stress on aging infrastructure.

## Population

The population of Santa Fe Springs would be significantly affected in the event of a dam failure, particularly residents in low-lying areas low-lying areas near flood control channels such as Coyote Creek and the San Gabriel River. A sudden release of water could lead to mass evacuations, injuries, and potential fatalities if residents are not given adequate warning or if evacuation routes become impassable.

## Critical Facilities

Critical facilities, including hospitals, fire stations, police departments, and emergency response centers, must remain operational during a dam failure event to coordinate evacuation, provide medical care, and maintain public safety.

## Non-Critical Facilities

Non-critical facilities, such as schools, businesses, and community centers, may experience severe flooding, leading to structural damage, service interruptions, and economic losses. Schools located within the dam inundation zone would need to implement evacuation procedures to ensure student and staff safety.

Commercial and industrial properties, particularly those with hazardous material storage, could contribute to secondary hazards if chemicals or fuel are released into floodwaters. Santa Fe Springs' manufacturing and warehousing corridor—bounded by Norwalk Boulevard, Imperial Highway, and Slauson Avenue—includes

numerous Tier II facilities and critical logistics infrastructure that may be compromised. Business disruptions here could have regional ripple effects.

## Environment

A dam failure could cause severe environmental damage by altering water flow patterns, eroding landscapes, and contaminating waterways. The sudden release of large volumes of water can overwhelm local rivers, streams, and stormwater infrastructure, leading to long-term ecological disruptions.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan, industrial and commercial growth has continued in Santa Fe Springs.

**Land Use and Zoning**: No significant land use changes have been implemented to mitigate dam failure risks.

**Population Shifts**: While overall population growth has been stable, demographic changes indicate an increasing number of older adults and medically vulnerable individuals who may require additional assistance during evacuation and recovery efforts.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Financial barriers may make it difficult for low-income households to evacuate, find temporary shelter, or repair damaged properties following a dam failure. Many may lack flood insurance or savings to recover from property loss.

**Elderly Individuals**: Older adults, particularly those with mobility impairments, may require specialized evacuation assistance. Disruptions to healthcare services during flooding events can further exacerbate health risks.

**People with Disabilities**: Individuals with disabilities may face unique challenges during a dam failure event, including accessibility barriers, reliance on medical equipment that requires electricity, and difficulty reaching emergency shelters.

**Unhoused Individuals**: The unhoused population is at severe risk during flooding events due to a lack of permanent shelter and limited access to emergency notifications. Flooding of encampments can lead to loss of personal belongings, increased exposure to hazardous conditions, and heightened public health concerns.

**Non-English-Speaking Populations**: Language barriers may prevent some residents from receiving timely emergency alerts and evacuation instructions. Multilingual communication strategies are essential for ensuring equitable access to life-saving information.

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# 4.2.10 Terrorism

## Overall Vulnerability and Impact

Santa Fe Springs, like other urbanized areas in Southern California, faces potential vulnerabilities to terrorism, including physical attacks, cyberterrorism, and threats to critical infrastructure. While there are no known direct threats to the city, its proximity to major transportation corridors, industrial facilities, and critical energy infrastructure increases its exposure to potential attacks.

Santa Fe Springs is included in the federally designated Los Angeles/Long Beach Urban Area Security Initiative (UASI) region, which receives federal funding and interagency intelligence support for terrorism prevention, detection, and response. According to recent DHS National Terrorism Advisory System (NTAS) bulletins, threats to soft targets—such as fuel storage yards, industrial chemicals, and freight infrastructure—remain credible concerns for regions with critical logistics networks like Santa Fe Springs.

Terrorism in the modern era takes multiple forms, including bombings, mass shootings, cyberattacks, biological or chemical threats, and sabotage of infrastructure. Industrial zones in Santa Fe Springs, which house manufacturing, fuel storage, and chemical processing facilities, could be targeted due to the potential for cascading effects, including hazardous material releases and service disruptions. Additionally, the city's transportation network, including the Interstate 5 and Interstate 605 corridors and regional rail lines, could be targeted to create widespread economic and logistical impacts.

The impacts of a terrorism incident could include casualties, mass evacuations, long-term economic damage, and heightened public fear. Psychological effects, such as increased anxiety and decreased community cohesion, may persist long after an incident occurs.

## Population

The entire population of Santa Fe Springs could be affected by a terrorist attack, but the severity of impacts would depend on the location, scale, and nature of the incident. High-density areas, such as schools, shopping centers, public gatherings, and industrial zones, are at greater risk due to higher population concentrations.

Individuals who work in or near potential target sites, such as government buildings, transportation hubs, or industrial facilities, face elevated exposure to risks. Additionally, emergency response personnel, including police officers, firefighters, and paramedics, are at increased risk during both the initial incident and subsequent response efforts.

Psychological impacts, including post-traumatic stress disorder (PTSD), anxiety, and fear, may affect residents, particularly children, older adults, and individuals with preexisting mental health conditions. If a terrorism incident

results in prolonged disruptions to essential services, the broader population may experience economic instability, loss of employment, and increased financial stress.

## Critical Facilities

Critical facilities in Santa Fe Springs, including emergency response centers, government offices, energy infrastructure, and water treatment plants, must be prepared for potential terrorist threats. Disruptions to any of these facilities could compromise public safety and emergency response capabilities. Terrorist attacks targeting power grids or water supply systems could create cascading failures affecting hospitals, fire stations, and police departments.

Local facilities designated for emergency coordination—such as the City Hall Emergency Operations Center (EOC) and Fire Department Headquarters—must remain hardened against cyber and physical disruption to maintain continuity of government.

## Non-Critical Facilities

Non-critical facilities, including schools, commercial establishments, and industrial operations, could experience severe disruptions in the event of a terrorist attack. Industrial facilities and businesses handling hazardous materials may be targeted due to the potential for large-scale secondary hazards, such as chemical spills, fires, or explosions. Several Tier II hazardous material facilities within the industrial corridor increase the potential for cascading public health and environmental impacts. Manufacturing and logistics centers in Santa Fe Springs, which serve regional and national supply chains, could be affected if terrorist attacks disrupt transportation routes or warehouse operations.

Local businesses and commercial centers could suffer long-term economic consequences following an attack, particularly if consumer confidence declines or businesses face increased security costs. Temporary business closures and reduced workforce availability may further impact the local economy.

## Environment

Terrorism can have significant environmental consequences, particularly if attacks involve hazardous materials, explosives, or the disruption of critical infrastructure. The potential environmental impacts of a terrorism incident in Santa Fe Springs include:

- **Hazardous Material Releases**: Industrial zones contain facilities that store and process chemicals, petroleum products, and other hazardous substances. An attack targeting these sites could result in large-scale environmental contamination.
- **Water Supply Contamination**: A cyber or physical attack on water treatment facilities could disrupt the city's drinking water supply, leading to potential health risks and economic consequences.

- **Air Quality Degradation**: Explosions, fires, and chemical releases could contribute to significant air pollution, posing health risks to residents and increasing the burden on emergency response resources.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan, Santa Fe Springs has seen continued industrial and commercial growth, which increases potential targets for terrorist activities.

**Land Use and Zoning**: No major zoning changes have significantly altered the city's exposure to terrorism risks.

**Population Shifts**: No major impacts from shifts in population.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Financial hardship may limit access to emergency preparedness resources, insurance coverage, and post-incident recovery assistance. Economic downturns resulting from terrorism-related disruptions may disproportionately affect low-income workers.

**Elderly Individuals**: Older adults may face mobility challenges during evacuations and may experience heightened stress or health complications following an attack. Social isolation may exacerbate mental health effects after a terrorist incident.

**People with Disabilities**: Individuals with disabilities may require additional support during emergency evacuations and response efforts. Power disruptions or damage to communication networks could limit access to assistive technology and emergency information.

**Unhoused Individuals**: Unhoused individuals may be at greater risk during an attack due to a lack of access to secure shelter, emergency notifications, and healthcare services. Post-incident displacement could further strain local resources.

**Non-English-Speaking Populations**: Language barriers may delay access to emergency alerts, evacuation instructions, and recovery assistance. Targeted outreach and multilingual communication strategies are essential to ensuring all residents receive timely information.

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# 4.2.11 Infectious Disease/Pandemic

## Overall Vulnerability and Impact

Santa Fe Springs, like the rest of Los Angeles County, is vulnerable to infectious disease outbreaks and pandemics, which can have widespread impacts on public health, the economy, and essential services. The COVID-19 pandemic highlighted the risks associated with global disease transmission, particularly in densely populated urban areas and communities with high levels of industrial and commercial activity. The city is located within LA County Public Health's Service Planning Area 7 (SPA 7), which experienced elevated COVID-19 case rates and vaccination disparities—particularly among Latino and low-income essential worker populations.

Infectious diseases can spread through various transmission pathways, including airborne transmission (influenza, COVID-19), vector-borne transmission (West Nile virus, Zika), waterborne contamination (E. coli, norovirus), and direct contact transmission (tuberculosis, hepatitis). The risks associated with infectious disease outbreaks are heightened in locations with high levels of social interaction, such as workplaces, schools, healthcare facilities, and public transportation.

The impacts of an infectious disease outbreak can extend beyond immediate health concerns, affecting economic stability, workforce availability, and public safety. During a pandemic, businesses may experience supply chain disruptions, healthcare systems may become overwhelmed, and public health measures such as quarantines, travel restrictions, and school closures may be necessary. Long-term health consequences, including post-viral complications and increased demand for medical services, can place additional strain on local healthcare infrastructure.

## Population

The entire population of Santa Fe Springs is vulnerable to infectious disease outbreaks, though the level of risk varies based on age, health conditions, socioeconomic status, and access to healthcare. Certain populations face heightened risks, including older adults, individuals with preexisting medical conditions, unhoused individuals, and those without access to adequate healthcare. Residents working in logistics, food distribution, and manufacturing—core sectors in Santa Fe Springs—faced disproportionate infection rates during the COVID-19 pandemic due to limited workplace distancing and high in-person interaction.

High-density housing and workplaces, including the city's industrial and logistics sectors, can facilitate disease transmission due to close-quarters working conditions and shared facilities. Workers in manufacturing, retail, and food service industries are particularly vulnerable due to frequent in-person interactions. Schools and childcare centers also present high transmission risks due to close-contact environments and the difficulty of enforcing social distancing measures.

A pandemic can have psychological and emotional impacts on residents, increasing stress, anxiety, and social isolation. Mental health effects may persist long after the initial outbreak, requiring expanded behavioral health services and community support programs.

## Critical Facilities

Hospitals, urgent care centers, and emergency response facilities are among the most critical infrastructure during an infectious disease outbreak. These facilities must maintain adequate staffing, medical supplies, and capacity to respond to surges in patient demand. If hospitals and clinics become overwhelmed, the ability to treat both infected individuals and patients with other medical conditions may be compromised.

First responders, including fire, police, and paramedic services, must continue operations during a pandemic while minimizing exposure to infectious diseases. If emergency personnel become infected or are required to quarantine, response times may be affected.

Water and wastewater treatment plants, power facilities, and communication networks must remain operational to ensure uninterrupted service. Workforce shortages caused by illness or quarantine measures may challenge the ability of these facilities to maintain essential services.

## Non-Critical Facilities

Non-critical facilities, including businesses, educational institutions, and recreational centers, can experience significant disruptions during an infectious disease outbreak. Schools may be required to close or transition to remote learning, creating challenges for students, parents, and educators. Businesses, particularly those in the retail, hospitality, and entertainment industries, may experience revenue losses due to reduced customer demand and workforce shortages.

Industrial and logistics operations, which are vital to Santa Fe Springs' economy, may face supply chain disruptions, labor shortages, and temporary closures. Facilities that rely on in-person labor, such as warehouses and manufacturing plants, are at greater risk of workplace outbreaks, leading to productivity declines and financial instability.

Limited availability of community-based health clinics and mobile testing/vaccination units in industrial corridors was identified as a barrier to equitable access during COVID-19 response in Southeast LA County.

## Environment

Infectious disease outbreaks can have both direct and indirect environmental impacts. The increased use of medical supplies, including personal protective equipment (PPE), can contribute to waste management

challenges. Disposal of contaminated materials, such as masks, gloves, and testing kits, must be carefully managed to prevent environmental contamination.

During pandemics, public health measures such as sanitation efforts, disinfection procedures, and air filtration improvements may be implemented to reduce disease spread. While these measures help protect public health, they may also lead to increased energy consumption and chemical runoff from disinfectants entering local waterways.

## Changes in Development Since Last Approved Plan

**Development Trends**: Since the last hazard mitigation plan, there has been a heightened awareness of the need for pandemic preparedness in urban planning and infrastructure development.

**Land Use and Zoning**: No major land use changes have directly influenced infectious disease vulnerability.

**Population Shifts**: While Santa Fe Springs' overall population has remained stable, demographic trends indicate an increasing number of older adults who may require specialized healthcare services during disease outbreaks.

## Impacts on Vulnerable Populations

**Low-Income Residents**: Low-income individuals may face barriers to accessing healthcare, testing, and vaccinations during an infectious disease outbreak. They are also more likely to work in industries that require in-person labor, increasing their exposure risks. Financial hardships due to job losses or medical expenses can further exacerbate economic instability.

**Elderly Individuals**: Older adults are particularly vulnerable to severe illness and complications from infectious diseases. Long-term care facilities and assisted living communities may experience outbreaks with high mortality rates if proper infection control measures are not maintained. Limited mobility may also prevent older residents from accessing medical care and essential supplies.

**People with Disabilities**: Individuals with disabilities may face heightened risks during pandemics due to reliance on caregivers, medical equipment, and specialized healthcare services. Transportation limitations, disrupted medical supply chains, and difficulties in accessing public health information can further increase their vulnerability.

**Unhoused Individuals**: Unhoused populations are at extreme risk during infectious disease outbreaks due to lack of access to sanitation, healthcare, and stable shelter. Congregate living settings, such as homeless shelters, may facilitate disease transmission, requiring enhanced infection control measures. Outreach programs and emergency housing initiatives play a critical role in protecting this population during pandemics.

**Non-English-Speaking Populations**: Language barriers may prevent some residents from receiving timely public health information, accessing healthcare services, and understanding emergency directives. Culturally competent outreach efforts and multilingual public health campaigns are essential to ensuring equitable access to disease prevention and treatment resources.

# 4.3 Critical Infrastructure & Key Resources

## Lifelines


*Figure 20 – FEMA Lifelines*

FEMA's Lifelines are a framework for identifying and prioritizing critical infrastructure and services that are essential to the functioning of communities during and after a disaster. The Lifelines framework was developed by the Federal Emergency Management Agency (FEMA) to help emergency managers and first responders prioritize their response efforts and allocate resources during a disaster.

The concept of Lifelines emerged from the realization that disasters can have wide-ranging impacts on a community's infrastructure and services, and that disruptions to these critical systems can significantly hinder response and recovery efforts. The Lifelines framework was developed to identify these critical systems and services and prioritize them based on their importance to overall community functioning and resilience.

There are eight FEMA Lifelines, each of which represents a critical area of infrastructure or service. Critical facilities are categorized under the following lifelines:

- **Safety and Security:** This includes law enforcement/security, search and rescue, fire services, government service, and responder safety.
- **Food, Water, and Shelter:** This encompasses evacuations, schools, food/potable water, shelter, durable goods, water infrastructure, and agriculture.
- **Health and Medical:** This lifeline involves medical care (hospitals), patient movement, public health, fatality management, health care, and supply chain.
- **Energy:** Power (grid), temporary power, and fuel.
- **Communications:** This includes infrastructure, alerts, warnings, messages, 911 and dispatch, responder communications, and financial services.
- **Transportation:** This encompasses highway/roadway, mass transit, railway, aviation, and pipeline.
- **Hazardous Materials:** This includes facilities, hazardous debris, pollutants, and contaminants.
- **Water Systems:** This includes potable water infrastructure and wastewater management.

The Lifelines framework is designed to help emergency managers and first responders prioritize their response efforts and allocate resources based on the criticality of each Lifeline. By prioritizing the most critical Lifelines,

emergency responders can work to restore essential services and infrastructure more quickly, which can help to speed up the overall recovery process and reduce the impact of the disaster on the community.

## Inventory of Critical Facilities

Critical facilities are essential to the response, recovery, and overall resilience of the City of Santa Fe Springs. These facilities include emergency response centers, public infrastructure, transportation hubs, utilities, and community service buildings that support essential operations. Identifying and assessing these facilities' vulnerabilities is a key component of hazard mitigation planning to ensure continued functionality before, during, and after disaster events.

The following table lists all critical facilities within Santa Fe Springs, along with their addresses and functions.

| Facility Name | Address | Function | FEMA Lifeline |
|---|---|---|---|
| **Emergency Operations Center (EOC)** | 11736 Telegraph Rd | Coordination hub for emergency response efforts | Safety and Security |
| **Fire Station #1 (Headquarters)** | 11300 Greenstone Ave | Fire suppression and emergency medical services | Safety and Security |
| **Fire Station #2** | 8634 Dice Rd | Fire suppression and emergency medical services | Safety and Security |
| **Fire Station #3** | 15517 Carmenita Rd | Fire suppression and emergency medical services | Safety and Security |
| **Fire Station #4** | 11736 Telegraph Rd | Fire suppression and emergency medical services | Safety and Security |
| **Police Services Center** | 11576 Telegraph Rd | Law enforcement and public safety operations | Safety and Security |
| **Public Works City Yard** | 12636 Emmens Way | Public infrastructure maintenance and emergency response support | Transportation |
| **California Highway Patrol (CHP)** | 10051 Orr & Day Rd | State law enforcement and traffic safety services | Safety and Security |
| **Santa Fe Springs Municipal Water System** | 12636 Emmens Way | Potable water supply and infrastructure maintenance | Water |
| **Family Center** | 10349 Heritage Park Dr | Community resource and support services | Food, Water, Shelter |
| **City Hall** | 11710 Telegraph Rd | Government administration and emergency coordination | Safety and Security |
| **Activity Center** | 11155 Charlesworth Rd | Community gathering and emergency shelter facility | Food, Water, Shelter |
| **Neighborhood Center** | 9255 Pioneer Blvd | Public services and emergency resource distribution | Food, Water, Shelter |

| Facility Name | Address | Function | FEMA Lifeline |
|---|---|---|---|
| **Betty Wilson Center** | 11641 Florence Ave | Community programs and emergency relief support | Food, Water, Shelter |
| **Town Center Hall** | 11740 Telegraph Rd | Public services and meeting space for emergency coordination | Safety and Security |
| **Edison Substations (3 locations)** | 9901 Geary Ave | Electrical power distribution and grid stability | Energy |
| **Telephone Switching Stations (2 locations)** | 12905 E Los Nietos Rd | Telecommunications and emergency communication infrastructure | Communications |
| **Carmela Children Center** | 13300 Lakeland Rd | Early childhood education and emergency shelter capability | Food, Water, Shelter |
| **Hancock Preschool** | 11449 Florence Ave | Childcare services and emergency shelter facility | Food, Water, Shelter |
| **Jersey Elementary** | 9400 Jersey Ave | Education services and emergency shelter capability | Food, Water, Shelter |
| **Lake Center Middle School** | 10503 Pioneer Blvd | Education services and emergency shelter capability | Food, Water, Shelter |
| **Lakeview School** | 11500 Joslin Ave | Education services and emergency shelter capability | Food, Water, Shelter |
| **Los Nietos Child Development Center** | 11115 Charlesworth Rd | Early childhood education and emergency shelter capability | Food, Water, Shelter |
| **Los Nietos Middle School** | 11425 E Rivera Rd | Education services and emergency shelter capability | Food, Water, Shelter |
| **Rancho Santa Gertrudes School** | 11233 Charlesworth Rd | Education services and emergency shelter capability | Food, Water, Shelter |
| **Santa Fe High School** | 10400 Orr & Day Rd | Education services and emergency shelter capability | Food, Water, Shelter |
| **Santa Fe Springs Christian School** | 11457 Florence Ave | Private education services and emergency shelter capability | Food, Water, Shelter |
| **South Whittier Middle School** | 13243 E Los Nietos Rd | Education services and emergency shelter capability | Food, Water, Shelter |
| **St. Paul High School** | 9635 Greenleaf Ave | Private education services and emergency shelter capability | Food, Water, Shelter |
| **St. Pius X School** | 10855 Pioneer Blvd | Private education services and emergency shelter capability | Food, Water, Shelter |
| **Santa Fe Kid Company** | 11304 Washington Blvd | Childcare services and emergency shelter facility | Food, Water, Shelter |
| **Lake Center Athletic Park** | 11641 Florence Ave | Recreational space and emergency gathering area | Food, Water, Shelter |
| **Santa Fe Springs Park** | 10068 Cedardale Dr | Public park and emergency gathering area | Food, Water, Shelter |
| **Lakeview Recreation Center** | 10225 Jersey Ave | Recreational facility and emergency gathering area | Food, Water, Shelter |

| Facility Name | Address | Function | FEMA Lifeline |
|---|---|---|---|
| **Little Lake Park** | 10900 Pioneer Blvd | Public park and emergency gathering area | Food, Water, Shelter |
| **Ability First Apartments** | 13331 Lakeland Rd | Housing for individuals with disabilities | Food, Water, Shelter |
| **Little Lake Villages Apartments** | 10850-52 Fulton Wells | Affordable housing and emergency shelter facility | Food, Water, Shelter |
| **The Whole Child – Safe Families Housing** | | Interim housing and supportive services for families in crisis | Food, Water, Shelter |

## Transportation and Supply Chain Vulnerabilities

Santa Fe Springs plays a critical role in Southern California's overall transportation and supply chain network. Its location at the intersection of major highways and rail corridors makes it a key logistics hub, facilitating the movement of goods across the region. However, this infrastructure also presents vulnerabilities, particularly in the event of natural disasters, cyberattacks, hazardous material spills, and extreme weather events. Major freeways, freight rail lines, and intermodal facilities are susceptible to disruptions, which could have cascading economic and public safety impacts. Supply chain vulnerabilities are particularly significant due to the concentration of industrial and warehouse facilities in the city, which depend on just-in-time delivery systems.

Disruptions to the transportation network could lead to economic losses for businesses, delays in emergency response, and increased traffic congestion in surrounding areas. Furthermore, given the reliance on digitally controlled logistics systems, cyber threats targeting supply chains could exacerbate vulnerabilities. Santa Fe Springs' resilience to transportation-related disruptions is contingent on maintaining and improving its infrastructure, implementing redundancy measures, and enhancing emergency preparedness efforts.

The table below provides a comprehensive list of transportation and supply chain facilities. Each facility is categorized by its function and FEMA lifeline designation.

| Facility Name | Address | Function | FEMA Lifeline |
|---|---|---|---|
| **Interstate 5 (Santa Ana Freeway)** | Runs through Santa Fe Springs | Major freeway for freight and passenger transport | Transportation |
| **Interstate 605 (San Gabriel River Freeway)** | Runs through Santa Fe Springs | North-south freeway critical for logistics and regional mobility | Transportation |
| **Telegraph Road** | Major east-west arterial | Key roadway for local and regional traffic | Transportation |
| **Washington Boulevard** | Major east-west arterial | Supports industrial and commercial traffic | Transportation |
| **Norwalk Boulevard** | Major north-south corridor | Connects industrial and residential areas | Transportation |

| Facility Name | Address | Function | FEMA Lifeline |
|---|---|---|---|
| **Union Pacific Railroad – Los Angeles Subdivision** | Freight rail corridor | Major freight line transporting goods across the region | Transportation |
| **BNSF Railway – San Bernardino Subdivision** | Freight rail corridor | Connects regional warehouses to national supply chains | Transportation |
| **Santa Fe Springs Metrolink Station** | 12701 Imperial Hwy | Commuter rail station serving workers and residents | Transportation |
| **Golden Springs Business Park** | 13021 Leffingwell Rd | Logistics hub for goods distribution | Transportation & Supply Chain |
| **Santa Fe Springs Business Park** | 10000 Pioneer Blvd | Industrial and logistics center | Transportation & Supply Chain |
| **Los Nietos Industrial Area** | West of I-605 | Manufacturing and distribution center | Transportation & Supply Chain |
| **Freight Terminals & Warehousing Facilities** | Various locations | Includes FedEx, UPS, Amazon fulfillment centers | Transportation & Supply Chain |
| **Southern California Edison Substations** | Multiple locations | Power distribution for industrial and logistics operations | Energy |
| **Norwalk Transit Center** | 12650 Imperial Hwy | Bus transit hub for regional connections | Transportation |

## Potential Transportation Disruptions and Vulnerabilities

Several hazards pose a risk to Santa Fe Springs' transportation and supply chain networks, including:

- **Seismic Activity**: Earthquakes could damage freeway overpasses, bridges, and rail infrastructure, leading to prolonged disruptions.
- **Flooding**: Extreme weather events and stormwater runoff can impact roadways and rail lines, creating traffic bottlenecks.
- **High Winds and Wildfire Smoke**: Strong winds and wildfire smoke could disrupt freight and passenger rail services, as well as affect air quality for logistics workers.
- **Hazardous Materials Incidents**: The city's industrial base includes facilities handling hazardous materials, making transportation corridors vulnerable to spills and accidents.
- **Cybersecurity Threats**: Digital logistics systems are increasingly targeted by cyberattacks, potentially disrupting freight movement and causing supply chain delays.

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# SECTION 5 – CAPABILITY ASSESSMENT

| Element C: Mitigation Strategy Requirements |
|---|
| C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3)) |
| C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii)) |

## 5.1 Planning & Regulatory Capabilities

### Existing Local Plans, Policies, and Regulatory Framework

Santa Fe Springs has a well-established set of plans, policies, and regulations that contribute to hazard mitigation and resilience. These include the General Plan and various zoning and regulatory codes. The following table provides an overview of key local plans that address hazard mitigation, land use planning, and community resilience.

| Plan/Document | Purpose and Relevance to Hazard Mitigation | Latest Update |
|---|---|---|
| **Santa Fe Springs General Plan** | Guides long-term development and integrates resilience strategies into land use, housing, circulation, and environmental planning. Includes the Safety Element, Land Use Element, and Conservation and Open Space Element, all of which contain hazard mitigation policies. | 2024 |
| **General Plan Safety Element** | Outlines policies for reducing risk from natural and human-caused hazards, including earthquakes, wildfires, extreme heat, air quality, and hazardous materials. Aligns with the California State Hazard Mitigation Plan (SHMP). | 2024 |
| **General Plan Land Use Element** | Regulates land use designations to ensure development is compatible with hazard-prone areas, emphasizing industrial, commercial, and residential balance. | 2024 |

| Plan/Document | Purpose and Relevance to Hazard Mitigation | Latest Update |
|---|---|---|
| **General Plan Conservation and Open Space Element** | Addresses environmental resource conservation, air quality, and energy efficiency, supporting climate adaptation and hazard mitigation goals. | 2024 |
| **General Plan Circulation Element** | Plans for transportation infrastructure resilience, including evacuation routes, transit accessibility, and multi-modal transportation planning. | 2024 |
| **General Plan Housing Element** | Ensures adequate housing supply while incorporating policies for climate resilience, flood risk reduction, and emergency preparedness in housing developments. | 2024 |
| **Environmental Justice Element** | Identifies disadvantaged communities most impacted by hazards and outlines equity-focused strategies to enhance resilience. | 2024 |
| **Santa Fe Springs Local Hazard Mitigation Plan (LHMP)** | Identifies hazard risks, vulnerabilities, and mitigation strategies, ensuring compliance with FEMA's Disaster Mitigation Act of 2000. | 2018 (Update in Progress) |
| **Los Angeles County All-Hazards Mitigation Plan** | Regional hazard mitigation plan that incorporates Santa Fe Springs' vulnerabilities and strategies for multi-jurisdictional coordination. | 2020 |
| **California State Hazard Mitigation Plan (SHMP)** | Provides statewide hazard mitigation goals and serves as a guiding document for local hazard mitigation planning. | 2023 |
| **Zoning Code & Development Regulations** | Establishes building and land use regulations that integrate hazard mitigation measures such as floodplain management, seismic safety, and fire protection standards. | Ongoing |
| **SCAG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)** | Outlines transportation and sustainability initiatives that impact Santa Fe Springs, including greenhouse gas reduction, transit planning, and emergency evacuation routes. | 2024 |
| **Santa Fe Springs Emergency Operations Plan (EOP)** | Guides emergency preparedness, response, and recovery efforts, including hazard-specific protocols for earthquakes, floods, and hazardous materials incidents. | Ongoing |
| **Santa Fe Springs Floodplain Management Program** | Ensures compliance with the National Flood Insurance Program (NFIP) and regulates development in flood-prone areas. | Ongoing |
| **Stormwater Management & Urban Runoff Plan** | Implements best management practices (BMPs) to reduce flood risks and improve water quality. | Ongoing |

| Plan/Document | Purpose and Relevance to Hazard Mitigation | Latest Update |
|---|---|---|
| **Santa Fe Springs Capital Improvement Program (CIP)** | Prioritizes infrastructure investments to enhance resilience, including seismic retrofits, drainage improvements, and transportation resilience projects. | Annual Update |

# Santa Fe Springs General Plan and Key Elements

The Santa Fe Springs General Plan (2024) serves as the city's long-term framework for growth and land use. The Safety Element aligns with FEMA guidance and California's State Hazard Mitigation Plan (2023), incorporating updated hazard vulnerability assessments and policies for extreme heat, earthquakes, flooding, air quality degradation, and hazardous materials exposure. It integrates projected climate impacts and builds on goals outlined in the 2018 LHMP.

The Land Use Element supports disaster risk reduction by limiting development in vulnerable areas and maintaining industrial–residential compatibility. The Conservation and Open Space Element addresses environmental resilience through air quality protections, stormwater management, and green infrastructure. The Circulation Element includes strategies for evacuation route planning and critical mobility infrastructure. The Housing Element includes siting criteria, hazard risk avoidance policies, and resilience requirements for affordable and vulnerable housing. The Environmental Justice Element, adopted in 2024, enhances resilience planning for disadvantaged communities disproportionately exposed to heat, poor air quality, and flood risk.

## Local Hazard Mitigation Planning

Prior to the current update, Santa Fe Springs adopted its most recent Local Hazard Mitigation Plan (LHMP) in 2018. The LHMP supports FEMA compliance under the Disaster Mitigation Act of 2000, ensures local eligibility for mitigation funding, and complements the Los Angeles County All-Hazards Mitigation Plan (2020) for coordinated regional response.

# Zoning Code and Development Regulations

The City's zoning code regulates land use and development to reduce exposure to hazards. Key hazard mitigation measures include:

- Seismic safety standards for buildings in compliance with California seismic codes.
- Floodplain management regulations to control development in flood-prone areas, ensuring compliance with the National Flood Insurance Program (NFIP).
- Fire-resistant building codes and defensible space requirements for structures near wildfire-prone areas.

- Industrial hazard zoning to regulate the storage and handling of hazardous materials in compliance with California Environmental Protection Agency (CalEPA) guidelines.

## Climate and Sustainability Planning

Santa Fe Springs is a participant in the Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (2024), which supports hazard mitigation and GHG reduction via transportation planning, VMT reduction strategies, and regional climate coordination. SCAG's RTP/SCS includes objectives for climate resilience and equity that are consistent with Santa Fe Springs' General Plan and capital planning framework.

## Emergency Operations and Floodplain Management

The City's Emergency Operations Plan (EOP) is currently under revision and expected to be adopted in 2025. The EOP will define hazard-specific protocols for earthquakes, extreme heat, hazardous materials, and flood response. The City's Floodplain Management Program supports FEMA compliance by regulating at-risk development, coordinating stormwater upgrades, and monitoring drainage performance.

## Capital Improvement Program (CIP)

Santa Fe Springs' CIP is reviewed annually and aligns with the LHMP and Safety Element goals. It prioritizes:

- Seismic retrofits for critical facilities
- Drainage improvements in flood-prone corridors
- Emergency access upgrades and road hardening projects
- Infrastructure investments that reduce long-term hazard exposure

## Zoning & Land Use Policies

The City's zoning and land use policies ensure compatible land use, disaster risk reduction, environmental sustainability, and community resilience. These regulations help mitigate earthquake risks, flooding, hazardous materials exposure, wildfire threats, and extreme heat impacts. The following table outlines Santa Fe Springs' zoning and land use policies, including applicable code numbers where available.

| Policy/Code Name | Code Number (if applicable) | Purpose & Relevance to Hazard Mitigation |
|---|---|---|
| **Zoning Code & Land Use Regulations** | SFSMC Title 15 | Establishes zoning districts, land use regulations, and hazard mitigation measures such as seismic safety, floodplain management, and hazardous materials zoning. |
| **Floodplain Management Ordinance** | SFSMC §18.75 | Regulates development in FEMA-designated flood zones, enforces NFIP requirements, and mandates elevation and drainage requirements. |
| **Seismic Safety & Building Code Regulations** | SFSMC §18.20 | Requires adherence to the California Building Code (CBC) seismic provisions and mandates retrofitting of vulnerable structures. |
| **Hazardous Materials Overlay Zone** | SFSMC §18.60 | Designates industrial zones for hazardous materials storage, requiring risk mitigation plans and adherence to CalEPA regulations. |
| **Industrial & Manufacturing Land Use Standards** | SFSMC §155.021–155.037 (Zoning District Regulations) | Regulates industrial development to prevent environmental hazards, air pollution, and hazardous material risks. |
| **Residential Zoning & Hazard Mitigation Requirements** | SFSMC §155.001 et seq. | Limits residential density in designated zones; supports land use compatibility and environmental safety. |
| **Redevelopment & Special Study Areas Policies** | SFSMC §18.90 | Guides land use changes in redevelopment areas to reduce hazard exposure and improve infrastructure resilience. |
| **Stormwater Management & Low-Impact Development (LID) Ordinance** | SFSMC §18.85 | Reduces flood risks and improves water quality through permeable surfaces, green infrastructure, and retention basins. |
| **Capital Improvement Program (CIP) & Infrastructure Resilience Standards** | N/A (Policy-based, not codified) | Prioritizes investments in seismic retrofits, drainage improvements, and emergency access routes. Referenced in planning documents but not codified in SFSMC. |

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# 5.2 Floodplain Management & Compliance

The city enforces zoning, development regulations, and flood mitigation programs to ensure responsible land use in flood-prone areas and protect life and property from flood hazards. Santa Fe Springs actively participates in NFIP and promotes community-wide flood risk reduction through infrastructure investments, stormwater management, and hazard mitigation planning.

The following table provides a detailed overview of Santa Fe Springs' floodplain management policies, including applicable code numbers where available.

| **Policy/Code Name** | **Code Number** (if applicable) | **Purpose & Relevance to Flood Mitigation** |
|---|---|---|
| **Floodplain Management Ordinance** | SFSMC §18.75 | Regulates development in FEMA-designated flood zones, requires floodproofing, and ensures NFIP compliance. |
| **Stormwater Management & Low-Impact Development (LID) Ordinance** | SFSMC §18.85 | Reduces flood risks through permeable surfaces, retention basins, and stormwater detention requirements. |
| **Subdivision & Land Development Flood Standards** | SFSMC §17.20.100 – §17.20.160 | Ensures subdivisions avoid flood-prone areas and comply with drainage, grading, and FEMA elevation standards. |
| **Building Code – Flood Protection Requirements** | SFSMC §15.12.020 (incorporates CA Building Code) | Mandates compliance with CBC flood-resistant construction standards and elevation requirements in flood hazard areas. |
| **Capital Improvement Program (CIP) – Drainage & Flood Resilience Projects** | N/A (Policy-based) | Funds stormwater infrastructure, drainage improvements, and ongoing channel maintenance to reduce localized flooding. |
| **National Flood Insurance Program (NFIP) Participation & Compliance** | N/A (Federal program) | Ensures eligibility for FEMA flood insurance through adherence to floodplain regulations and local ordinance enforcement. |
| **Los Angeles County Flood Control District Coordination** | N/A | Coordinates with regional agencies on flood control infrastructure, watershed planning, and multi-jurisdictional mitigation efforts. |

# National Flood Insurance Program (NFIP) Participation

| CID | Community Name | County | Init FHBM Identified | Init FIRM Identified | Curr Eff Map Date | Reg-Emer Date | Tribal |
|---|---|---|---|---|---|---|---|
| 060158# | SANTA FE SPRINGS, CITY OF | LOS ANGELES COUNTY | 6/28/74 | 4/15/80 | 9/26/08 | 4/15/80 | No |

The City of Santa Fe Springs (CID: 060141#) joined the NFIP on June 18, 1987. As of FEMA's latest records, the community is classified as NSFHA (No Special Flood Hazard Area), meaning most of the incorporated area is designated Zone X (low-risk), with additional areas mapped as Zone AE and Zone AH.

**Flood Zones in Santa Fe Springs**: The FEMA FIRM map panels for the City of Santa Fe Springs were last updated on September 26, 2008.

- Zone X: Areas outside the 500-year flood zone, including areas protected by levees from the 1% annual chance (100-year) flood.
- Zone AE: High-risk areas with base flood elevations (BFEs) provided by FEMA.
- Zone AH: Shallow flooding areas with 1–3 feet of depth, often caused by ponding.

While Santa Fe Springs is not subject to widespread flooding, local drainage limitations and channelized watercourses still present flood risks in targeted areas. FEMA estimates that over 20% of flood insurance claims nationally originate from properties located outside Special Flood Hazard Areas (i.e., Zones X and D).

**Floodplain Management Regulations and Compliance:** The City maintains NFIP compliance through a combination of ordinance enforcement, outreach, and permit review:

- Regulating construction in flood-prone areas
- Maintaining floodplain mapping and elevation certificates
- Conducting public outreach on insurance, preparedness, and flood hazards

Permit applications near or within mapped floodplains are reviewed by the Community Development Department, which provides FEMA guidance and ensures consistency with adopted building standards.

**Additional NFIP Compliance Components**

- **Adoption of NFIP Criteria**: Santa Fe Springs enforces minimum National Flood Insurance Program (NFIP) standards through Santa Fe Springs Municipal Code (SFSMC) §18.75, which regulates development in flood hazard areas, and through local adoption of the California Building Code provisions addressing flood-resistant construction.
- **FIRM Adoption**: The City adopted the latest FEMA Flood Insurance Rate Map (FIRM) on September 26, 2008.
- **Implementation Oversight**: NFIP implementation is the responsibility of the Public Works Department, which provides technical support and policy coordination.
- **Substantial Improvement/Substantial Damage (SI/SD) Provisions**: Post-flood inspections determine whether structures meet SI/SD thresholds and must be brought into compliance with current floodplain management requirements.

**Appointment of a Designee or Agency to Implement NFIP Commitments:** The Public Works Department of Santa Fe Springs is responsible for implementing the commitments and requirements of the NFIP. For assistance, they can be contacted at (562) 868-0511, Ext. 7540**.**

**Repetitive Loss Properties (RLPs):** Repetitive Loss Properties (RLPs) are most susceptible to flood damages and are a primary focus of flood hazard mitigation programs. A repetitive loss property is one for which two or more claims of $1,000 or more have been paid by the NFIP within any given ten-year period. According to FEMA resources, there are no Repetitive Loss Properties (RLPs) within the City of Santa Fe Springs**.**

**Community Rating System (CRS) Participation (Pending):** Santa Fe Springs is evaluating participation in FEMA's Community Rating System (CRS)**,** a voluntary program that reduces flood insurance premiums for communities that implement additional flood risk reduction measures.

CRS participation would improve Santa Fe Springs' flood resilience rating. Actions such as floodplain mapping updates, stormwater management, and public education will be prioritized to achieve CRS compliance.

**Coordination with the Los Angeles County Flood Control District:** The City collaborates closely with the Los Angeles County Flood Control District (LACFCD) on flood mitigation projects. This partnership supports:

- Integration of regional and local drainage infrastructure
- Joint planning for capital improvements, levees, and stormwater channels
- Watershed-based planning to mitigate downstream flood risk and improve system redundancy

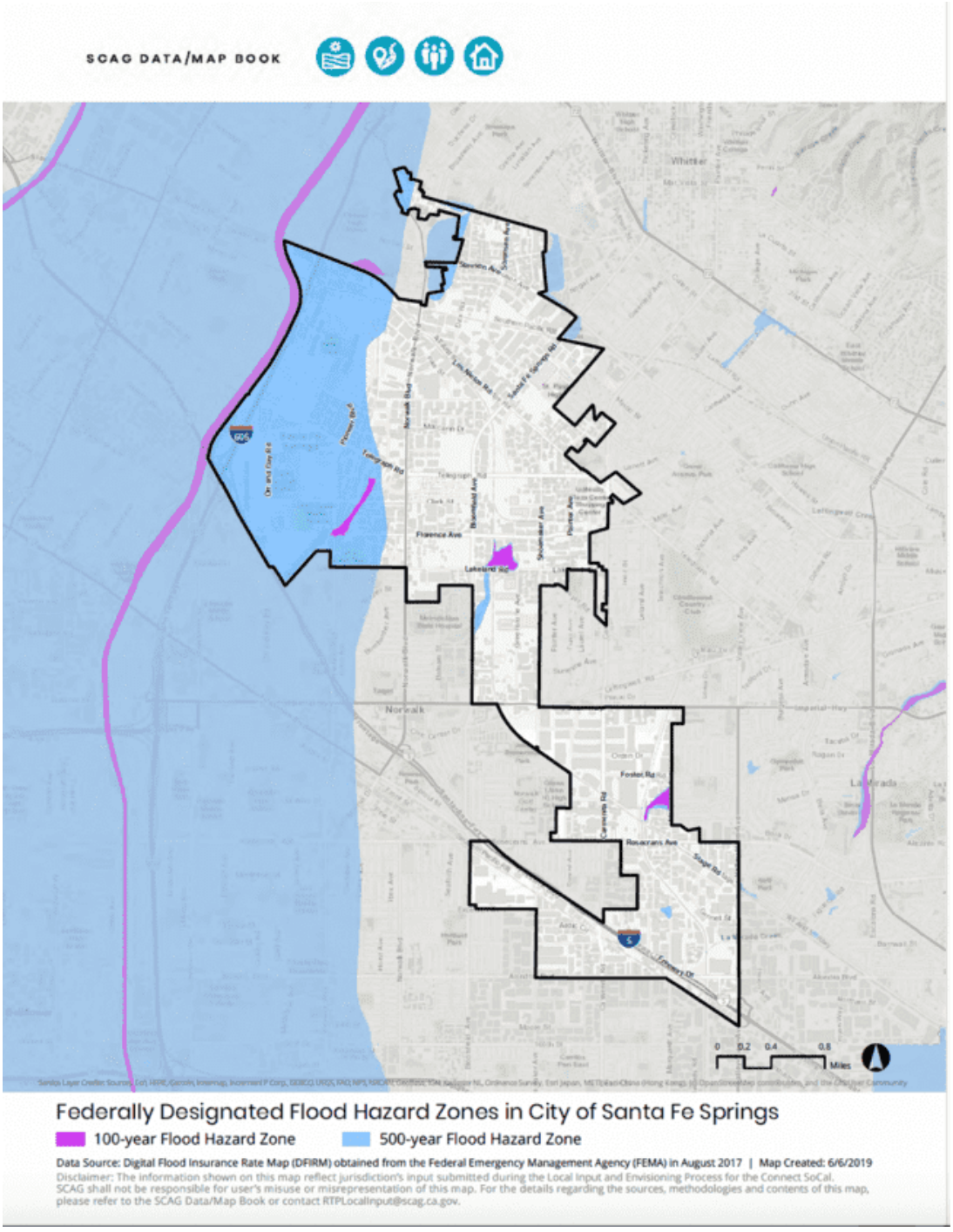


*Figure 20 – Federally-Designated Flood Hazard Zones (SCAG)*


*Figure 21 – FIRM Map (1)*

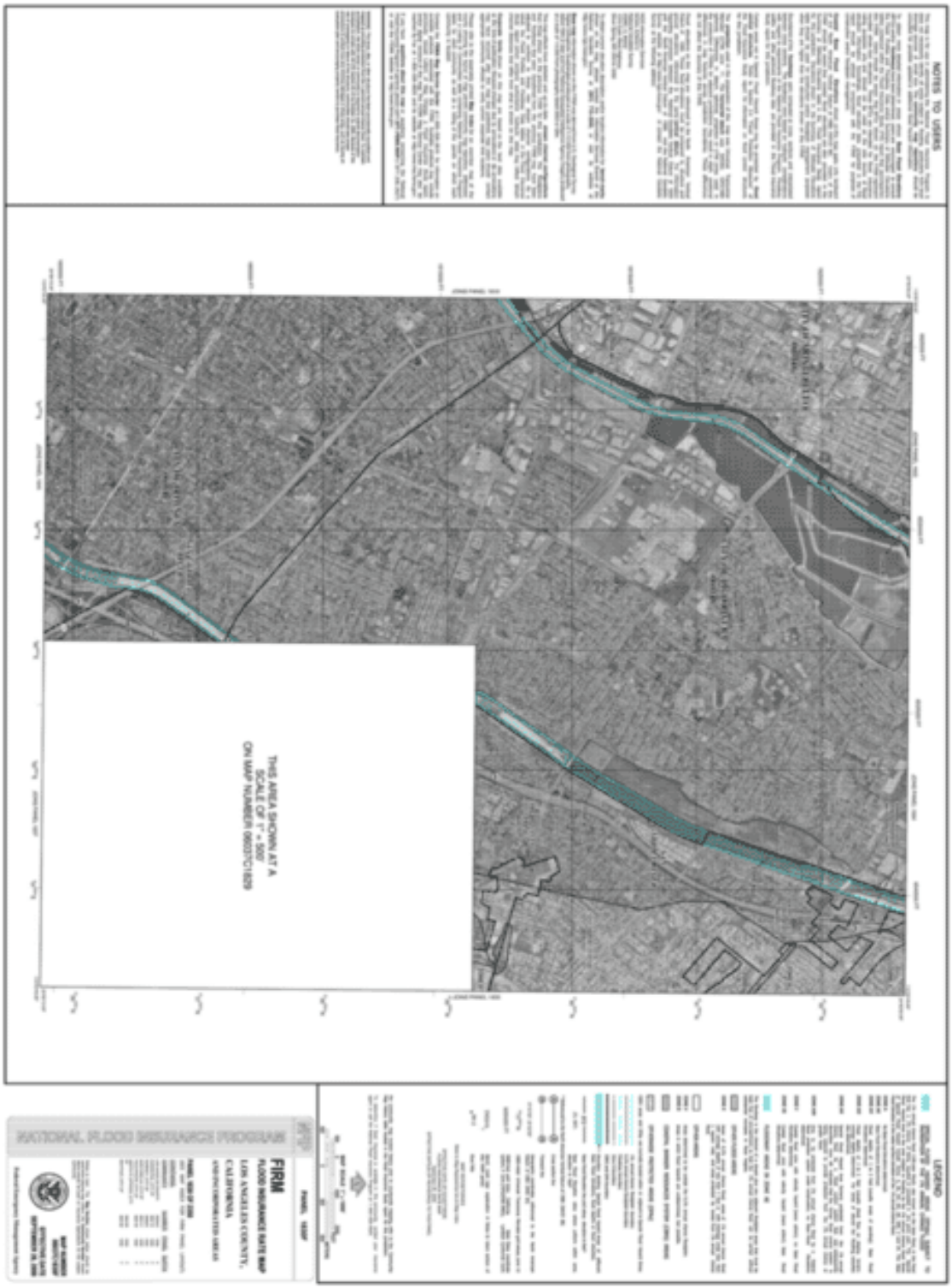


*Figure 22 – FIRM Map (2)*

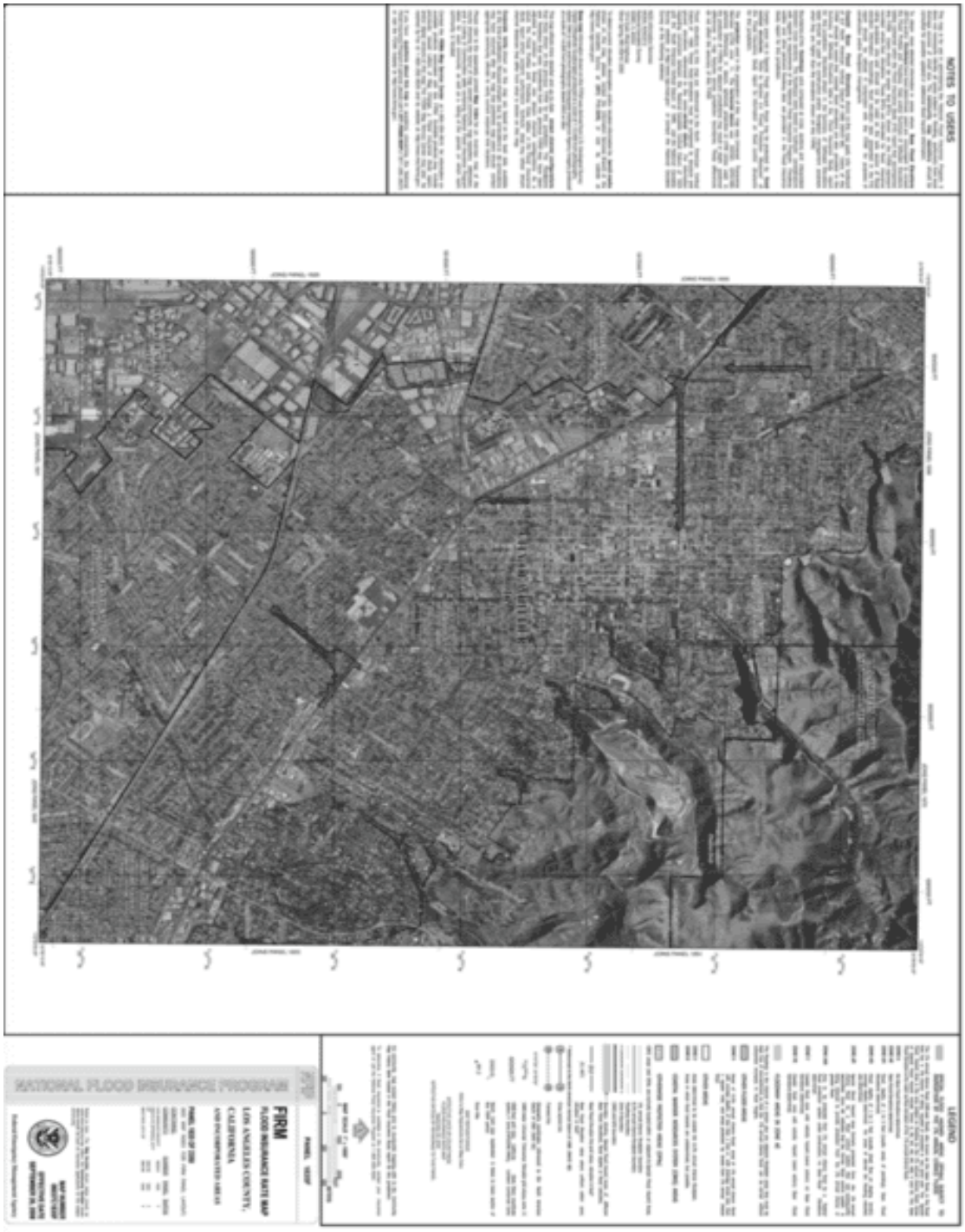


*Figure 23 – FIRM Map (3)*

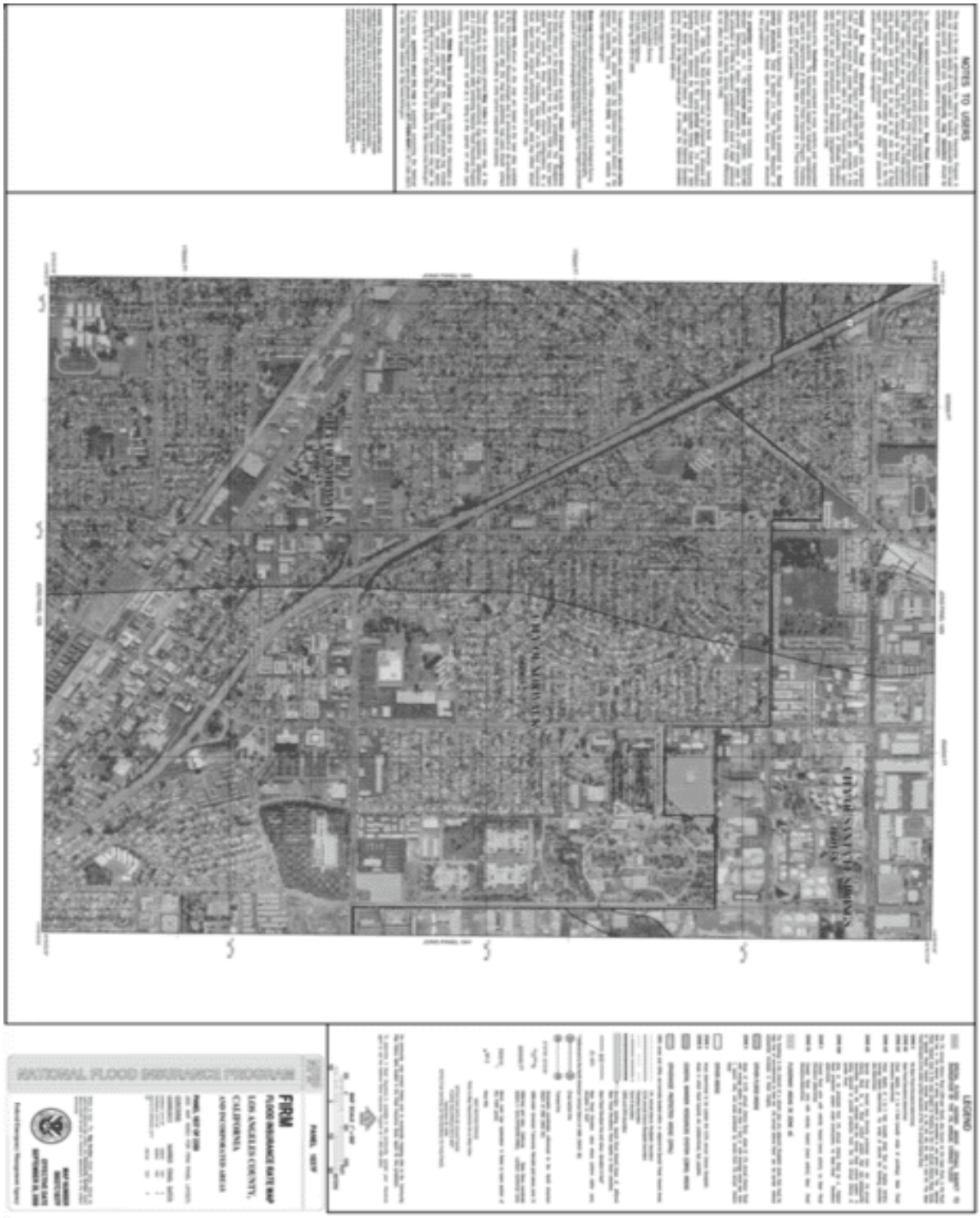


*Figure 24 – FIRM Map (4)*

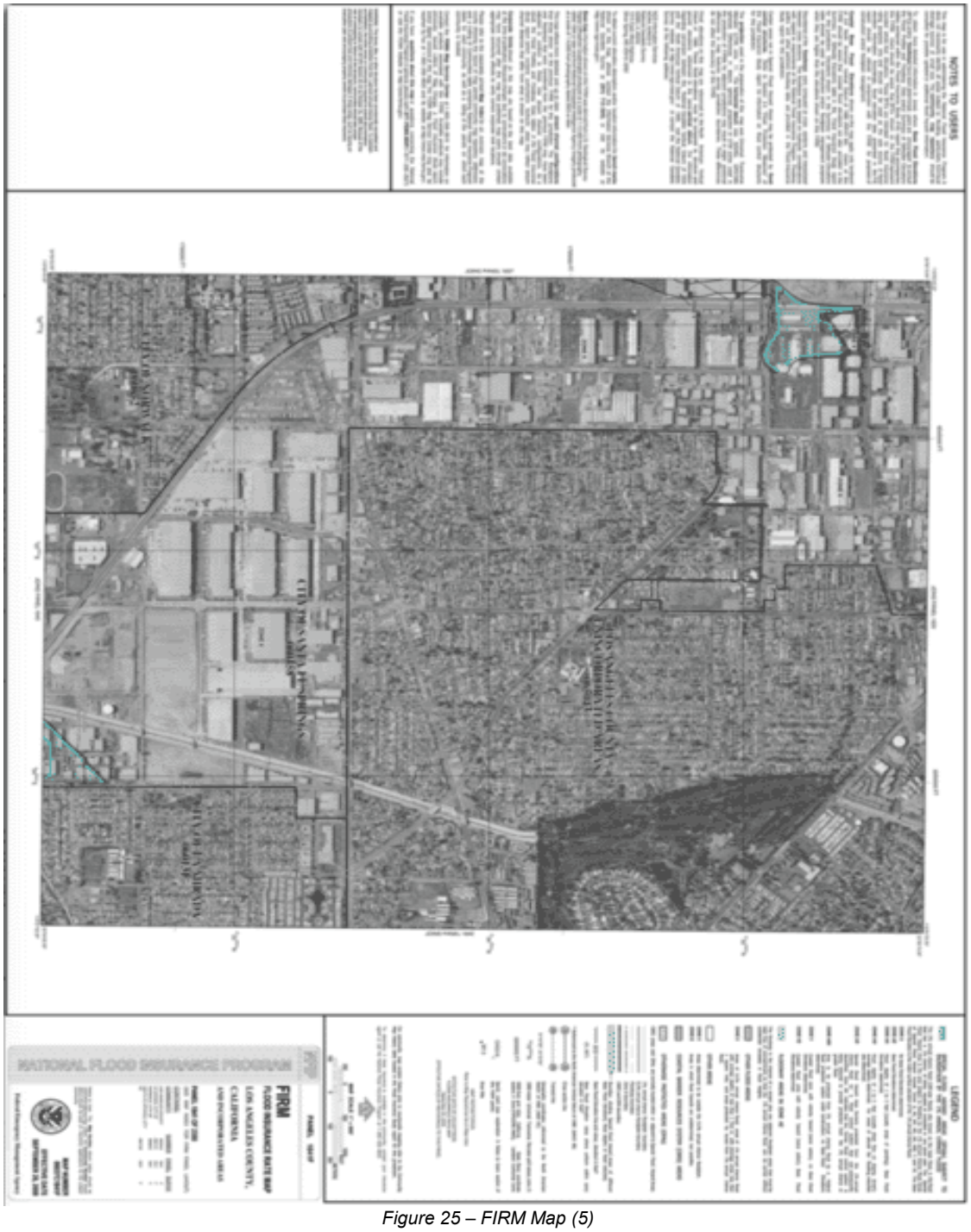


*Figure 25 – FIRM Map (5)*

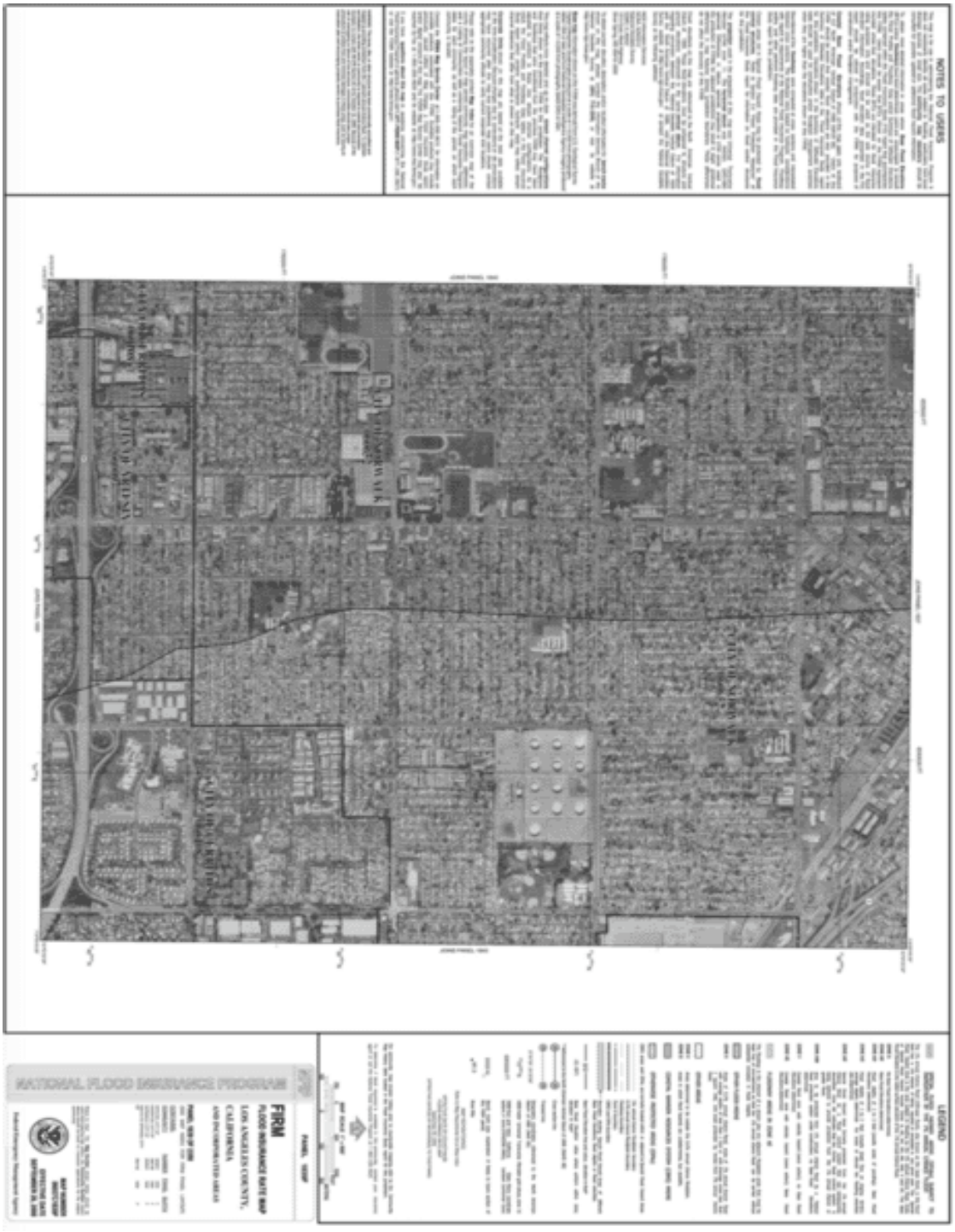

*Figure 26 – FIRM Map (6)*

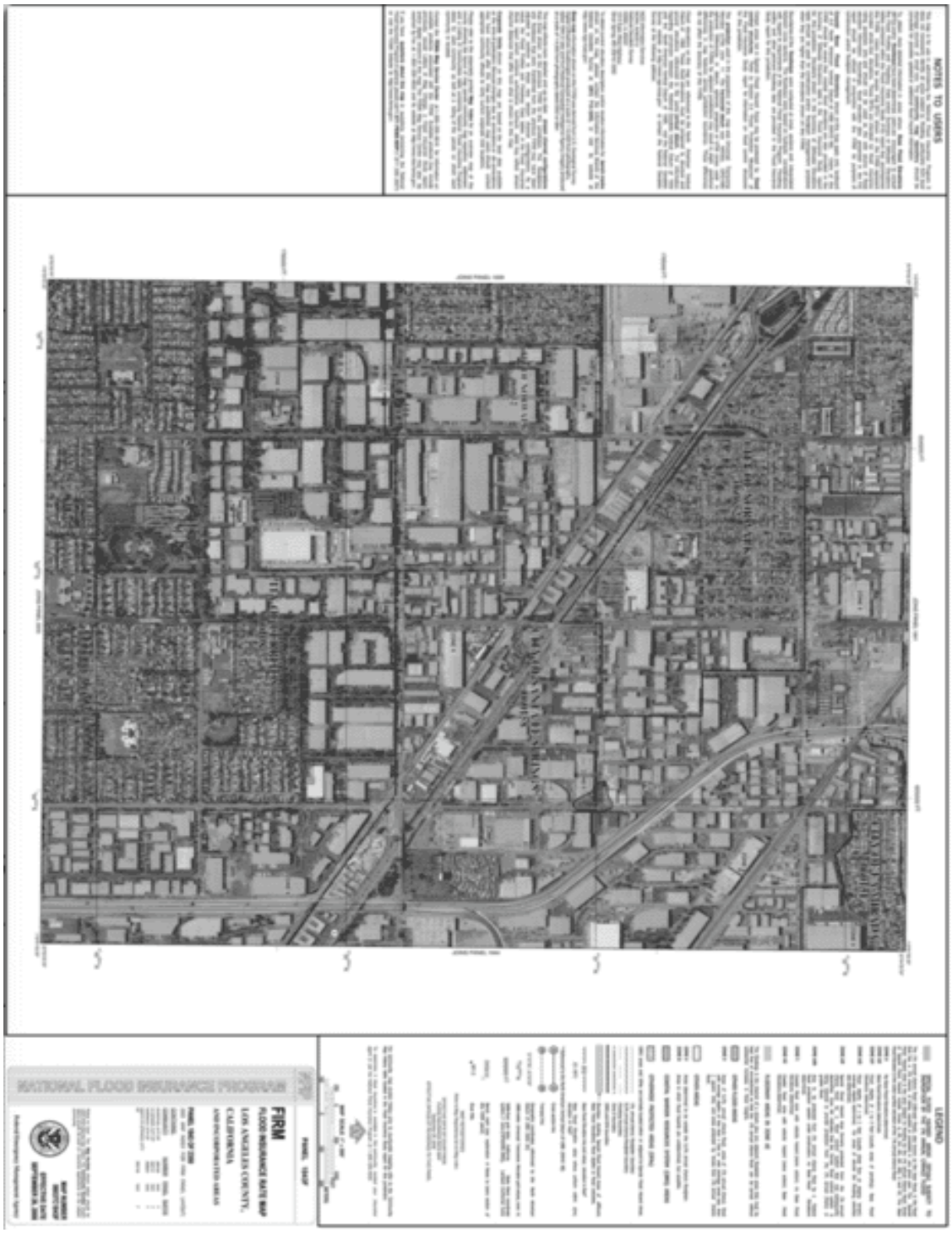


*Figure 27 – FIRM Map (7)*


*Figure 28 – FIRM Map (8)*

# 5.3 Administrative & Technical Capabilities

## Local Staff & Agencies Responsible for Mitigation

The City of Santa Fe Springs distributes hazard mitigation and emergency preparedness responsibilities across several departments, with the Santa Fe Springs Fire Department (SFSFD) serving as the primary lead agency for emergency management. Unlike cities with a standalone Emergency Management Division, Santa Fe Springs integrates emergency operations, disaster planning, and mitigation directly within SFSFD, with strong interdepartmental coordination from Police Services, Public Works, Community Development, and Capital Projects.

This section outlines the roles of key city departments and partner agencies in supporting mitigation and resilience.

| Agency/Division | Primary Responsibilities for Hazard Mitigation and Resilience |
|---|---|
| **Santa Fe Springs Fire Department (SFSFD)** | • Leads Emergency Operations Center (EOC) during disasters<br>• Maintains Emergency Operations Plan (EOP)<br>• Conducts CERT training and public outreach<br>• Enforces fire code and vegetation management<br>• Leads hazmat response and risk mitigation for industrial sites<br>• Coordinates with Cal OES, FEMA, SCAG, and L.A. County OEM |
| **Santa Fe Springs Police Services** | • Conducts evacuations and traffic control during disasters<br>• Protects critical infrastructure during emergencies<br>• Assists in public alert systems and communication<br>• Coordinates mutual aid with law enforcement agencies |
| **Public Works Department** | • Maintains and upgrades flood control and storm drain systems<br>• Implements seismic retrofits for city infrastructure<br>• Oversees the Capital Improvement Program (CIP)<br>• Provides recovery support (debris removal, damage assessment) |
| **Community Development Department** | • Enforces zoning for floodplain and seismic compliance (CBC, NFIP)<br>• Integrates hazard mitigation in land use decisions<br>• Leads climate adaptation and sustainability planning |
| **Capital Projects & Engineering Division** | • Designs and implements resilient infrastructure (stormwater, seismic, transportation) |

| Agency/Division | Primary Responsibilities for Hazard Mitigation and Resilience |
|---|---|
| | • Plans and delivers drainage and retention basin projects<br>• Enhances emergency evacuation routes |
| **Los Angeles County Office of Emergency Management (OEM)** | • Provides technical support for preparedness and mutual aid<br>• Coordinates regionally on disaster operations and mitigation strategies |
| **California Office of Emergency Services (Cal OES)** | • Supports grant funding and mutual aid coordination<br>• Offers training, technical assistance, and post-disaster support |
| **Southern California Association of Governments (SCAG)** | • Supports regional resilience, climate adaptation, and emergency evacuation planning under RTP/SCS framework |

# 5.4 Financial Capabilities

## Local & State Funding Sources

Santa Fe Springs has access to a variety of financial resources to support hazard mitigation, emergency preparedness, and infrastructure resilience. These resources include local funding sources, state grants, and regional financing mechanisms that enable the city to plan, implement, and sustain hazard mitigation efforts.

The city's financial strategy integrates funding from General Fund allocations, Capital Improvement Program (CIP) investments, enterprise funds, and external grant opportunities. These funds help ensure that critical infrastructure projects, emergency management initiatives, and climate adaptation measures are well-supported.

The following table provides a detailed summary of key local and state funding sources available for hazard mitigation and resilience-building efforts.

| Funding Source | Type | Purpose & Relevance to Hazard Mitigation |
|---|---|---|
| General Fund | Local | Supports emergency preparedness, disaster response, and hazard mitigation planning. Funds staff salaries, training programs, and operational costs. |
| Capital Improvement Program (CIP) Budget | Local | Finances seismic retrofitting, stormwater management, flood control projects, and critical infrastructure upgrades. |
| Local Sales & Property Tax Revenues | Local | Provides discretionary funding for emergency response facilities, fire protection services, and public safety improvements. |
| Stormwater & Flood Management Fees | Local (Enterprise Fund) | Finances storm drainage infrastructure, retention basins, and compliance with floodplain management requirements. |
| Public Safety Augmentation Fund (PSAF) | Local | Supports fire prevention, emergency response operations, and police services for disaster-related public safety needs. |
| California Disaster Assistance Act (CDAA) Grants | State | Provides funding for post-disaster recovery, hazard mitigation projects, and emergency protective measures. |
| Cal OES Hazard Mitigation Grant Program (HMGP) | State | Allocates funds for seismic safety, flood mitigation, wildfire resilience, and energy security projects. |
| California Fire Safe Council (CFSC) Grants | State | Supports fire prevention, vegetation management, and wildfire mitigation efforts. |
| California Climate Resilience & Adaptation Grant | State | Provides resources for climate adaptation projects, heat mitigation programs, and sustainability initiatives. |
| SCAG Sustainable Communities Program (SCP) Grants | Regional (State-Administered) | Funds land use planning, transportation resilience, and climate-smart infrastructure projects. |
| California Transportation Commission (CTC) Active Transportation Program (ATP) | State | Provides financing for transportation safety enhancements, evacuation route improvements, and pedestrian infrastructure resilience. |

## Federal Programs

Federal funding is available from FEMA, the U.S. Department of Housing and Urban Development (HUD), the U.S. Department of Transportation (DOT), the U.S. Army Corps of Engineers (USACE), and other federal agencies. These funds can help Santa Fe Springs retrofit critical infrastructure, enhance flood control systems, strengthen seismic resilience, and support wildfire mitigation efforts.

The following table outlines the federal funding sources available to Santa Fe Springs, followed by detailed descriptions of each program.

| Funding Program | Administering Agency | Purpose & Relevance to Hazard Mitigation |
|---|---|---|
| Hazard Mitigation Grant Program (HMGP) | FEMA | Provides post-disaster funding for seismic retrofitting, flood mitigation, wildfire risk reduction, and energy resilience projects. |
| Flood Mitigation Assistance (FMA) Grant | FEMA | Supports stormwater management, flood-resistant infrastructure, and NFIP compliance. |
| Public Assistance (PA) Grant Program | FEMA | Provides reimbursement for post-disaster emergency response costs, infrastructure repairs, and debris removal. |
| Community Development Block Grant – Disaster Recovery (CDBG-DR) | HUD | Provides post-disaster funding for housing reconstruction, infrastructure repairs, and community resilience initiatives. |
| Transportation Infrastructure Resilience Grants (RAISE & INFRA Grants) | U.S. Department of Transportation (DOT) | Funds evacuation route enhancements, seismic retrofits for bridges, and climate-adaptive transportation projects. |
| U.S. Army Corps of Engineers (USACE) Flood Risk Management Program | USACE | Supports levee improvements, stormwater diversion systems, and large-scale flood mitigation projects. |

# 5.5 Community Partnerships & Collaboration

## Public-Private Partnerships

Santa Fe Springs has the potential to build a strong network of public-private partnerships (PPPs) that support hazard mitigation, emergency response, and community resilience. The city collaborates with businesses, industrial stakeholders, nonprofit organizations, utility providers, and regional agencies to enhance disaster preparedness, infrastructure resilience, and economic stability in the face of natural and human-caused hazards.

As an industrial hub with a significant commercial presence, Santa Fe Springs prioritizes private-sector engagement in hazard mitigation planning. Key focus areas for PPPs include infrastructure protection, emergency management coordination, transportation resilience, and climate adaptation initiatives.

The following table summarizes Santa Fe Springs' key public-private partnerships, followed by a detailed narrative describing their roles and contributions to hazard mitigation.

| Public-Private Partner | Sector | Role in Hazard Mitigation & Resilience |
|---|---|---|
| Santa Fe Springs Chamber of Commerce | Business/Industry | Facilitates business continuity planning, emergency preparedness training, and economic recovery coordination. |
| Southern California Edison (SCE) | Energy & Utilities | Provides grid resilience upgrades, wildfire mitigation efforts, and emergency power restoration planning. |
| Golden State Water Company | Water & Utilities | Ensures water supply continuity, emergency response coordination, and infrastructure resilience projects. |
| Los Angeles County Economic Development Corporation (LAEDC) | Economic Development | Supports disaster recovery funding, business resilience strategies, and workforce development post-disaster. |
| SCAG (Southern California Association of Governments) | Regional Planning | Provides technical assistance for climate adaptation, sustainable transportation, and hazard mitigation grants. |
| Union Pacific Railroad & Transportation Partners | Transportation | Coordinates hazardous materials transport safety, rail infrastructure resilience, and evacuation logistics. |
| Local Industrial Businesses (Petroleum, Manufacturing, & Logistics Sectors) | Industry & Trade | Implements hazardous materials storage safety, emergency response training, and facility retrofitting projects. |
| American Red Cross & Community-Based Organizations (CBOs) | Nonprofit/Public Health | Provides disaster relief, emergency shelter support, and public education on hazard mitigation. |
| Homeowner Associations (HOAs) & Property Owners | Residential | Enhances flood mitigation, wildfire preparedness, and seismic resilience in private developments. |

## Regional and Multi-Jurisdictional Coordination

Santa Fe Springs is integrated into regional and multi-jurisdictional hazard mitigation efforts, working with Los Angeles County agencies, regional planning organizations, mutual aid networks, and state and federal entities. Given the city's geographic location, industrial profile, and exposure to multiple hazards (earthquakes, floods, extreme heat, and hazardous materials incidents), intergovernmental coordination is crucial for enhancing disaster preparedness, infrastructure resilience, and emergency response efficiency.

The table below provides an overview of Santa Fe Springs' regional and multi-jurisdictional partners, followed by detailed descriptions of their roles in hazard mitigation.

| Agency/Organization | Jurisdiction/Scope | Role in Hazard Mitigation & Resilience |
|---|---|---|
| Los Angeles County Office of Emergency Management (OEM) | Countywide | Coordinates disaster response, mutual aid, and regional emergency planning. |
| Los Angeles County Fire Department (LACoFD) | Countywide | Provides fire suppression, hazardous materials response, and emergency medical services. |
| Los Angeles County Flood Control District (LACFCD) | Countywide | Oversees stormwater management, flood mitigation projects, and NFIP compliance. |
| Southern California Association of Governments (SCAG) | Regional | Supports climate adaptation, sustainable land use planning, and transportation resilience. |
| California Governor's Office of Emergency Services (Cal OES) | Statewide | Administers hazard mitigation grants, disaster response coordination, and emergency planning support. |
| Federal Emergency Management Agency (FEMA) – Region IX | Federal | Provides funding, technical assistance, and disaster response resources. |
| National Weather Service (NWS) – Los Angeles/Oxnard | Regional | Issues extreme weather warnings and climate risk forecasts for Santa Fe Springs. |
| U.S. Army Corps of Engineers (USACE) | Federal | Leads Whittier Narrows Dam flood risk management efforts and large-scale mitigation projects. |
| Metropolitan Water District of Southern California (MWD) | Regional | Coordinates drought resilience planning and emergency water supply management. |
| California Department of Transportation (Caltrans) – District 7 | Statewide | Supports transportation infrastructure resilience and evacuation route planning. |
| Los Angeles County Sheriff's Department (LASD) – Emergency Operations Bureau | Countywide | Provides law enforcement mutual aid, security coordination, and emergency evacuation support. |
| California Department of Water Resources (DWR) | Statewide | Supports floodplain management, groundwater sustainability, and drought mitigation. |
| South Coast Air Quality Management District (SCAQMD) | Regional | Monitors air quality and supports extreme heat and wildfire smoke mitigation efforts. |
| Gateway Cities Council of Governments (GCCOG) | Regional | Supports climate adaptation, sustainable land use planning, and transportation resilience. |

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# 5.6 Strengths, Weaknesses, Opportunities, and Threats (SWOT) Analysis

The SWOT analysis provides a detailed assessment of Santa Fe Springs' capabilities, challenges, potential improvements, and external risks in the context of hazard mitigation and resilience planning. This section evaluates internal strengths and weaknesses (factors within the City's control) and external opportunities and threats (factors influenced by regional, state, and federal conditions).

The table below provides a summary of the SWOT analysis, followed by detailed explanations of each category.

| Category | Key Findings |
|---|---|
| Strengths | Strong emergency response capabilities, well-developed industrial base, existing hazard mitigation plans, robust regional partnerships. |
| Weaknesses | Aging infrastructure, reliance on external agencies for some emergency services, limited funding for large-scale mitigation projects, high industrial exposure to hazardous materials. |
| Opportunities | Access to state and federal funding, emerging climate adaptation initiatives, regional transportation resilience projects, potential for public-private partnerships. |
| Threats | Increasing climate risks (extreme heat, flooding), seismic vulnerability, hazardous materials incidents, supply chain disruptions, reliance on regional infrastructure. |

## Strengths

Santa Fe Springs has several internal capabilities that enhance its ability to mitigate, respond to, and recover from hazards.

### Strong Emergency Response & Public Safety Infrastructure

- The Santa Fe Springs Fire Department (SFSFD) serves as the primary emergency management agency, overseeing disaster response, hazardous materials incidents, and emergency preparedness efforts.
- The city has a well-equipped Emergency Operations Center (EOC) that supports interagency coordination during disasters.
- The Police Services Department provides evacuation support, law enforcement mutual aid, and public safety coordination.

### Established Hazard Mitigation Planning & Policies

- Santa Fe Springs has a Local Hazard Mitigation Plan (LHMP) and General Plan Safety Element that integrate disaster risk reduction policies and is developing an Emergency Operations Plan (EOP).
- The city participates in regional planning efforts.

- Zoning regulations and land use policies incorporate seismic safety, floodplain management, and wildfire risk reduction measures.

### Robust Industrial & Economic Base

- The city's diverse industrial sector (manufacturing, logistics, and petroleum operations) provides economic stability and access to private-sector resources for disaster recovery.
- Public-private partnerships with major businesses can enhance business continuity planning and hazardous materials risk management.

## Weaknesses

Despite its strengths, Santa Fe Springs faces several internal limitations that impact its ability to fully implement hazard mitigation measures.

### Aging Infrastructure & Retrofitting Needs

- The city has older public buildings, roads, and utilities that require seismic retrofitting, flood-resistant upgrades, and energy resilience improvements.
- Stormwater drainage infrastructure is aging, leading to localized flooding risks during extreme weather events.

### Reliance on External Agencies for Some Emergency Services

- While SFSFD provides fire and hazardous materials response, the city relies on Los Angeles County Fire Department (LACoFD) for specialized services.
- Some emergency management functions (such as large-scale evacuations and mutual aid coordination) depend on county and state agencies.

### Limited Funding for Large-Scale Mitigation Projects

- The city's General Fund and Capital Improvement Program (CIP) have limited capacity to support major resilience investments.
- Many large-scale flood control, seismic retrofitting, and transportation resilience projects require external grants and partnerships.

### High Industrial Exposure to Hazardous Materials

- Santa Fe Springs has a large concentration of industrial facilities handling hazardous materials, increasing risks of chemical spills, air pollution, and industrial accidents.
- Regulatory compliance with state and federal environmental laws places financial and operational constraints on businesses and the city.

## Opportunities

Santa Fe Springs can leverage several external developments and resources to strengthen hazard mitigation and community resilience.

### Access to State and Federal Grant Programs

- Grant opportunities from FEMA (FMA), Cal OES (HMGP, CDAA), and EPA (CPRG) can fund seismic retrofitting, flood mitigation, and energy resilience projects.
- Participation in NFIP and potential CRS enrollment may expand funding eligibility and reduce insurance costs.

### Emerging Climate Adaptation and Sustainability Frameworks

- Integration with SCAG's RTP/SCS and the California SHMP supports cross-sector resilience planning.
- The city can align local actions with state adaptation priorities (e.g., SB 379 compliance, integrated RHNA–hazard planning).

### Regional Transportation and Infrastructure Resilience Projects

- Caltrans District 7, Metro, and SCAG-led projects offer opportunities to enhance multimodal evacuation routes and retrofit key corridors.
- Transit-oriented development along the I-5/I-605 and Telegraph Road corridors may support infill with lower hazard exposure.

### Public-Private Partnerships and Industrial Collaboration

- Industrial stakeholders can contribute to mitigation via infrastructure co-investment, hazardous materials management, and business continuity planning.
- Utility partners (e.g., SCE, Golden State Water) can support grid hardening and emergency service continuity.

# Threats

Santa Fe Springs faces several external risks that could impact long-term resilience and emergency management effectiveness.

## Escalating Future Risk Conditions

- Extreme heat, drought, and episodic flooding are projected to intensify, straining energy, water, and public health systems.
- Risk projections must account for higher temperatures, longer heat waves, and shifts in stormwater runoff patterns (Cal-Adapt, California SHMP).

## Persistent Seismic Vulnerability

- Regional seismic hazards (e.g., Whittier Fault) threaten aging infrastructure, including pipelines, bridges, and unreinforced buildings.
- High cost of retrofitting poses a long-term financial burden.

## Hazardous Materials and Industrial Accident Risks

- Proximity of industrial operations to residential and transportation corridors increases risk of chemical incidents and fire-related hazards.
- Rail and freight transport through the city presents derailment and spill risks, particularly near Whittier Narrows.

## Regional Interdependencies and Supply Chain Disruptions

- Disruptions to the Ports of Los Angeles/Long Beach or regional power grids could significantly affect economic operations and emergency logistics.
- Reliance on shared water infrastructure and imported energy heightens exposure to upstream failures.

# 5.7 Opportunities for Improvement

## Regulatory and Planning Mechanisms

The City of Santa Fe Springs has a strong foundation in hazard mitigation, yet there remain significant opportunities for improvement in the capabilities already outlined previously in Section 5. By strategically enhancing regulatory frameworks, expanding financial resources, and strengthening administrative and technical capacities, the City can build a more resilient and adaptable infrastructure to address both current and emerging hazards.

One of the most immediate opportunities lies in fortifying the City's regulatory and planning mechanisms. While Santa Fe Springs has integrated hazard mitigation considerations into its General Plan and Safety Element, further strengthening zoning and building code enforcement could yield substantial benefits. Enhancing seismic retrofitting mandates, elevating minimum flood protection standards, and embedding wildfire-resistant design principles into new developments would help mitigate long-term risks. Additionally, proactive engagement with FEMA's Community Rating System (CRS) could improve flood resilience while reducing insurance premiums for residents and businesses.

## Administrative and Technical Capabilities

Administrative and technical capabilities could be expanded through workforce development and interagency coordination. Currently, the City relies on a network of departments and regional partnerships to execute hazard mitigation efforts. However, dedicated staffing for emergency management, hazard mitigation planning, and climate adaptation initiatives would provide more focused oversight and accelerate implementation timelines. Strengthening partnerships with Los Angeles County, Cal OES, and FEMA could also enhance technical support and increase access to specialized training and grant opportunities. Developing a centralized data-sharing platform among municipal agencies and regional stakeholders would improve real-time risk assessment and emergency response coordination.

## Financial Resources

The financial landscape presents another key area for growth. While Santa Fe Springs has successfully leveraged federal and state grants for mitigation projects, diversifying funding sources remains essential. Expanding participation in grant programs such as the California Disaster Assistance Act (CDAA) could provide additional resources for seismic safety upgrades, stormwater management projects, and energy resilience initiatives. Moreover, fostering public-private partnerships with industrial stakeholders and utility providers could unlock new funding streams for critical infrastructure protection and business continuity planning. Finally, as the insurance landscape continues to change due to the growing impact of extreme weather, concerns of cost and coverage will become critical. The City should consider carefully provider stability and response to these

emerging conditions. The City should also consider innovative structures that could support its ability to fund hazard mitigation such as geologic hazard abatement districts (GHADs) and other local and regional taxing and fundraising authorities as well as innovative insurance solutions such as parametric insurance to support the City's financial resilience.

## Community Outreach and Education

Community outreach and education initiatives also offer opportunities for enhancement. While existing efforts focus on public awareness campaigns and Community Emergency Response Team (CERT) training, there is potential to expand engagement with vulnerable populations, including non-English-speaking residents and low-income communities. Developing multilingual hazard preparedness materials, implementing targeted outreach programs, and partnering with schools, faith-based organizations, and local businesses could bolster community resilience. Additionally, incorporating climate adaptation education into public engagement efforts would help residents and businesses better prepare for long-term environmental changes.

## Resilience and Adaptation

Finally, Santa Fe Springs stands to benefit from a more integrated approach to climate adaptation within its hazard mitigation strategy. As extreme weather events become more frequent, aligning resilience planning with regional climate adaptation frameworks-such as those established by the Southern California Association of Governments (SCAG)-will be critical. Expanding green infrastructure initiatives, enhancing urban heat resilience through tree canopy programs, and incorporating renewable energy solutions into critical infrastructure can help to mitigate both climate and disaster risks.

# SECTION 6 – MITIGATION STRATEGY

| Element C: Mitigation Strategy Requirements |
|---|
| C1. Does the plan document each jurisdiction's existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement 44 CFR § 201.6(c)(3)) |
| C2. Does the plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement 44 CFR § 201.6(c)(3)(ii)) |
| C3. Does the plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement 44 CFR § 201.6(c)(3)(i)) |
| C4. Does the plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement 44 CFR § 201.6(c)(3)(ii)) |
| C5. Does the plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented and administered by each jurisdiction? (Requirement 44 CFR § 201.6(c)(3)(iii)); (Requirement 44 CFR § 201.6(c)(3)(iv)) |

## 6.1 Introduction

The Mitigation Strategy serves as a comprehensive guide for the City of Santa Fe Springs in its pursuit of enhancing disaster resilience by reducing vulnerability to identified hazards. Through the identification of specific mitigation goals and objectives, strategies and initiatives are formulated to prevent, minimize, and alleviate the impacts of both natural and manmade disasters on the local population and property within the planning area.

Strengthening community resilience involves the implementation of building codes, zoning ordinances, and other regulatory measures. During the review or update of these planning mechanisms, there is an opportunity to assess the feasibility of integrating mitigation strategies into policy changes. These proactive efforts contribute significantly to ensuring the City's sustained resilience in the face of hazard events.

City Staff make recommendations based on detailed analyses including cost-benefit review to the Santa Fe Springs City Council regarding prioritization and funding of the above and future projects, yet the decision lies ultimately with the Councilmembers. Capital Improvement Projects and other mitigation projects may receive

public hearings as either part of the budgeting process or as individual staff items for City Council which allows for public input.

# 6.2 Vision, Goals, & Objectives

## Alignment with FEMA and Local Resilience Priorities

The mitigation vision, goals, and objectives for the City of Santa Fe Springs form the foundation of this Local Hazard Mitigation Plan (LHMP) and directly support the requirements of the Disaster Mitigation Act of 2000 (DMA 2000). These components articulate the community's long-term aspirations to reduce hazard vulnerability and enhance resilience, while aligning with FEMA's national mitigation mission and the State of California's 2023 State Hazard Mitigation Plan (SHMP).

The planning team established the following vision statement, goals, and objectives after reviewing existing City and regional plans, conducting risk assessments, and incorporating public and stakeholder input.

### Mitigation Vision

> *"To protect the lives, health, safety, and economic stability of Santa Fe Springs residents, workers, and institutions by reducing the long-term risk of hazards through sustainable, equitable, and coordinated strategies that increase community resilience."*

This vision supports the principles outlined in the FEMA Mitigation Planning Policy Guide (2022), including risk-informed decision-making, whole community involvement, and integration with other local and regional plans. It also supports key priorities in the 2040 Santa Fe Springs General Plan, particularly those expressed in the Safety Element, Environmental Justice Element, and Economic Development Element.

### Mitigation Goals and Objectives

The following table outlines the City's mitigation goals and associated objectives, developed to:

- Meet FEMA's four guiding mitigation mission areas: life safety, property protection, continuity of operations, and environmental protection
- Address locally identified hazards including earthquakes, floods, extreme heat, poor air quality, hazardous materials release, and dam failure
- Support equity, environmental justice, and coordination across public agencies and stakeholders

| Goal | Objective(s) |
|---|---|
| 1. Protect public health and safety by reducing life-threatening risks from natural and human-caused hazards. | 1.1 Identify and prioritize the most vulnerable populations, facilities, and systems through risk and capability assessments.<br>1.2 Promote retrofitting and emergency preparedness at essential facilities, including fire stations, schools, and critical infrastructure. |

| Goal | Objective(s) |
|---|---|
| 2. Minimize damage to property, infrastructure, and economic assets. | 2.1 Integrate hazard mitigation into the City's Capital Improvement Plan and development review process.<br>2.2 Support pre-disaster retrofitting, relocation, and elevation of at-risk structures.<br>2.3 Encourage adaptive reuse and zoning strategies in flood- or earthquake-prone areas.<br>2.4 Reduce long-term flood risk, including risks associated with dam failure, by supporting long-term structural safety reinforcements at Whittier Narrows Dam and improving downstream flood resilience. |
| 3. Enhance hazard awareness, emergency preparedness, and public education. | 3.1 Conduct multi-lingual public education campaigns tailored to each hazard.<br>3.2 Engage residents in evacuation planning, shelter location awareness, and climate-related health risk communications. |
| 4. Support equitable access to hazard mitigation benefits and reduce disproportionate impacts on vulnerable and underserved populations. | 4.1 Prioritize mitigation actions in disadvantaged communities (DACs) as identified in the Environmental Justice Element and CalEnviroScreen.<br>4.2 Ensure that climate adaptation and air quality initiatives also address health burdens in overburdened neighborhoods. |
| 5. Promote environmental sustainability and natural systems resilience. | 5.1 Expand green infrastructure projects that reduce urban heat, manage stormwater, and improve air quality.<br>5.2 Coordinate mitigation projects with goals in the Conservation and Open Space Element and regional habitat restoration efforts. |
| 6. Strengthen interagency coordination, capacity building, and funding readiness. | 6.1 Maintain an interdepartmental Hazard Mitigation Working Group to guide implementation.<br>6.2 Pursue federal and state hazard mitigation grants (e.g., HMGP FMA) with shovel-ready project proposals.<br>6.3 Coordinate mitigation investments with SCAG, Metro, LACDPW, Cal OES, and LA County agencies. |

## Integration with FEMA and State Resilience Priorities

This mitigation framework aligns with the 2025 FEMA Local Mitigation Planning Policy Guide (FP-206-21-0002), which emphasizes a risk-informed, future-oriented, and implementation-focused planning process. While the updated policy no longer explicitly references "climate change" or "equity," this plan incorporates FEMA's required core elements while voluntarily addressing California's broader resilience standards.

Key points of alignment include:

- Future Conditions Planning: This strategy framework accounts for long-term hazard exposure and future development trends, consistent with FEMA's directive to consider future risk conditions in both land use and infrastructure planning.
- Risk-Based Mitigation Actions: Strategies prioritize hazard-specific and asset-specific mitigation measures that reduce long-term risk to people, property, infrastructure, and the economy.
- Plan Integration: Mitigation strategies directly support implementation through the City's General Plan Safety Element, Capital Improvement Program, and development code updates.
- Multi-Benefit Projects: In line with the 2023 California State Hazard Mitigation Plan (SHMP), this plan favors nature-based, infrastructure-based, and economically co-beneficial projects.
- Housing and Land Use Coordination: The framework supports the RHNA–mitigation integration goals of the SHMP by identifying strategies that align housing development with hazard-safe zones and discourage construction in high-risk areas.

Although FEMA has removed previous references to climate and equity, the City continues to consider vulnerable populations, disadvantaged communities, and regional climate projections to inform voluntary strategies and funding competitiveness for grant programs.

# 6.3 Mitigation Actions

The action items are a listing of activities in which City agencies and citizens can be engaged to reduce risk. Each action item includes an estimate of the timeline for implementation.

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| All Hazards | Backup Power for Critical Facilities | Install renewable-powered backup systems (solar + battery or generator) at fire stations, EOCs, shelters, and pump stations. | Emergency services, medically fragile populations | Continuity of Operations, Life Safety | Public Works, Emergency Services | FEMA HMGP, CPUC Equity Resilience Fund | 1–2 years | 1 | No |
| All Hazards | Emergency Operations Plan Update + Annexes | Complete a full update to the City's EOP and annex specific operational protocols for pandemics, dam failure, drought, and extreme heat. | All hazard events affecting operational readiness | Emergency Planning, Interagency Coordination | Emergency Services, City Manager's Office | FEMA HMGP, Cal OES Planning Grants | Within 1 year | 1 | Yes (Partial) |
| All Hazards | Multilingual Alerts and Warning System | Expand and modernize emergency alert systems with multilingual messaging, geographic targeting, and multi-platform delivery (SMS, social, sirens). | LEP communities, elderly, renters | Equity, Risk Communication, Emergency Readiness | IT Department, Emergency Services | Cal OES Alert & Warning Grant | 12–18 months | 1 | Yes |
| All Hazards | Community Resilience Hubs | Retrofit existing community centers to serve as all-hazards "resilience hubs" with backup power, cooling, water, first aid, and communications. | Medically fragile, heat-sensitive, low-income | Life Safety, Public Health, Equity | Planning, Parks & Rec, Emergency Services | Cal OES, CPUC Resilience Grants | 2 years | 1 | No |
| All Hazards | Citywide Emergency Shelter Modernization | Upgrade designated shelters with ADA-compliant facilities, air filtration, backup power, emergency supplies, and improved site accessibility. | Elderly, disabled, unhoused residents | Shelter Readiness, Health Protection | Emergency Services, Public Works | FEMA HMGP, HUD CDBG-DR, Cal OES | 2–3 years | 2 | No |
| All Hazards | Interdepartmental Hazard Mitigation Working Group | Formalize a citywide mitigation coordination team to oversee action implementation, grants, tracking, and plan updates. | Cross-department capacity and implementation gaps | Plan Implementation, Funding Readiness | City Manager's Office, Planning | No-cost; may receive technical support | Within 1 year | 2 | No |
| All Hazards | Public Education and Outreach Campaign | Launch sustained public education effort using workshops, social media, signage, and events on preparedness for earthquakes, heat, flooding, etc. | Renters, youth, LEP populations | Public Awareness, Household Preparedness | Emergency Services, Community Services | Cal OES, SCAG REAP 2.0 | Ongoing, begin Year 1 | 2 | Yes |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| All Hazards | Mobile Command and Communications Capabilities | Procure mobile command unit and/or deployable communications tools to maintain citywide coordination during multi-hazard events. | Field response disruption, infrastructure failure | Operational Continuity, Field Resilience | Emergency Services, IT | FEMA HMGP, UASI Equipment Grants | 2 years | 3 | No |
| All Hazards | Vulnerable Populations Registry + Support | Maintain and routinely update a registry of medically fragile, elderly, and mobility-limited residents for targeted outreach and evacuation. | Seniors, disabled, low-income households | Life Safety, Equity, Risk Communication | Community Services, Public Health | FEMA HHS At-Risk Planning Grant, CDC Climate & Health | Within 18 months | 2 | No |
| All Hazards | GIS-Based Risk Dashboard and Public Portal | Develop an interactive, multilingual public-facing GIS tool showing hazards, evacuation zones, shelters, and emergency updates. | Residents, businesses, small property owners | Public Access to Information, Risk Awareness | IT Department, Emergency Services, Planning | State GIS Innovation Grants | 2–3 years | 3 | No |
| Earthquake, Flooding | Elevation and Retrofit Incentive Program | Provide rebates or financial assistance for elevation and seismic retrofits of vulnerable residential and mixed-use buildings. | Older homes, multifamily housing in risk zones | Property Protection, Housing Resilience | Building & Safety, Planning | FEMA HMGP, CalCAP, Seismic, NFIP ICC | 2–4 years | 1 | No |
| Extreme Heat, Power Outage | Solar + Storage Microgrid Feasibility Study | Assess feasibility of deploying microgrids at shelters, water facilities, and key community centers to maintain operations during grid disruptions. | Critical infrastructure, medically vulnerable residents | Continuity of Operations, Environmental Resilience | Public Works, Sustainability Office | DOE, CPUC, Cal OES Resilience Grants | 1–2 years | 1 | No |
| Wildfire (Smoke), Pandemic, Extreme Heat | Indoor Air Quality Retrofit Program | Retrofit HVAC and install HEPA filtration at schools, libraries, and shelters to improve air quality during smoke, heat, or disease events. | Children, seniors, medically vulnerable | Life Safety, Public Health, Facility Readiness | Public Works, Public Health, Parks & Rec | CDC Climate & Health, AQMD, Cal OES | 2–3 years | 1 | No |
| Earthquake, Cyberattack, Dam Failure | Critical Infrastructure Protection Assessment | Conduct vulnerability audits and physical/cybersecurity evaluations of water, power, IT, and emergency service infrastructure. | Utilities, communications, emergency facilities | Infrastructure Resilience, Risk Reduction | Public Works, IT, Emergency Services | DHS CISA, Cal OES Infrastructure Protection | 1–2 years | 2 | Yes (Partial) |
| Flooding, Drought | Green Infrastructure and Stormwater Management | Install bio-swales, rain gardens, and permeable surfaces at parks, schools, and rights-of-way to reduce runoff and increase infiltration. | Parks, medians, low-lying corridors | Environmental Protection, Infrastructure Resilience | Public Works, Parks & Rec | DWR IRWM, Prop 1, CalFire Urban Greening | 2–4 years | 2 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Drought, Earthquake | Emergency Potable Water Supply Planning | Develop an emergency potable water distribution and storage plan for drought and post-earthquake scenarios. | Entire city, emergency response facilities | Water Resilience, Public Health | Emergency Services, Water Division | FEMA HMGP, EPA SWIF, Cal OES Water Resilience Grants | 1–2 years | 2 | No |
| Heat, Infectious Disease, Wildfire Smoke | Vulnerable Populations Resilience Registry | Maintain a real-time, opt-in registry of medically and mobility-limited residents to prioritize services during hazard events. | Seniors, disabled, low-income residents | Life Safety, Equity, Emergency Response | Community Services, Public Health | FEMA HMGP, HHS At-Risk Populations Planning Grant | 1–2 years | 2 | No |
| Windstorm, Terrorism, Earthquake | Interoperable Emergency Communications Upgrades | Modernize and unify communications systems for first responders to ensure continuity during disasters and disruptions. | Police, fire, EOC, field staff | Operational Continuity, Public Safety | IT, Police, Emergency Services | FEMA HMGP, UASI, DHS SAFECOM | 2 years | 2 | Yes |
| Pandemic, Earthquake, Heat | Emergency Shelter Accessibility Upgrades | Improve ADA access, HVAC, ventilation, signage, and emergency supply storage at designated shelters. | Unhoused residents, people with disabilities | Shelter Readiness, Equity, Health Protection | Emergency Services, Public Works | FEMA HMGP, HUD CDBG-DR, Cal OES | 2–3 years | 3 | No |
| Dam Failure, Flooding | Real-Time Warning System Integration | Link regional dam failure and flood sensors to local alert systems for rapid notification to residents in inundation zones. | Downstream neighborhoods, LEP households | Early Warning, Public Safety | Emergency Services, IT | Cal OES Alert & Warning Grant | Within 1 year | 2 | Yes |
| Extreme Heat | Resilience Hubs | Establish community cooling and resilience hubs with backup power, refrigeration, multilingual disaster resources, and hydration during heatwaves. | Elderly, low-income, unhoused, medically dependent | Protect Life, Public Awareness | Fire Dept., Planning, Parks & Rec | FEMA HMGP, CPUC Equity Resilience Grant, Local Utility Programs | Within 1 year of approval | 1 | No |
| Extreme Heat | Urban Greening Program | Expand tree canopy in heat-vulnerable neighborhoods, especially near schools, multifamily housing, and transit corridors. | Urban heat island zones, school-age children | Environmental Protection, Public Health | Planning, Public Works, CalFire Urban Forestry | CalFire Urban & Community Forestry Grant, Cal OES, Cap-and-Trade GGRF | 2–3 years | 2 | No |
| Extreme Heat | High Heat Warning System | Install localized temperature/humidity monitors, integrate alerts into emergency notification systems, and activate cooling response protocols. | Elderly, outdoor workers, linguistically isolated | Public Awareness, Operational Continuity | Emergency Services, IT Dept., Fire Dept. | HMGP, Cal OES Alert & Warning Grant, County EOC Funds | Within 18 months | 2 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Extreme Heat | Weatherization for At-Risk Homes | Retrofit housing for passive cooling (roof coatings, insulation, shade structures) and provide AC units to medically vulnerable residents. | Low-income, disabled, seniors | Life Safety, Housing Protection | Planning, Housing Division, SCE CARE Program | DOE WAP, SoCal Edison Resilience Rebates | 3 years | 3 | No |
| Extreme Heat | Emergency Heat Illness Protocols | Expand training and supplies for EMTs and public health partners to identify and respond to heat illness surges during extreme heat events. | Elderly, people with disabilities | Public Health, Life Safety | Fire Dept., LA County Public Health | Cal OES, CDC Climate Health Adaptation Program, Local Emergency Funds | Within 12 months | 2 | No |
| Drought | Industrial Water Efficiency Retrofit | Partner with major water users to retrofit industrial processes with water-saving technologies and greywater reuse systems. | Manufacturing sector, economic stability | Property Protection, Water Supply Resilience | Public Works, Economic Development, CBMWD | DWR Water Use Efficiency Grants, FEMA HMGP, EPA SWIF Grants | 2–3 years | 1 | No |
| Drought | Landscape Transformation Program | Replace turf and non-native landscaping in parks, medians, and city-owned properties with drought-resilient vegetation and bioswales. | Municipal facilities, neighborhoods | Environmental Protection, Infrastructure Resilience | Parks & Rec, Public Works | DWR Urban Water Use Grants, Cal OES, MWD LRP Funds | 2 years | 2 | Yes (2018) |
| Drought | Expand Recycled Water Infrastructure | Extend recycled water pipelines and metering to industrial zones and public parks to reduce potable water use. | Industrial parks, public green spaces | Infrastructure, Water Resilience | Public Works, Water Division | SWRCB Recycled Water Program, EPA WIFIA | 3–5 years | 2 | No |
| Drought | Residential Water Conservation Incentives | Offer expanded rebates for low-flow fixtures, leak detection systems, and xeriscaping to reduce household water demand. | Low-income residents, renters | Public Awareness, Resource Conservation | Water Division, Planning Dept. | MWD Conservation Credits Program, State Water Board | Within 2 years | 3 | Yes (2018) |
| Drought | Drought Emergency Operations Plan | Develop a drought-specific annex to the EOP, including water rationing triggers, tiered emergency communications, and emergency potable supply plans. | Entire city during extreme drought | Emergency Planning, Resource Management | Emergency Services, City Manager's Office | FEMA HMGP, Cal OES Preparedness Grants | Within 1 year | 1 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Earthquake | Seismic Retrofit of Critical Facilities | Retrofit fire stations, police buildings, and EOCs to meet current seismic safety codes, ensuring operational continuity post-event. | Emergency services infrastructure | Protect Life and Property, Operational Continuity | Public Works, Fire Dept., Building & Safety | FEMA HMGP, CDBG-DR, Cal OES Earthquake Program | 1–3 years | 1 | Yes |
| Earthquake | Soft Story Retrofit Incentive Program | Provide grants or low-interest loans to retrofit multi-unit residential buildings with known seismic weaknesses (e.g., soft-story conditions). | Renters, multifamily units, low-income housing | Housing Protection, Life Safety | Building & Safety, Housing Division | FEMA HMGP, CalCAP Seismic Retrofit Fund, California EQ Authority | 2–4 years | 1 | No |
| Earthquake | Critical Lifeline Infrastructure Audit | Conduct detailed structural and vulnerability assessments of bridges, overpasses, and water mains critical to post-disaster function. | Transportation, water systems | Infrastructure Resilience, Emergency Access | Public Works, Caltrans, LA County DPW | Caltrans Seismic Safety Program, Cal OES | 12–18 months | 2 | Yes |
| Earthquake | Community Earthquake Resilience Outreach | Launch a multilingual, community-wide campaign on earthquake preparedness, including home kits, Drop-Cover-Hold drills, and family reunification plans. | Households with language barriers, seniors | Public Awareness, Preparedness | Emergency Services, Community Affairs | FEMA NEHRP Earthquake Program, | Within 12 months | 3 | Yes |
| Earthquake | Backup Power for Emergency Operations | Install seismic-resistant, renewable-powered backup energy systems (e.g., solar+storage) at fire stations, shelters, and water pump stations. | Public safety operations, medically vulnerable | Continuity of Operations, Resilience | Public Works, Emergency Services, Sustainability Office | FEMA HMGP, DOE Energy Resilience Grant, CPUC Equity Energy Resilience Grant | 1–2 years | 2 | No |
| High Wind/Storms | Utility Pole Hardening | Retrofit or underground utility lines in high-exposure areas to reduce outages and wind-related ignition risks. | Power infrastructure, industrial corridors | Protect Infrastructure, Life Safety | Public Works, SoCal Edison | FEMA HMGP, CPUC Hardening Fund | 1–3 years | 1 | No |
| High Wind/Storms | Citywide Tree Management Plan | Formalize tree risk inspection, pruning, and removal near power lines and roads to reduce wind-related debris hazards. | Roads, utilities, residential zones | Risk Reduction, Operational Continuity | Parks & Rec, Public Works | FEMA HMGP, CAL FIRE Urban Forestry | 18 months | 2 | Yes |
| High Wind/Storms | Wind-Resistant Building Code Update | Update local building codes to include enhanced wind-load requirements for new development and retrofits. | Older commercial buildings, critical facilities | Built Environment, Property Protection | Building & Safety, Planning | FEMA HMGP, CDBG-DR | 2 years | 2 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| High Wind/Storms | Storm Response Equipment Modernization | Procure updated field response equipment to expedite post-storm cleanup and power restoration efforts. | Public Works and first responders | Continuity of Operations | Public Works, Emergency Services | UASI Equipment Grants, City Budget | 1 year | 3 | No |
| High Wind/Storms | Community Wind Safety Awareness | Conduct multilingual outreach to prepare households for high wind events and distribute readiness checklists. | Seniors, renters, LEP populations | Public Awareness, Emergency Preparedness | Emergency Services, Community Services | Cal OES Alert & Warning Grant | 1 year | 3 | Yes |
| Fire | Air Filtration in Public Buildings | Install HEPA filtration and create clean air rooms in schools, libraries, and shelters for wildfire smoke events. | Children, elderly, medically vulnerable | Life Safety, Health Protection | Public Works, Public Health | FEMA HMGP, AQMD, CDC Climate Resilience Funds | 2 years | 1 | No |
| Fire | Backup Power for Emergency Shelters | Provide solar+storage systems for emergency shelters to operate through wildfire smoke and outages. | Unhoused, medically fragile | Continuity of Services | Emergency Services, Public Works | Cal OES, CPUC Equity Resilience Grants | 1 year | 1 | No |
| Fire | Vegetation Fuel Load Assessment | Identify and map wildland vegetation in fringe areas and river-adjacent corridors to guide defensible space efforts. | Industrial fringe zones, stormwater channels | Environmental Protection, Wildfire Risk Reduction | Planning, LA County Fire, Cal Fire | CAL FIRE Fire Prevention Grant, FEMA HMGP | 18 months | 2 | No |
| Fire | Multilingual Wildfire/Smoke Alerts | Expand emergency alerting for wildfire and air quality events in multiple languages with evacuation and sheltering instructions. | LEP communities, elderly | Risk Communication, Public Awareness | Emergency Services, IT | Cal OES Alert Grant | 1 year | 2 | Yes |
| Fire | Portable Air Cleaner Distribution | Distribute portable air purifiers to low-income households with health risks prior to wildfire season. | Renters, elderly, respiratory illness patients | Health Equity, Preparedness | Housing Division, Public Health | AQMD, FEMA HMGP, CDC, Local Emergency Funds | 2 years | 3 | No |
| Flooding | San Gabriel River Flood Risk Reduction | Upgrade flood control infrastructure along the San Gabriel River near industrial zones to address flood risk. | Industrial zones, roadways, older storm systems | Infrastructure Protection, Economic Continuity | Public Works, LA County Flood Control | FEMA FMA, Army Corps Silver Jackets, Cal OES | 3–5 years | 1 | Yes |
| Flooding | Storm Drain Catch Basin Retrofit Program | Retrofit undersized storm drains in neighborhoods to reduce nuisance and structural flooding. | Residential zones near Slauson Blvd. | Public Safety, Infrastructure Resilience | Public Works, Planning | FEMA HMGP, State Water Board SRF | 2–3 years | 2 | Yes |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Flooding | Parcel-Level Flood Map & Public Platform | Create an interactive, multilingual GIS platform for parcel-based flood risk awareness and preparedness messaging. | Residents, renters, small business owners | Risk Awareness, Community Preparedness | GIS Division, Emergency Services, IT | State Innovation Grants | 12 months | 3 | No |
| Flooding | Flood Insurance & Elevation Education | Expand outreach on FEMA NFIP participation and provide support for elevation certificates and retrofit options. | Low-income property owners, small businesses | Property Protection, Economic Stability | Planning, Building & Safety, NFIP Coordinator | FEMA CTP | 2 years | 3 | Yes |
| Flooding | Green Infrastructure in Parks and Streets | Install bio-retention basins, permeable paving, and tree wells to reduce runoff and enhance stormwater management. | Parks, school grounds, urban streets | Environmental Protection, Urban Resilience | Public Works, Parks & Rec | Prop 1, DWR IRWM, SCAG REAP 2.0 | 2–4 years | 2 | No |
| Power Outage | Backup Power for Critical Facilities | Install solar + battery or microgrid backup systems at fire stations, EOCs, and water pump facilities to maintain continuity during outages. | Critical infrastructure, emergency services | Continuity of Operations, Life Safety | Public Works, Emergency Services, Sustainability | CPUC Equity Resilience Grant, Cal OES Energy Resilience | 1–2 years | 1 | No |
| Power Outage | Vulnerable Population Resilience Program | Identify and enroll high-risk residents (e.g., medical equipment users, elderly) in backup battery and generator distribution or rental programs. | Medically dependent residents, elderly, disabled | Health Protection, Equity | Emergency Services, Community Services | FEMA HMGP, DOE Energy Justice Grant, CPUC Medical Baseline | 2 years | 2 | No |
| Power Outage | Microgrid Feasibility Study | Conduct a citywide feasibility study for distributed energy resources and microgrids serving municipal operations, shelters, and commercial hubs. | City operations, shelters, economic hubs | Infrastructure Resilience, Economic Continuity | Sustainability Office, Public Works | DOE Microgrid Program, CEC EPIC Grants | Within 18 months | 3 | No |
| Power Outage | Undergrounding Priority Corridors | Identify and phase in undergrounding of power lines in high-priority corridors serving emergency and industrial operations. | Industrial zones, transportation corridors | Infrastructure Protection | Public Works, SCE, Planning | FEMA HMGP, CPUC Grid Resilience Program, Local CIP | 3–5 years | 2 | No |
| Power Outage | Grid-Integrated Emergency Alert System | Upgrade backup power and communication redundancies at alerting towers, mobile messaging systems, and traffic control during blackouts. | Public alert systems, road safety | Public Safety, Operational Continuity | IT Department, Emergency Services | Cal OES Warning Grant, FEMA HMGP | 1–2 years | 3 | Yes |
| Cyberattack / IT Disruption | Cybersecurity Assessment and Hardening | Conduct full cybersecurity risk audit for city networks, SCADA systems, and critical infrastructure; implement enhanced firewalls and redundancies. | City utilities, communications, traffic control | Continuity of Operations, Life Safety | IT Department, Public Works | FEMA HMGP, DHS Cybersecurity Grant Program, | Within 1 year | 1 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Cyberattack / IT Disruption | Backup SCADA and Communications Network | Implement redundant, segmented backups of water, sewer, and power infrastructure control systems to reduce downtime risk from attacks. | Utilities, emergency response systems | Infrastructure Resilience | Public Works, Water Division | Cal OES Utility Resilience Funding | 2–3 years | 1 | No |
| Cyberattack / IT Disruption | Cyber Incident Response Plan Update | Update and test incident response protocols, tabletop exercises, and cross-training for city staff on ransomware, data loss, and continuity. | City services, emergency response, finance systems | Operational Continuity, Governance | IT, Emergency Services, City Manager's Office | DHS Cybersecurity Grant | 12 months | 2 | Yes |
| Cyberattack / IT Disruption | Citywide Employee Cybersecurity Training | Implement mandatory annual cybersecurity awareness training for all staff and contractors with IT system access. | Staff across departments | Operational Continuity, Risk Reduction | HR, IT, City Clerk | FEMA C&CB, DHS Cybersecurity Training Funds | Ongoing, start within 6 months | 3 | No |
| Cyberattack / IT Disruption | IT Systems Physical Security Upgrades | Install access control, surveillance, and physical protection for server rooms, communications hubs, and data centers. | Physical infrastructure for IT | System Protection, Continuity | IT, Facilities, Public Works | FEMA HMGP, Urban Areas Security Initiative (UASI) | 2 years | 3 | No |
| Dam Failure | Multi-Jurisdictional Dam Failure EOP Annex | Develop a formal EOP annex and GIS evacuation plan in coordination with Whittier Narrows Dam operators and downstream jurisdictions. | Downstream communities, emergency operations | Emergency Planning, Life Safety | Emergency Services, LA County OES, Army Corps | FEMA HMGP, Cal OES Dam Safety Planning Funds | Within 1 year | 1 | Yes |
| Dam Failure | Whittier Narrows Dam Inundation Mapping and Evacuation Modeling Project | Partner with USACE and Cal OES to obtain high-resolution dam failure inundation models for Santa Fe Springs; update GIS evacuation zones accordingly. | Downstream industrial zones, transportation corridors, emergency routes | Emergency Planning, Vulnerability Reduction | Emergency Services, Public Works, USACE, LA County OES | Cal OES Dam Safety Planning Funds | 1–2 years | 1 | No |
| Dam Failure | Emergency Sirens and Mass Notification System | Expand siren and push-alert capabilities in flood-prone areas below Whittier Narrows Dam for rapid warnings. | LEP populations, night-time events | Public Awareness, Life Protection | Emergency Services, IT Department | Cal OES Alert and Warning Grant | 1 year | 2 | Yes |
| Dam Failure | Vulnerable Populations Evacuation Registry | Establish and maintain a registry of vulnerable residents and develop an evacuation assistance protocol tailored to dam failure scenarios and inundation areas. | Elderly, mobility-limited residents, medical care facilities | Equity, Life Safety, Public Health Resilience | Community Services, Emergency Services, Public Health | FEMA HMGP, HHS At-Risk Individuals Planning Grant | Within 18 months | 3 | No |
| Dam Failure | Regional Tabletop Exercise and Public Drill | Conduct annual dam failure drills with public notification and inter-agency coordination to improve readiness. | City departments, schools, residents | Preparedness, Public Engagement | Emergency Services, Schools, LA County OES | FEMA EMPG | Annually, starting Year 1 | 3 | Yes |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Infectious Disease/Pandemic | Infectious Disease Preparedness Annex | Develop a comprehensive annex to the EOP including protocols for public health coordination, quarantine logistics, and equity-based response. | Seniors, immunocompromised, LEP populations | Life Safety, Emergency Planning | Emergency Services, LA County Public Health | FEMA HMGP, CDC PHEP, BRIC (C&CB) | Within 1 year | 1 | No |
| Infectious Disease/Pandemic | Health Facility Backup Power Program | Equip community clinics and care facilities with renewable backup energy systems to ensure continuity of care during extended power outages. | Clinics, nursing homes, homebound residents | Continuity of Operations, Health Infrastructure | Public Works, Public Health, Sustainability | CPUC Equity Resilience Grant, DOE Hospital Resilience | 1–2 years | 2 | No |
| Infectious Disease/Pandemic | Community Disease Surveillance Network | Build a local data-sharing and syndromic surveillance network for early warning of outbreaks in collaboration with regional partners. | Schools, health care providers, low-income neighborhoods | Risk Awareness, Preparedness | LA County Public Health, Emergency Services | CDC ELC Grant, Cal OES Public Health Planning | 2 years | 2 | No |
| Infectious Disease/Pandemic | Multilingual Health Communication Toolkit | Produce accessible, culturally relevant materials and alert systems for testing, vaccines, and public health updates in multiple languages. | LEP residents, renters, working-class households | Equity, Public Awareness | Community Services, Emergency Services | FEMA HMGP, CDC Communication Grant, CA Vaccine Equity Initiative | Within 12 months | 3 | Yes |
| Infectious Disease/Pandemic | PPE and Medical Supply Storage System | Develop a supply chain management and storage system for PPE, sanitizers, and basic medications to maintain city readiness for future surges. | Emergency responders, clinics, essential workers | Preparedness, Operational Continuity | Emergency Services, Public Works | FEMA HMGP, Cal OES Emergency Medical Stockpile Program | 1–2 years | 3 | No |
| Terrorism | Critical Infrastructure Access Control | Install and upgrade physical security systems at city-owned facilities including key infrastructure, IT centers, and EOCs. | Water, communications, utilities, emergency operations | Continuity of Operations, Security | Public Works, IT, City Manager's Office | FEMA HMGP, Cal OES Infrastructure Protection, UASI | 1–2 years | 1 | No |
| Terrorism | Suspicious Activity Reporting Campaign | Launch a citywide "See Something, Say Something" campaign with multilingual flyers, reporting apps, and community meetings. | Public facilities, transit corridors, business districts | Public Awareness, Prevention | Emergency Services, Community Affairs | DHS Homeland Security Public Awareness Grant | Within 1 year | 2 | No |

| Hazard | Action | Description | Vulnerability | Goals | Coordinating Agency | Funding Source | Timeline | Priority | In 2018 LHMP Update? |
|---|---|---|---|---|---|---|---|---|---|
| Terrorism | Active Shooter & Facility Lockdown Drills | Coordinate citywide active shooter drills for City Hall, libraries, schools, and other public-facing facilities with law enforcement support. | Municipal buildings, schools, event spaces | Life Safety, Emergency Response | Emergency Services, Police Dept., School District | FEMA EMPG, UASI, Cal OES Homeland Security Training Fund | Begin annually in Year 1 | 2 | Yes |
| Terrorism | Hazardous Materials Risk Screening | Conduct vulnerability assessments of chemical-handling businesses and train staff on emergency procedures and security protocols. | Industrial zones, transportation hubs | Risk Reduction, Public Health | Fire Dept., Environmental Services, Planning | EPA RMP Funds, FEMA HMGP, Cal OES Hazardous Materials Planning Grant | 2–3 years | 3 | Yes |
| Terrorism | Interoperable Emergency Communications System | Upgrade police, fire, and emergency communications systems to secure, encrypted, and interoperable formats citywide. | Emergency responders, dispatch network | Operational Continuity, Resilient Communications | IT, Emergency Services, Police Dept. | DHS SAFECOM, FEMA HMGP, UASI | 2 years | 2 | No |

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# 6.4 Status of Prior Mitigation Actions

| Mitigation Action Item | 2018 LHMP Comments and Status | Reason for Not Being Included |
|---|---|---|
| Install Weather Radios in All City Facilities | Deferred in 2018 LHMP; not implemented | Superseded by citywide multi-channel alert system upgrades under Cal OES and FEMA Alert & Warning programs |
| Hard Copy Distribution of Evacuation Maps to All Households | Deferred; proposed in earlier outreach efforts | Digital platforms with multilingual capability are now more effective and can be updated in real time |
| Dedicated Pandemic Isolation Facility Conversion | New concept raised during COVID-19 | Not feasible given local capacity: instead, existing shelter and medical resilience strategies have been prioritized |
| Install Wind Sensors on All Traffic Signals and Poles | Not previously included; suggested by external consultant | Cost-prohibitive and limited operational value relative to higher-priority storm-hardening and vegetation strategies |
| Citywide Mandatory Earthquake Insurance Program (Opt-In) | Not included in previous LHMPs | Infeasible for local government to mandate; education and outreach for private enrollment through CEA is preferred |
| Extensive Dam Reconstruction Advocacy Campaign (Whittier Narrows) | Raised during prior regional discussions | Dam safety and long-term reconstruction are under Army Corps jurisdiction; not within city scope for mitigation actions |
| Development of a City-Owned Emergency Water Supply Tank | Deferred; mentioned in prior stakeholder roundtables | Regional potable supply systems and mutual aid agreements are more cost-effective; drought annex covers contingency |
| Floodproofing Grants for Private Commercial Properties | Revised version included in 2018 plan | Not selected due to low uptake during past cycles and limited flood depth scenarios in commercial areas |
| Hazard Mitigation Action Mobile App for Residents | Not included previously; identified in 2024 workshop | Lacks capacity for development and ongoing management; existing communication systems and social media are preferred |
| Downtown Bollard Installation for Vehicle Attacks (Terrorism) | Discussed internally with Planning and Police | Evaluated as lower-priority; passive barriers already exist in key areas and other hardening projects prioritized |
| Evacuation Boats or Amphibious Vehicles for Flood Response | Not previously included | Not applicable given topography and flood severity levels in Santa Fe Springs; localized flooding doesn't justify cost |
| City-Owned Isolation HVAC Systems for Public Buildings | Raised during COVID response assessment | High capital cost; air filtration and backup power strategies included instead for public health resilience |
| Smart Meter Data Integration into Public Health Alerts | Mentioned in resilience tech review workshop | Utility jurisdiction and privacy barriers limit near-term feasibility |
| Mandatory Retrofitting Ordinance for Unreinforced Masonry Buildings | Previously discussed; deferred due to legal concerns | Legal limitations and property owner resistance make mandatory enforcement infeasible without state enabling legislation |
| Monthly Hazard Awareness Newsletter | Completed and discontinued post-2018 due to limited engagement | Shift toward more effective real-time and seasonal alerting via SMS and social media |
| Installation of Smart Water Leak Detection Sensors in Homes | Proposed via SCAG ODS toolkit | Cost-sharing model not in place; incentives and outreach via MWD conservation program preferred |
| Hazard-Themed Art Installations/Public Campaigns | Raised during public outreach planning | Education strategies prioritized formal trainings, multilingual flyers, and alerts over symbolic engagement efforts |
| Hazard Mitigation Advisory Board with Public Appointments | Suggested in 2004 LHMP, never formed | Stakeholder engagement now incorporated through Planning Commission and General Plan Advisory Committees |
| Mandated Evacuation Drills for Private Sector Employers | Not previously included | Beyond municipal jurisdiction; instead, partnerships encouraged via Chamber and Ready LA County |
| Installation of Barriers Along Overpasses for Anti-Terrorism | Concept mentioned during 2018 planning | Risk assessment determined low likelihood; priority given to interoperable communications and access control |
| On-Site Water Storage Tanks at All Critical Facilities | Identified in 2004 plan as long-term strategy | Deferred in favor of upgraded pump redundancy and mutual aid agreements for potable water access |
| Emergency Financial Assistance Fund for Small Businesses | New idea from Economic Development Element alignment | Not eligible under current FEMA hazard mitigation funding; better pursued through ARPA, SBA, or economic recovery grants |

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# 6.5 Actions Considered but Not Included

| Hazard | Mitigation Action Item | 2018 LHMP Timeline | 2018 LHMP Comments and Status | Current Status (as of 2025 LHMP Update) |
|---|---|---|---|---|
| Earthquake | Identify and retrofit unreinforced masonry (URM) buildings | 3–5 years | Deferred; lacked enforcement mechanism; considered high-cost | Deferred again; included for future feasibility study |
| Multi-Hazard | Update and maintain the Local Hazard Mitigation Plan every 5 years | Ongoing | FEMA requirement; retained from 2004 plan | Completed; current plan is 2025 update |
| Earthquake | Conduct public outreach on earthquake preparedness and response | 1–2 years | New in 2018; multilingual materials needed | Revised and continued as part of outreach strategy |
| Flooding | Improve stormwater drainage infrastructure in priority areas | 1–3 years | CIP coordination needed; capacity limitations in older neighborhoods | Revised; now “Storm Drain Retrofit Program” |
| Flooding | Maintain participation in the National Flood Insurance Program (NFIP) | Ongoing | Ongoing compliance; outreach recommended | Continued; linked to NFIP education in 2025 plan |
| Multi-Hazard | Provide CERT training for community members | 1–2 years | Reinstated program with County support | Partially completed; maintained in outreach plan |
| Multi-Hazard | Encourage backup generator installation for critical facilities | 1–3 years | Identified gaps in generator coverage at city facilities | Expanded in 2025 plan as “Backup Power for Critical Facilities” |
| Multi-Hazard | Improve hazard-related public information access (website, mailings) | Ongoing | Deferred; limited staff capacity; suggested leveraging digital tools | Continued with modernization; website and multilingual alert system added |
| Dam Failure | Review and update dam failure inundation maps and warning procedures | 1–2 years | New in 2018; maps received from Army Corps | Revised; included as “EOP Dam Failure Annex” |
| Terrorism | Conduct threat assessments of critical infrastructure | 1–2 years | Coordinated with regional law enforcement | Expanded in 2025 as “Critical Infrastructure Access Control” |
| Wildfire (Smoke Impact) | Distribute air quality warnings during fire season | Annual | New; smoke considered an indirect hazard | Continued; incorporated into “Multilingual Smoke Alerts” |
| Heat | Encourage hydration, cooling, and education programs during heat events | 1–2 years | Added during 2018 review based on rising heat concerns | Expanded into “Resilience Hubs” and related actions |
| Multi-Hazard | Coordinate hazard planning with neighboring jurisdictions | Ongoing | Ongoing through LA County OES | Continued; multi-jurisdiction coordination strengthened in 2025 plan |
| Earthquake | Promote drop, cover, and hold drills in schools and city facilities | 1–2 years | Schools participated in ShakeOut; needed formal citywide coordination | Continued; part of outreach and training strategy |
| Cyber/IT | Backup city servers and critical records offsite | 1–2 years | Deferred; IT capacity limited | Revised and included in “Cybersecurity Hardening” actions |
| Flooding | Conduct outreach to businesses in minor flood areas | 1–2 years | Deferred; lack of staff to implement | Not included; superseded by new risk communication tools |
| Earthquake | Encourage use of automatic gas shutoff valves | 3–5 years | Public education recommended | Continued as voluntary action; not mandated |
| Drought | Implement water conservation programs in city facilities | 1–3 years | Partially implemented via DWP programs | Expanded into “Landscape Transformation” and “Recycled Water Infrastructure” |
| Multi-Hazard | Maintain and test emergency communications capabilities | Ongoing | Citywide system audit needed | Revised and included in communications upgrades |

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# 6.6 Implementation & Monitoring

### Prioritization Criteria

The LHMP describes a prioritization process that evaluates mitigation actions using several criteria, including cost-benefit review, anticipated risk reduction, technical feasibility, implementation capacity, social equity, and environmental co-benefits. As part of this process, actions are scored and assigned a priority level (High, Medium, Low) based on their overall effectiveness and alignment with local capabilities and funding availability. The cost-benefit review is used to assess whether the expected benefits of a proposed action—such as avoided losses or reduced vulnerability—justify its implementation cost, helping ensure resource-efficient investment in risk reduction.

### Responsible Agencies & Implementation Timeline

The successful execution of the Santa Fe Springs Local Hazard Mitigation Plan (LHMP) requires coordinated action among multiple city departments, regional partners, and state and federal agencies. This section outlines the designated lead and supporting agencies for implementation, as well as anticipated timelines for initiation and completion of mitigation actions.

The Santa Fe Springs Fire Department (SFSFD) serves as the lead agency for overall emergency management, disaster mitigation, and plan coordination. SFSFD leads preparedness planning and directs community disaster training. SFSFD is responsible for tracking the overall implementation of mitigation actions, maintaining the LHMP, and coordinating with external partners such as Cal OES, FEMA, and Los Angeles County.

- **Santa Fe Springs Fire Department (SFSFD):** LHMP coordination and annual progress tracking, emergency preparedness planning, public education, and CERT training, fire prevention, hazardous materials mitigation, and regional mutual aid coordination
- **Santa Fe Springs Police Services:** Emergency evacuations, traffic management, and public safety operations, critical infrastructure protection and public communications during disasters, law enforcement coordination for terrorism, civil unrest, and multi-hazard incidents
- **Public Works Department:** Floodplain and stormwater management, debris removal and infrastructure restoration post-disaster, implementation of structural mitigation projects for roads, buildings, and utilities, coordination of the Capital Improvement Program (CIP)
- **Capital Projects & Engineering Division (under Public Works):** Design and delivery of seismic retrofit, stormwater, and transportation resilience projects, evacuation route planning and resilient infrastructure design
- **Community Development Department:** Enforcement of California Building Code seismic and floodplain standards, zoning, land use, and policy-based mitigation Implementation of climate adaptation and extreme heat reduction strategies

Each mitigation action identified in Section 6.3 – Mitigation Action Plan Table includes:

- A responsible coordinating agency (lead)
- Supporting agencies where applicable
- A proposed implementation timeframe, categorized as:
    - Short-Term (0–1 year)
    - Mid-Term (1–3 years)
    - Long-Term (3–5 years)
    - Ongoing (recurring or policy-based actions)

Mitigation actions will be integrated into the City's Capital Improvement Plan (CIP), Annual Departmental Budgets, and the Emergency Operations Plan (EOP) as appropriate.

SFSFD will meet annually with designated action leads to review implementation progress, assess barriers, identify funding opportunities (e.g., FEMA HMGP, FMA, Cal OES programs), and make adjustments to timelines and responsibilities as needed.

### Performance Metrics & Reporting

To ensure accountability and measure progress, the City will track the implementation of each mitigation action using specific performance metrics. These will be reviewed and updated during regular plan maintenance and during funding application development.

Performance monitoring will be structured around the following indicators:

- **Implementation Milestones**: Completion of key steps such as feasibility studies, grant applications, design, permitting, and construction
- **Project Completion Rate**: Percentage of total actions initiated and completed within each 5-year LHMP cycle
- **Funding Leveraged**: Amount of federal, state, and local funding secured for mitigation implementation (e.g., FEMA HMGP, Cal OES, CPUC)
- **Risk Reduction Achieved**: Quantitative and qualitative reductions in risk, such as:
    - Number of critical facilities retrofitted
    - Square footage of stormwater improvements
    - Number of households reached through outreach or served by resilience programs
- **Community Engagement**: Number of participants in mitigation-related outreach, trainings, and workshops
- **Equity Metrics**: Percentage of actions implemented in CalEnviroScreen-designated disadvantaged communities or benefiting socially vulnerable populations

Reporting will occur through three key mechanisms:

- **Annual Mitigation Implementation Review Memo:** Each year, Emergency Services will compile a memo summarizing:
    - Actions completed or initiated
    - Any delays or constraints encountered
    - Upcoming priorities and funding needs
    - A status summary of each mitigation action (not started, in progress, completed, deferred)
- **FEMA 5-Year LHMP Update Cycle Reporting**: At the start of each LHMP update cycle, the City will conduct a comprehensive evaluation of:
    - All mitigation actions from the prior plan
    - Quantitative progress on metrics
    - Revised priorities based on new data and risk assessments
    - Documentation of actions completed, revised, or not implemented, with justifications
- **Grant Reporting and Post-Award Performance Tracking:** For all mitigation projects funded by external sources (e.g., FEMA, Cal OES), the City will comply with federal and state performance monitoring requirements, including quarterly progress reports, cost tracking, benefit-cost validation (as applicable), and outcome summaries.

# SECTION 7 – PLANNING, MAINTENANCE AND ADOPTION

| Element A Requirements |
|---|
| A1. Does the plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement 44 CFR § 201.6(c)(1)) |
| A2. Does the plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development as well as businesses, academia, and other private and non-profit interests to be involved in the planning process? (Requirement 44 CFR § 201.6(b)(2)) |
| A3. Does the plan document how the public was involved in the planning process during the drafting stage and prior to plan approval? (Requirement 44 CFR § 201.6(b)(1)) |
| A4. Does the plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement 44 CFR § 201.6(b)(3)) |

## 7.1 Planning Process

Santa Fe Springs' Local Hazard Mitigation Plan (LHMP) is designed to meet the requirements of the Disaster Mitigation Act of 2000 (DMA 2000) and to ensure that the City of Santa Fe Springs is eligible for all appropriate benefits under state and federal law and practices. The LHMP planning process considers natural and human-caused hazards facing the City, ensuring compliance with all FEMA and Cal OES guidance and supporting plan review and approval.

The LHMP planning team gathered information from a variety of sources, including participating municipal departments, local organizations and utilities, regional planning agencies, and residents of Santa Fe Springs. Hazard mitigation strategies were developed through an extensive, iterative process involving internal subject matter experts and external stakeholder feedback.

As listed on page 4 of this Plan, the Planning Team consisted of:

### Santa Fe Springs Fire Department

Chad Van Meeteren – Fire Chief
Michael Kozicki – Assistant Fire Chief

### Stakeholder Group

Lang Cottrell - Regional Director - Southwest at Goodman
Margarita Martinez – Site Manager and HR Director, Heraeus Precious Metals
Wendy Meador-Kunert. Business Intelligence Manage at Tangram Interiors
Daniel Moreno – Regional EHS Manager at Valvoline
Sandra Perez - Environment, Health and Safety Manager at Collins Aerospace
Nathaniel Shearer - Vice President of Operations at Steven Label Corporation

Raman Venkat – Chief Executive Officer, LeFiell Manufacturing
Stephane Wandel - Director of Acquisitions & Development, The Orden Company

## Jacob Green and Associates

Patrick Marchman, AICP CEP, SCR - Project Manager

The planning process began with a kickoff meeting in October 2024, convening the primary members of the City's Planning Team. The consultants (JGA) worked closely with the team, with bi-weekly check-ins throughout the process. Hazards workshops took place in December 2024 involving both members of the Stakeholder Committee and the Planning Team. Two public meetings were subsequently held in January 2025, one in-person and one virtual to maximize opportunities for participation.

The draft plan was completed in April 2025. Following necessary edits based on internal review, the draft plan was made available to secondary stakeholders, including the general public and adjacent jurisdictions

The Planning Team incorporated comments into a Final Draft Plan, which was submitted to Cal OES and FEMA Region IX for review and conditional approval. Following incorporation of mandated revisions, a Final Plan was returned to Cal OES and FEMA for formal approval. The final FEMA-approved LHMP was presented to the Santa Fe Springs City Council on XXXXXXX for adoption by resolution. A copy of the adoption resolution was forwarded to FEMA for formal acknowledgment and record.

The planning area for this LHMP includes the entire jurisdictional boundary of the City of Santa Fe Springs. The risk assessment was conducted for this complete area and includes analysis of hazard exposure, probability, and vulnerability for both current and future conditions, in accordance with 44 CFR §201.6(c)(2). All Planning Team members, with the exception of outside technical consultants, were affiliated with the City of Santa Fe Springs. Coordination occurred through a series of dedicated planning meetings, internal work sessions, and standing project check-ins to ensure consistency and interdepartmental alignment.

The Planning Team compiled a comprehensive stakeholder contact list across multiple sectors and agencies, inviting their participation throughout the planning process. Neighboring jurisdictions and school districts were also contacted following completion of the First Draft Plan.

In compliance with 44 CFR §201.6(b)(3), the planning process incorporated existing plans, studies, and technical resources relevant to Santa Fe Springs. The following documents were reviewed and referenced:

| Plan / Document | Description |
|---|---|
| **2018 Santa Fe Springs LHMP** | The previously adopted plan provided baseline hazard descriptions, local capability assessments, and action tracking. |
| **Santa Fe Springs 2040 General Plan & Elements** | Provided demographic, land use, mobility, infrastructure, and environmental context for the updated risk assessment and capability review. |
| **2023 California State Hazard Mitigation Plan (Cal OES)** | Used to ensure consistency with state hazard profiles, climate adaptation integration, and mitigation funding priorities. |
| **Los Angeles County Multi-Jurisdictional Hazard Mitigation Plan (2020)** | Informed cross-jurisdictional risk context for regionally significant hazards such as earthquakes, drought, and air quality. |
| **California's Fourth Climate Change Assessment – Los Angeles Summary Report** | Provided data on climate-driven risks including extreme heat, wildfire, and hydrologic stress. |

Other external resources included data from commercial climate risk providers and information from the Southern California Association of Governments (SCAG). These materials were used in the risk assessment, capability analysis, and mitigation strategy sections.

# 7.2 Plan Update

| Element E: Plan Update Requirements |
| --- |
| E1. Was the plan revised to reflect changes in development? (Requirement 44 CFR § 201.6(d)(3)) |
| E2. Was the plan revised to reflect changes in priorities and progress in local mitigation efforts? (Requirement 44 CFR § 201.6(d)(3)) |

The City of Santa Fe Springs' previous LHMP update was completed in 2018. This 2025 update uses data from the U.S. Census Bureau, SCAG Local Profile (2023) and the recently adopted Santa Fe Springs 2040 General Plan to examine how development trends and demographic changes impact the City's hazard vulnerabilities. Further information on land use, infrastructure, and community conditions can be found in Section 2.

This update to the City's LHMP represents a comprehensive plan revision, integrating updated risk data, expanded hazard profiles, and new planning requirements. It reflects and operationalizes the most recent FEMA mitigation planning guidance (April 2023) and Cal OES climate and equity criteria.

- This LHMP update incorporates projected climate change impacts into every relevant hazard profile to more accurately describe how temperature rise, precipitation shifts, and wildfire risk may evolve. These insights are also reflected in proposed mitigation actions to advance community adaptation and resilience.
- This update also integrates equity throughout the plan to ensure that mitigation priorities center and respond to the needs of Santa Fe Springs' most at-risk populations.

## Priorities for this Plan Update

Priorities for this 2025 plan update were shaped by new FEMA guidance, updated hazard data, and lessons learned from the previous planning cycle. Key priorities included:

- Expanding analysis of climate-related hazards such as extreme heat and drought;
- Improving integration of hazard mitigation planning with the City's capital improvement and emergency management efforts;
- Strengthening consideration of equity and vulnerable populations in the risk and capability assessments;
- Updating mitigation actions to reflect progress made since 2018 and current funding and implementation opportunities;
- Enhancing consistency with the California State Hazard Mitigation Plan and Los Angeles County MJHMP (2020).

These priorities reflect the City's continued commitment to reducing risk while aligning with evolving hazard conditions, planning standards, and community needs.

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# 7.3 Stakeholder Involvement

Stakeholders were involved at multiple stages in the plan development process. As part of the initial research and analysis setting the foundation for the Plan, documents from not only the City of Santa Fe Springs but also from neighboring jurisdictions and regional planning partners were used to inform the Plan's context development. A stakeholder meeting specifically focused on hazards assessment was held on December 4, 2024.

Meetings of the core planning team were held biweekly and as otherwise required throughout the project.

**• Agencies that have the authority to regulate development**

- Santa Fe Springs Community Development Department
- Planning and Building Safety Division

**• Neighboring communities**

- Copies of the initial draft LHMP were sent for review and comment to the cities of:
  - City of Pico Rivera
  - City of Norwalk
  - City of Downey
  - City of La Mirada
  - City of Whittier
  - City of Commerce

**• Local and regional agencies involved in hazard mitigation activities**

- Southern California Association of Governments (SCAG)
- Los Angeles County Office of Emergency Management

**• Representatives of businesses, academia, and other private organizations**

- Outreach was conducted to entities with relevant technical knowledge and major local employers, including:
  - Southern California Edison
  - SoCalGas
  - Santa Fe Springs Chamber of Commerce

**• Representatives of nonprofit organizations, including community-based organizations that work directly with and/or provide support to underserved communities and socially vulnerable populations**

- Outreach was conducted to the following organizations:
  - Los Angeles County Department of Public Health – SPA 7
  - PIH Health Whittier Hospital
  - Southeast Area Social Services Funding Authority (SASSFA)
  - Santa Fe Springs Family and Human Services Division
  - Catholic Charities of Los Angeles – Santa Fe Springs Office

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# 7.4 Public Involvement

The City of Santa Fe Springs provided members of the public several opportunities to participate in the planning, design, and review phases of the Local Hazard Mitigation Plan (LHMP). Public input and discussion were facilitated during staff presentations and through designated “public comment” periods at City meetings. In addition, members of the public, local commissioners, and City Council members were given the opportunity to provide input and recommendations verbally, through emails, and via digital comment forms.

Public outreach for input on the Plan took place in several formats, including online, in print, and in person:

- A multilingual community survey in English and Spanish was made available on the City’s website through January 2025, allowing residents to share their experiences and perspectives regarding hazards affecting the City and potential actions to reduce risk.
- Notifications and survey links were posted on the City’s website, on social media platforms, and promoted by the City Manager’s Office and Department of Fire-Rescue.
- An in-person Hazards Workshop was held on January 16, 2025 at the Santa Fe Springs Fire Department headquarters, allowing members of the public and city staff to provide input.
- A Virtual Public Meeting was held one week later on January 23, 2025, using the same content and presentation format as the in-person workshop, and allowing community members to participate remotely.
- The Draft LHMP was published to the City’s website in May 2025 for a two-week public comment period, and comments received were reviewed and integrated into the final draft.

Survey results summaries are included in the Appendices to the Plan, alongside public meeting presentation slides, printed and digital notification examples, and outreach materials posted on social media and the City’s website.

Public involvement was meaningful and influential in shaping the Plan. Feedback directly informed the refinement of several mitigation actions and the prioritization of specific hazards. In particular, public input highlighted concern about extreme heat, wildfire smoke impacts, and power outages, prompting enhancements to hazard characterizations and the development of mitigation actions focused on resilience hubs, tree canopy expansion, and energy reliability. Many public comments acknowledged climate change as a growing concern, reinforcing FEMA’s emphasis on considering impacts beyond the five-year planning horizon.

Copies of the final LHMP Update will be catalogued and made available at City Hall, the Santa Fe Springs Library, and the Department of Planning and Community Development. The existence and locations of these copies will be publicized via the City’s website and social media channels. A copy of the Plan and any proposed amendments will remain available on the City’s website throughout the Plan's lifecycle. The website will also include a designated email address and phone number for ongoing public comment, recommendations, and inquiries.

The Hazard Mitigation Coordinator will work with other City departments to create opportunities for public involvement throughout the Plan's five-year cycle. These opportunities may include outreach through existing public meetings (e.g., public safety open houses, resilience fairs, Community Services events, and emergency preparedness workshops) as well as regular updates to City Council during public sessions.

Specific annual events and outreach channels identified to promote public involvement in hazard mitigation planning include:

- National Fire Protection Association Fire Prevention Week
- Earthquake Preparedness Month (October)

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# 7.5 Plan Incorporation

The City of Santa Fe Springs addresses statewide planning goals and legislative requirements through its General Plan, Capital Improvement Plan (CIP), Municipal Code, and building and safety regulations. The Local Hazard Mitigation Plan (LHMP) provides a series of recommendations, many of which align closely with the goals and objectives of these existing plans and programs. The City incorporates recommended LHMP mitigation actions through existing procedures to ensure that hazard mitigation remains an integral and ongoing part of city planning and investment efforts.

## Incorporation of the 2018 LHMP into Local Planning Mechanisms

Following the adoption of the 2018 Local Hazard Mitigation Plan, the City of Santa Fe Springs integrated relevant goals, mitigation actions, and risk data into a variety of planning mechanisms and operational processes. Key areas of incorporation included:

- Safety Element of the General Plan: The City used information from the 2018 LHMP to inform updates to hazard-related policies, particularly those related to flooding, seismic risk, and hazardous materials.
- Capital Improvement Program (CIP): Several mitigation actions from the 2018 plan, such as storm drain and pump station upgrades, were prioritized for funding and implementation through the CIP process.
- Emergency Operations Plan (EOP): Hazard profiles and vulnerability information were used to inform emergency preparedness procedures and resource allocation strategies.
- Development Review Process: Risk reduction principles from the LHMP were incorporated into development review, especially in areas subject to flooding or adjacent to critical infrastructure.

This integration ensured that hazard mitigation remained a part of broader land use, infrastructure, and public safety decision-making processes during the 2018–2025 planning cycle. This 2025 plan builds on that integration by identifying new opportunities for cross-plan alignment.

## Incorporation of the 2025 LHMP into Local Planning Mechanisms

The 2018 Santa Fe Springs LHMP was previously referenced in the Safety Element of the General Plan. In this 2025 update, the LHMP has been developed to take into account the updated General Plan (2040) in compliance with California Senate Bill 379 (SB 379), which requires local jurisdictions to incorporate climate adaptation and resilience strategies into their Safety Elements based on the most current LHMP.

The Safety Element (2024 draft) will reference this LHMP Update, consistent with state guidance. In parallel, planning mechanisms such as the CIP, Housing Element, Environmental Justice Element, and Zoning Code Update will reference LHMP content on a targeted basis where hazard exposure, infrastructure investment, and resilience are directly relevant.

The Community Development Department is responsible for enforcing the California Building Standards Code (Title 24), ensuring hazard-resistant design in accordance with seismic, floodplain, wildfire, and energy efficiency regulations. The Department also collaborates with state agencies and regional partners to ensure building safety regulations reflect evolving climate and hazard risks. This process ensures that life-safety criteria are met for all new construction and substantial renovations.

Some of the LHMP's goals and mitigation actions will be implemented through projects and priorities listed in the Capital Improvement Plan, including infrastructure upgrades, facility retrofits, and green infrastructure investments. City departments develop and review the CIP annually. During this annual CIP review cycle, the Hazard Mitigation Coordinator will coordinate with City departments to assess where LHMP actions align with CIP goals and identify opportunities for incorporation.

Upon FEMA approval of the LHMP, the Hazard Mitigation Coordinator will initiate a structured integration process to embed the LHMP's strategies into relevant City plans and programs. The Hazard Mitigation Coordinator and Hazard Mitigation Planning Team will meet at least annually to:

- Track the integration of mitigation strategies into General Plan implementation, CIP updates, housing and zoning policy, and community investment decisions;
- Ensure consistency between mitigation actions and Citywide goals for climate resilience, public safety, and environmental justice;
- Monitor and document progress toward LHMP implementation; and
- Recommend updates or adjustments to improve integration and effectiveness.

# 7.6 Monitoring, Evaluating and Updating the Plan

| Element D: Plan Maintenance Requirements |
| --- |
| D1. Is there discussion of how each community will continue public participation in the plan maintenance process? (Requirement 44 CFR § 201.6(c)(4)(iii)) |
| D2. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating, and updating the mitigation plan within a five-year cycle)? (Requirement 44 CFR § 201.6(c)(4)(i)) |
| D3. Does the plan describe a process by which each community will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement 44 CFR § 201.6(c)(4)(ii)) |

## Monitoring

Under the direction of the Hazard Mitigation Coordinator, the Santa Fe Springs Hazard Mitigation Planning Team will take responsibility for Plan maintenance and implementation. The Hazard Mitigation Coordinator will facilitate annual Planning Team meetings, assign tasks, and ensure that progress on implementation and integration is tracked consistently. This individual will maintain a yearly record of necessary updates to ensure the LHMP reflects the most current hazard data, completed actions, and planning priorities.

The Hazard Mitigation Coordinator will also coordinate with relevant City departments-including Public Works, Planning and Community Development, Fire-Rescue, and Engineering-to track progress on mitigation actions and support alignment with other planning mechanisms (e.g., General Plan Implementation Program, Capital Improvement Plan, Emergency Operations Plan, and Climate Action Plan). Plan implementation and evaluation will remain a shared responsibility among all members of the Planning Team.

The Hazard Mitigation Coordinator will also collaborate with City leadership to secure funding and support for the required five-year update cycle, in accordance with FEMA and Cal OES regulations.

The Planning Team will meet at least once per year to review action status, coordinate interdepartmental implementation, and identify any necessary modifications. These meetings will be scheduled annually following the confirmation of Planning Team representatives. The Hazard Mitigation Coordinator will be authorized to reassign or designate new Planning Team members as needed.

## Evaluating

The LHMP will be formally evaluated on an annual basis to assess the effectiveness of existing actions and determine whether changes in development patterns, hazard conditions, or state and federal policies require updates to mitigation priorities. This annual evaluation will follow a consistent schedule and will be led by the Hazard Mitigation Coordinator, who will convene and facilitate the evaluation meeting.

During the evaluation, the Planning Team will review:

- The continued relevance of goals and mitigation actions;
- New or emerging hazards based on updated science or local experience;
- Implementation status of current mitigation actions;
- Progress and setbacks in interagency collaboration.

Each coordinating department will be asked to report on:

- Successes in implementation
- Challenges or barriers encountered
- Lessons learned or recommended revisions
- Interagency coordination performance

If plan revisions are needed, the Hazard Mitigation Coordinator will assign responsible Planning Team members to draft and circulate those changes within three months. All updates will be distributed to City departments, plan holders, and uploaded to the City of Santa Fe Springs website. Substantial revisions will be tracked for incorporation into the next full plan update.

Each annual Planning Team meeting will also include a review of:

- Any changes in the nature or magnitude of identified risks
- The current status of mitigation actions
- Ongoing or new challenges encountered during implementation
- Adjustments to strategies based on changing community needs, funding, or guidance

The evaluation process will include outreach to key internal and external stakeholders such as:

- Neighborhood groups
- Santa Fe Springs Fire-Rescue and Police Services
- Community-based organizations
- Social service providers (e.g., SASSFA, Family and Human Services Division)
- Transportation and Public Works staff

These stakeholders will provide updates on community conditions, equity considerations, and hazard mitigation needs to help inform responsive and inclusive plan improvements.

## Updating

The Hazard Mitigation Coordinator will oversee ongoing monitoring and annual evaluation to support timely identification of grant opportunities and alignment with City budgeting cycles. Following adoption of the annual City budget by the Santa Fe Springs City Council, the Hazard Mitigation Coordinator will collaborate with the Planning Team and applicable departments to pursue state and federal mitigation funding such as FEMA's Hazard Mitigation Grant Program (HMGP).

Beginning in Year Four of the five-year LHMP lifecycle, the Hazard Mitigation Coordinator will initiate the formal update process in accordance with 44 CFR §201.6(d)(3). The revised LHMP will be submitted to Cal OES and FEMA for review and approval and will subsequently be adopted by resolution of the Santa Fe Springs City Council.

Public engagement will be a critical component of the update. Citywide meetings will be advertised through a combination of social media, website notifications, direct outreach, and public postings, with special emphasis on reaching:

- Low-income and linguistically isolated residents
- Elderly and persons with access and functional needs
- Community-based organizations
- Youth and seniors involved in parks or community programming

The updated LHMP will be made available:

- Online via the City's website

- Physically at Santa Fe Springs City Hall and the Santa Fe Springs Public Library
- By request through the Planning Department or Emergency Services Division

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# 7.7 Plan Adoption

| Element F: Plan Adoption |
| --- |
| F1. For single-jurisdictional plans, has the governing body of the jurisdiction formally adopted the plan to be eligible for certain FEMA assistance?<br>(Requirement 44 CFR § 201.6(c)(5)) |
| F2. For multi-jurisdictional plans, has the governing body of each jurisdiction officially adopted the plan to be eligible for certain FEMA assistance?<br>(Requirement 44 CFR § 201.6(c)(5)) |

Adoption of the Local Hazard Mitigation Plan by the City's governing body is a core requirement for FEMA and Cal OES approval. Once the Plan is conditionally approved by FEMA and finalized, the Santa Fe Springs City Council will be responsible for formally adopting the Mitigation Plan by resolution. The governing body holds the authority to promote sound public policy around hazard mitigation, resilience, and emergency preparedness.

The City Council will retain authority to update or amend the Plan as needed to reflect changes in local hazard risks, exposures, regulatory requirements, and community needs. Once adopted, the approved LHMP will serve as a foundational policy document, guiding hazard mitigation investments and influencing future growth, infrastructure improvements, and climate resilience strategies.

On [TO BE COMPLETED WITH FINAL DATE], during a regularly scheduled public meeting, the Santa Fe Springs City Council formally adopted the Santa Fe Springs Local Hazard Mitigation Plan (2025 Update). The City Council resolution of adoption is provided in the Appendices of this Plan.

## Primary Point of Contact

The Primary Point of Contact for information regarding this Plan is:

Michael Kozicki
Assistant Fire Chief
Santa Fe Springs Fire Department
11300 Greenstone Avenue
Santa Fe Springs, CA 90670
Phone: (562) 944-9713 ex. 3811
Email: michaelozicki@santafesprings.org

# APPENDICES

## Appendix A: Sample Adoption Resolution

**Note to Reviewers**: When this plan has been reviewed and approved pending adoption by FEMA Region IX, the adoption resolutions will be signed added to this appendix.

**Sample Resolution: City of Santa Fe Springs**
Resolution # _____

### Adopting the City of Santa Fe Springs Hazard Mitigation Plan

**WHEREAS**, The City of Santa Fe Springs recognizes the threat that natural and manmade hazards pose to people and property within our community; and

**WHEREAS**, undertaking hazard mitigation actions will reduce the potential for harm to people and property from future hazard occurrences; and

**WHEREAS**, the U.S. Congress passed the Disaster Mitigation Act of 2000 ("Disaster Mitigation Act") emphasizing the need for pre-disaster mitigation of potential hazards; and

**WHEREAS**, the Disaster Mitigation Act made available hazard mitigation grants to state and local governments; and

**WHEREAS**, an adopted Local Hazard Mitigation Plan is required as a condition of future funding for mitigation projects under multiple FEMA pre- and post-disaster mitigation grant programs; and

**WHEREAS**, the City of Santa Fe Springs fully participated in the FEMA-prescribed mitigation planning process to prepare this local hazard mitigation plan; and

**WHEREAS**, the California Office of Emergency Services and Federal Emergency Management Agency, Region IX officials have reviewed the City of Santa Fe Springs Local Hazard Mitigation Plan and approve it contingent upon this official adoption of the participating governing body; and

**WHEREAS**, the City of Santa Fe Springs desires to comply with the requirements of the Disaster Mitigation Act and to augment its emergency planning efforts by formally adopting the City of Santa Fe Springs Hazard Mitigation Plan by reference into the Safety Element of the General Plan in accordance with the requirements of AB 2140; and

**WHEREAS**, adoption by the governing body for the City of Santa Fe Springs
demonstrates the jurisdiction's commitment to fulfilling the mitigation goals and objectives outlined in this Local Hazard Mitigation Plan; and

**WHEREAS**, adoption of this legitimizes the plan and authorizes responsible agencies to carry out their responsibilities under the plan.

**NOW, THEREFORE, BE IT RESOLVED** that the City of Santa Fe Springs adopts the City of Santa Fe Springs Local Hazard Mitigation Plan as an official plan; and

**BE IT RESOLVED**, that the City of Santa Fe Springs adopts the Santa Fe Springs Local Hazard Mitigation Plan by reference into the safety element of their general plan in accordance with the requirements of AB 2140; and

**BE IT FURTHER RESOLVED,** the City of Santa Fe Springs will submit this adoption resolution to the California Office of Emergency Services and FEMA Region IX officials to enable the plan's final approval in accordance with the requirements of the Disaster Mitigation Act of 2000 and to establish conformance with the requirement of AB 2140.

Passed: _____
(date)

_____
Certifying Official

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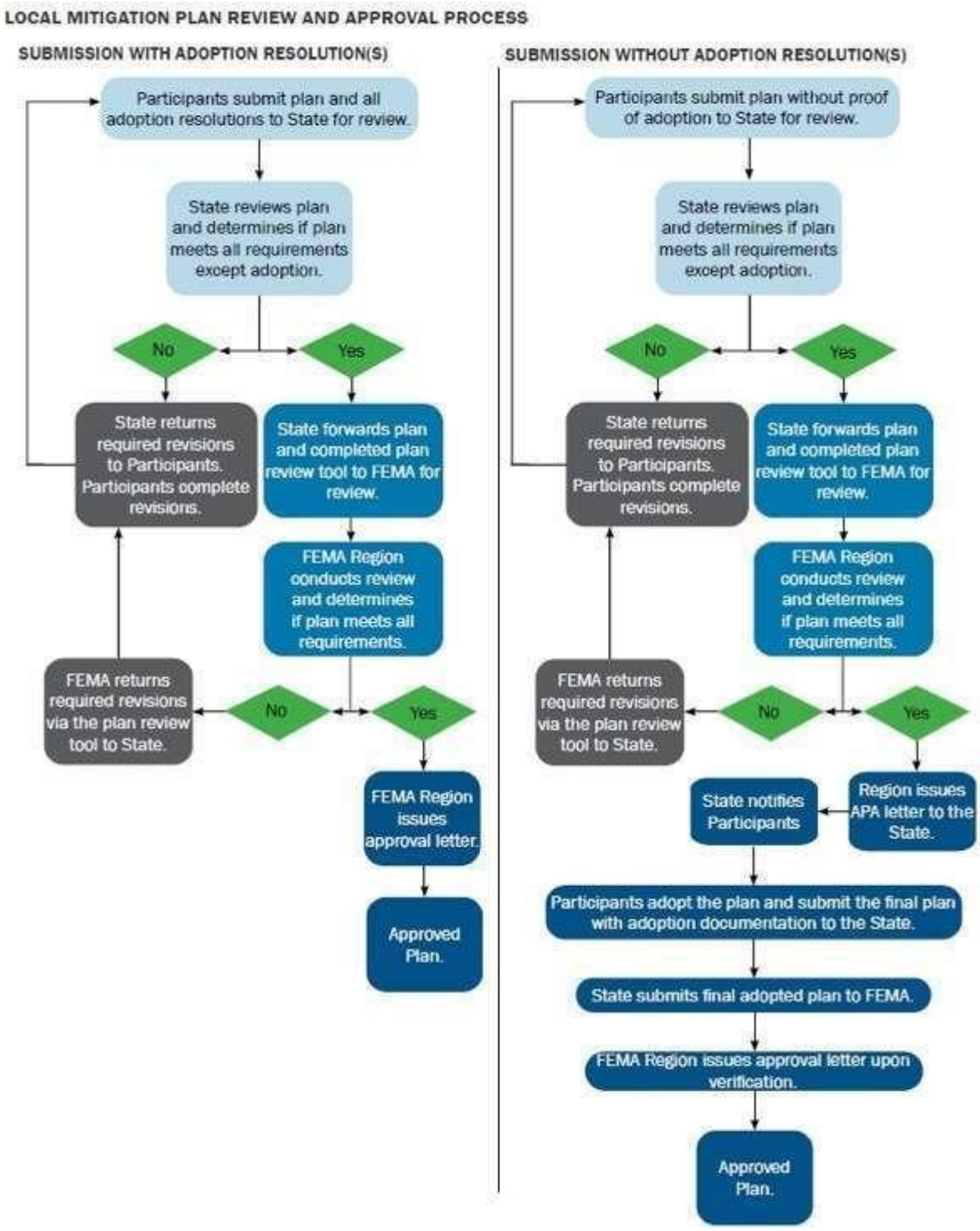
# Appendix B: LHMP Approval Process



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# Appendix C. Public Outreach Documentation

**Public meeting flyer, December 2024**

**City Facebook post, January 7, 2025**

**City of Santa Fe Springs**
January 7 ·

We Want Your Input!

Santa Fe Springs is updating its Local Hazard Mitigation Plan, and your feedback is essential in creating a more resilient future for our community! 🌟

Here are three ways to join the discussion:

1️⃣ In-Person Workshop
🗓️ Thursday, January 16
⏰ 4:00 - 5:30 PM
📍 Santa Fe Springs Fire Headquarters

2️⃣ Virtual Workshop
🗓️ Thursday, January 23
⏰ 7:00 PM
🔗 bit.ly/4gPfDoN

3️⃣ Take the Survey
📝 English survey link:
https://forms.office.com/pages/responsepage.aspx...

Your voice matters! Help us plan for a safer and more prepared community. 🙌 #SantaFeSprings #CommunityInput #SafetyPlanning



**City Instagram post, January 7, 2025**


**Whittier Daily News, January 10, 2025**

The City of Santa Fe Springs will hold a public meeting on Thursday, January 16th at 4:00 pm to gather public input for updating our city's Hazard Mitigation Plan. The meeting will be held in person at the Santa Fe Springs Fire Headquarters at 11300 Greenstone Ave., Santa Fe Springs, CA 90670. A virtual meeting for those unable to attend in-person will be held on Thursday, January 23rd online at **bit.ly/4gPfDoN**

The purpose of the public meeting is to allow citizens to provide input to the city's Hazard Mitigation Plan, allowing the public to ensure that their concerns and experiences are included as the process moves forward. A hazard mitigation plan provides a road map for a community to identify hazards that could impact a community and to take actions to reduce negative impacts on citizens, businesses, and the community as a whole. Hazards included for consideration will include earthquake, dam failure, extreme heat, flooding, high winds, drought, and hazardous materials incidents, among others.

For anyone who is not able to attend in person, you may participate through the online survey in English and Spanish:

English: **https://forms.office.com/r/b21GvXZ5Lf**

Español: **https://forms.office.com/r/MvPu9xT7Qs**

Questions about the Hazard Mitigation Plan should be addressed to Jacob Green and Associates, emergency management consultants for the City of Santa Fe Springs; Attn: Patrick Marchman, Senior Advisor for Hazard Mitigation, Climate and Resilience by email at patrick@jacobgreenandassociates.com.

**Whittier Daily News**
**Published: 1/10/25**

# Appendix D: Survey Results (English)

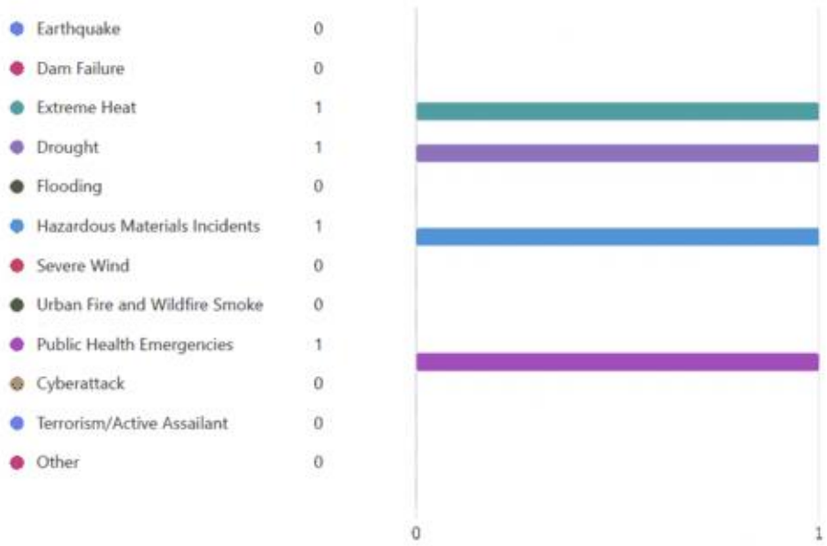
## Responses Overview

Active

| Responses | Average Time | Duration |
|---|---|---|
| 6 | 05:11 | 134 Days |

1. Have you or someone you know in the City of Santa Fe Springs been directly impacted by a significant adverse event or disaster? These could include earthquake, wildfire, extreme heat, flooding, high winds, drought or human-caused events.

2. Which of these events specifically have you experienced (select all that apply)?



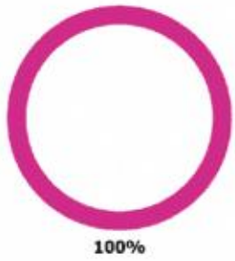

3. If you chose "Other", please identify the type of significant adverse event or disaster that affected you.

0 responses submitted

0
Responses

4. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Earthquakes.

| | |
|---|---|
| Very Concerned | 0 |
| Somewhat concerned | 1 |
| Neither concerned nor unconcerned | 0 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 0 |

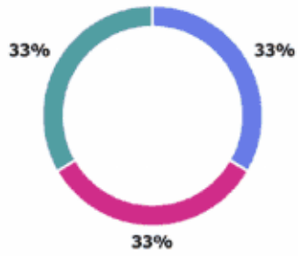



5. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Dam Failure.

| | |
|---|---|
| Very Concerned | 0 |
| Somewhat concerned | 0 |
| Neither concerned nor unconcerned | 0 |
| Somewhat unconcerned | 1 |
| Very unconcerned | 0 |

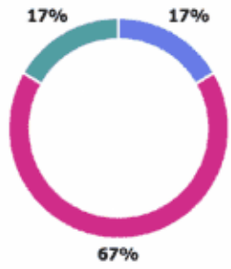
6. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 y ears: Extreme Heat.

| | |
|---|---|
| Very Concerned | 2 |
| Somewhat concerned | 2 |
| Neither concerned nor unconcerned | 2 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 0 |



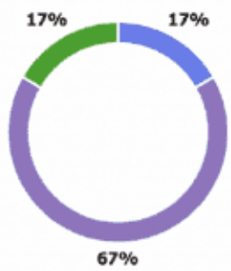

7. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 y ears: Drought.

| | |
|---|---|
| Very Concerned | 1 |
| Somewhat concerned | 4 |
| Neither concerned nor unconcerned | 1 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 0 |



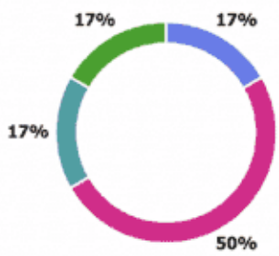
8. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Flooding.

| | |
|---|---|
| Very Concerned | 1 |
| Somewhat concerned | 0 |
| Neither concerned nor unconcerned | 0 |
| Somewhat unconcerned | 4 |
| Very unconcerned | 1 |




9. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Hazardous Materials Incidents.

| | |
|---|---|
| Very Concerned | 1 |
| Somewhat concerned | 3 |
| Neither concerned nor unconcerned | 1 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 1 |



10. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Severe Wind.

| | |
|---|---|
| Very Concerned | 1 |
| Somewhat concerned | 2 |
| Neither concerned nor unconcerned | 2 |
| Somewhat unconcerned | 1 |
| Very unconcerned | 0 |


11. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Urban Fire and Wildfire Smoke.

| | |
|---|---|
| Very Concerned | 2 |
| Somewhat concerned | 1 |
| Neither concerned nor unconcerned | 3 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 0 |

12. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Public Health Emergencies.

| | |
|---|---|
| Very Concerned | 2 |
| Somewhat concerned | 1 |
| Neither concerned nor unconcerned | 1 |
| Somewhat unconcerned | 2 |
| Very unconcerned | 0 |


13. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Cyberattack.

| | |
|---|---|
| Very Concerned | 3 |
| Somewhat concerned | 2 |
| Neither concerned nor unconcerned | 0 |
| Somewhat unconcerned | 1 |
| Very unconcerned | 0 |

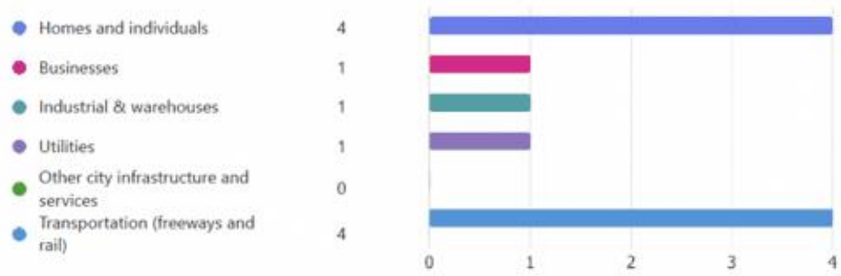
14. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Terrorism/Active Assailant.

| | |
|---|---|
| Very Concerned | 2 |
| Somewhat concerned | 2 |
| Neither concerned nor unconcerned | 1 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 1 |

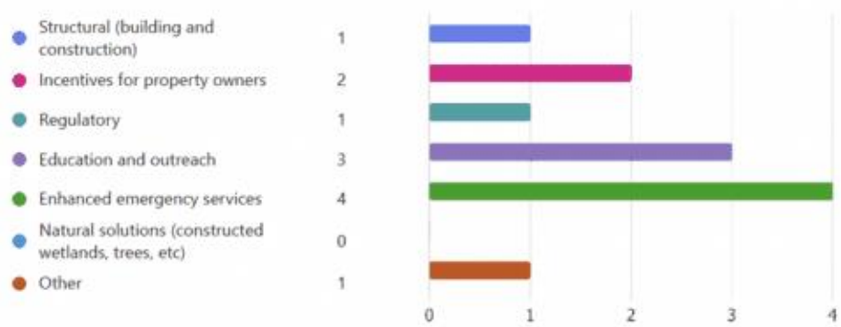

15. Please rate your level of concern for yourself or the City as a whole for each hazard over the next 10 years: Other.

| | |
|---|---|
| Very Concerned | 1 |
| Somewhat concerned | 0 |
| Neither concerned nor unconcerned | 4 |
| Somewhat unconcerned | 0 |
| Very unconcerned | 0 |

16. Where are the greatest areas of threat that these hazards pose?




17. In your view, what categories of actions should the City take to reduce risk for those hazards?




18. If you chose "Other", please add more details here.

1
Responses

Latest Responses
"Public health initiatives.and.Health care solutions"

19. Is there anything else you'd like us to consider? If so, please include your comments here.

1
Responses

Latest Responses
"Train activity. Causes major delays"

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