

CHAPTER 2

SAFETY ELEMENT



INTRODUCTION

The aim of the Safety Element is to reduce the potential risk of death, injuries, property damage, and economic and social dislocation resulting from fires, floods, earthquakes, landslides, exposure to the impacts of climate change, and other hazards. Other locally relevant safety issues, such as emergency response, hazardous materials spills, and crime reduction, may also be included. Ensuring public safety in Duarte also requires understanding and addressing public health risks and environmental concerns of those living in disadvantaged communities in the City. The Safety Element overlaps topics also mandated in the Land Use, Conservation, and Open Space Elements. Safety Element Definitions are provided at the end of this document.

Safety Element Statutory Requirements

State law requires that every city and county within California adopt “a safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires. The safety element shall include mapping of known seismic and other geologic hazards. It shall also address evacuation routes, military installations, peakload water supply requirements, and minimum road widths and clearances around structures, as those items relate to identified fire and geologic hazards...” The Related Agencies, Laws, and Plans section lists existing laws, plans, and programs related to the Duarte Safety Element.

Relationship to other General Plan Elements and Program EIR

California law requires that all elements of the General Plan be consistent. While all of the General Plan Elements are independent, they are also interrelated, some more so than others. As an example certain goals and policies of one element may also address items that are primary issues of other elements. This integration of issues throughout the General Plan creates a strong basis for the implementation of plans, programs, and achievement of community goals. The Safety Element is most directly related to Land Use, Circulation, Conservation, and Open Space Elements as well as Environmental Justice policies that are provided throughout the General Plan Elements.

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GOALS, OBJECTIVES, AND POLICIES

This section provides draft Goals, Objectives, and Policies for the Safety Element of the Duarte General Plan. Implementation measures for these policies are at the end of this chapter. The most likely natural or man-made disasters likely to strike Duarte are associated with wildfire, seismic, and geologic hazards. To minimize the risk from these hazards, the following goals and policies will be implemented over the life of the plan.

Emergency Preparedness Goals, Objectives, and Policies

Safety Goal 1: To protect the citizens, their property, and public facilities from natural, man-made, and climate change related hazards.

Objective 1.1 Prepare the community for any expected or unexpected disasters resulting from natural or man-made causes.

Policies

- Safe 1.1.1 Implement the Multi-Hazard actions listed in the Mitigation Actions Matrix in Part III (Mitigation Strategies) of the City of Duarte Hazard Mitigation Plan which would enable the city to operate in a self-sufficient manner following a natural or man-made disaster.
- Safe 1.1.2 Promote the development of community programs or neighborhood disaster relief groups that train volunteers to assist police, fire, and civil defense personnel to perform effectively after the occurrence of a natural or man-made disaster.
- Safe 1.1.3 Expand and intensify precautionary measures in high-risk areas, including in disadvantaged communities, to reduce loss from natural or man-made disasters and investigate ways of reducing the likelihood of their occurrence.
- Safe 1.1.4 Consider climate change vulnerability and safety implications during the review process for all development proposals, including those involving City-owned facilities and infrastructure.
- Safe 1.1.5 Coordinate with the Los Angeles County Sheriff's Department, Los Angeles County Fire Department, and neighboring cities to ensure that adequate services are ready and available to serve the community in the event of natural or man-made disasters.

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- Safe 1.1.6 Cooperate with federal, state, and county agencies responsible for the enforcement of all health, safety, and environmental laws.
- Safe 1.1.7 Maintain hazard mitigation plans, disaster preparedness and emergency response plans, and update plans at regular intervals and when new information is available.
- Safe 1.1.8 Establish designated emergency response and evacuation routes throughout the City, for each climate hazard (e.g. wildfire, storm flooding, etc.), prioritizing the most high-risk and disadvantaged populations.
- Safe 1.1.9 Update emergency and disaster response measures to account for increased heat days with a focus on reducing health risks for the highest-risk individuals and disadvantaged communities.
- Safe 1.1.10 Ensure that adequate provisions are made to supply drinking water for an extended period in the event of a major disaster.

Safety Goal 2: To establish, maintain, and develop an awareness on the part of all citizens of Duarte on how to react, protect themselves and each other, as well as how to survive in the event of a natural or man-made disaster or danger.

Objective 2.1 Prepare the citizens of Duarte to be prepared for danger or disaster and, if need be, to be self-reliant for a length of time in the event of a catastrophic natural or man-made event.

Policies:

- Safe 2.1.1 Establish and support all appropriate media for reaching all segments of the community (English-speaking and non-English speaking) to educate residents concerning emergency preparedness and safety, focusing on the most vulnerable communities such as those in the Very High Fire Hazard Severity Zone.
- Safe 2.1.2 Present or support an on-going series of community meetings or seminars, and a community handbook on disaster preparedness and procedures. The program should be about minimizing hazards in the home, wildfire mitigation and disaster planning, and developing disaster preparedness and evacuation plans.

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- Safe 2.1.3 Encourage private businesses to develop disaster preparedness plans for their employees.
 - Safe 2.1.4 Coordinate emergency planning efforts with building managers of high-occupancy facilities, dependent care centers (nursing homes, day care centers, etc.) and critical facilities located in the City to facilitate effective emergency response.
 - Safe 2.1.5 Increase public awareness of City emergency response plans, evacuation routes, and emergency shelters, with a focus on populations at greatest risk and disadvantaged communities.
 - Safe 2.1.6 Maintain a citizens notification system regarding natural, man-made, or climate change hazards that reaches all populations in the community with a focus on reaching disadvantaged communities.
 - Safe 2.1.7 Incorporate information for potential health threats due to climate change hazards, such as heat-illness, illnesses complicated by low air quality, and risks during heavy precipitation events, into early warning systems.
 - Safe 2.1.8 The City will work closely with adjacent cities, Department of Fish and Game, County Animal Control, and Sheriff's Department, and monitor, inform, and communicate to residents and schools the presence of wild animals in human habitat areas (including bear, coyote, and mountain lion).

Safety Goal 3: To achieve a greater sense of citizen satisfaction with the safety services within the community, through constantly monitoring the effective and efficient staffing of safety service personnel, while alternately considering the desirability of consolidating all safety services into a single entity.

Objective 3.1 Communicate with Duarte citizens, including those in disadvantaged communities, through all available media, that their safety personnel are current on all aspects of community safety and prepared to effectively assist when needed.

Policies:

- Safe 3.1.1 Maintain high levels of emergency services, and monitor safety services annually and evaluate safety services alternatives. Review, on an annual basis, the effectiveness of safety services relying on citizen input.

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Hazard-specific safety and mitigation Goals, Objectives, and Policies The following goals (4-6) and supporting policies express the City's concern regarding risks to citizens involving seismic, fire, and hazardous materials disasters.

Safety Goal 4: To minimize the risks to lives and property due to seismic activity and geologic hazards.

Objective 4.1 Minimize risk of injury, loss of life, and property damage due to seismic and geologic hazards through mitigation and planning efforts.

Policies:

Safe 4.1.1 Implement the Earthquake and Liquefaction actions, and the Multi-Hazard actions listed in the Mitigation Actions Matrix in Part III (Mitigation Strategies) of the City of Duarte Hazard Mitigation Plan.

Safe 4.1.2 Restrict development in areas prone to seismic hazards and other geologic hazards.

Safe 4.1.3 Enforce seismic design provisions of the current California Building Standards Code related to geologic, seismic, and slope hazards for all new construction.

Safe 4.1.4 Require that geotechnical reports include projected changes to slope stability related to climate change impacts on wildfires and erosion, and the development of mitigation strategies for new development projects in areas with the potential for liquefaction or landslide.

Safety Goal 5: To minimize the risk to lives and property due to fire hazards.

Objective 5.1 Minimize risk of injury, loss of life, and property damage due to fire hazards through mitigation and planning efforts.

Policies:

Safe 5.1.1 Implement the Wildfire actions and the Multi-Hazard actions listed in the Mitigation Actions Matrix in Part III (Mitigation Strategies) of the City of Duarte Hazard Mitigation Plan.

Safe 5.1.2 Continue to support "mutual assistance" agreements between the fire departments of the local cities, Los Angeles

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County, and the U.S. Government.

- Safe 5.1.3 Continue to support programs to reduce fire hazards of vegetation in areas of extreme to high fire risk. Such programs may take a variety of forms, but may include weed and brush removal and control and use of fire-resistant plantings.
- Safe 5.1.4 Provide an adequate level of fire equipment, peakload water supply, and personnel to protect the community.
- Safe 5.1.5 Require all new development and re-development in the VHFSZ to comply with the following standards, codes, and regulations:
- Title 14, CCR, division 1.5, chapter 7, subchapter 3, article 3 (commencing with section 1299.01) (Fire Hazard Reduction Around Buildings and Structured Regulations) for SRAs and VHFSZ, and with the California Government Codes 51175-57789 (Very High Fire Severity Zones),
 - The latest fire-safe standards,
 - The Board of Forestry and Fire Protection Fire Safe Regulations; and,
 - The most current version of the California Building Codes and California Fire Code.
- Safe 5.1.6 Require all new development in the VHFSZ to develop site-specific fire management plans addressing fuel modification or incorporating open space and other defensible space areas, as well as multiple points of ingress and egress for evacuation and emergency vehicle access before approval.
- Safe 5.1.7 Identify areas with inadequate access/evacuation routes and develop mitigation measures or improvement plans for these areas.
- Safe 5.1.8 Minimize new development in the Very High Fire Hazard Severity Zone, and, when feasible, locate all new essential public facilities outside of the Very High Fire Hazard Severity Zone.
- Safe 5.1.9 Minimize risks to existing development in Very High Fire Hazard Severity Zones by identifying existing non-conforming development to contemporary fire safe standards, in terms of road standards and vegetative hazard, and requiring all development to meet or exceed the City of Duarte Title 15 – Fire under the Duarte Municipal Code and applicable updates.
- Safe 5.1.10 Work with California American Water Company (water provider) to identify, maintain, and ensure the long-term

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integrity of future water supply for fire suppression needs, and ensure that water supply infrastructure adequately supports existing and future development and redevelopment, and provides adequate water flow to combat structural and wildland fires, including during peak domestic demand periods.

- Safe 5.1.11 Establish and Maintain community fire breaks and fuel modification/reduction zones, including public and private road clearance as described in the Duarte Hazard Mitigation Plan.
- Safe 5.1.12 Require that all homes and businesses have visible street addressing and signage.
- Safe 5.1.13 Evaluate evacuation route capacity, safety, and viability under a range of emergency scenarios to facilitate fire, police, and ambulance access and resident egress, as part of the next update to the City of Duarte Local Hazard Mitigation Plan.

Safety Goal 6: To minimize the risks to lives and property due to the use and storage of hazardous materials.

Objective 6.1 Reduce risks to public health and safety due to the transportation, use, or storage of hazardous materials within the community.

Policies:

- Safe 6.1.1 Implement the Hazardous Materials actions listed in the Mitigation Actions Matrix in Part III (Mitigation Strategies) of the City of Duarte Hazard Mitigation Plan.
- Safe 6.1.2 Monitor to the greatest extent possible the location of hazardous materials that could adversely impact Duarte residents, and businesses, and include information on soil contamination and storage of hazardous materials in the City's Geographic Information System.
- Safe 6.1.3 Regulate the delivery, use, and storage of hazardous materials within the city limits according to regulations and guidelines set forth by the Los Angeles County Fire Department.
- Safe 6.1.4 Provide community members with information on the proper storage and disposal of hazardous materials and e-waste.

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RELATED AGENCIES, LAWS, AND PLANS

The following existing laws, plans, and programs relate to the goals of the Duarte Safety Element. These laws, plans, and programs, enacted through state and local action, are administered by various agencies with responsibility for their enforcement.

California Environmental Quality Act

The California Environmental Quality Act (CEQA) was adopted by the state legislature in response to a public mandate for a thorough environmental analysis of projects that might adversely affect the environment. The provisions of the law, review procedure, and any subsequent analysis are described in the CEQA Statutes and Guidelines as amended in 1998. Safety hazards, as well as noise and air quality impacts are recognized as environmental impacts under CEQA.

Colbey-Alquist Floodplain Management Act

The Colbey-Alquist Floodplain Management Act encourages local governments to plan, adopt, and enforce land use regulations for floodplain management, in order to protect people and property from flooding hazards. This act also identifies requirements which jurisdictions must meet in order to receive state financial assistance for flood control.

Alquist-Priolo Earthquake Fault Zoning Act

The Alquist-Priolo Earthquake Fault Zoning Act requires the state Geologist to identify earthquake fault zones along traces of both recently and potentially active major faults. Cities and counties that contain such zones must inform the public regarding zone location.

Seismic Hazards Mapping Act

Pursuant to the Seismic Hazards Mapping Act, the state Geologist compiles maps identifying seismic hazard zones. Development in seismic hazard areas is subject to policies and criteria established by the State Mining and Geology Board. Additionally, approval of development on a site within a seismic hazard area mandates the preparation of a geotechnical report and local agency consideration of compliance with applicable state requirements.

Landslide Hazard Identification Program

The Landslide Hazard Identification Program requires the state Geologist to prepare maps of landslide hazards within urbanizing areas.

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Federal Clean Air Act

The Federal Clean Air Act established National Ambient Air Quality Standards (NAAQS) in 1970 for six pollutants: carbon monoxide, ozone, particulates, nitrogen dioxide, sulfur dioxide, and lead. The Act requires states with air pollution that exceeds the NAAQS to prepare air quality plans demonstrating how the standards would be met (State Implementation Plans-SIPs). In 1990, amendments to the Act established categories of severity for non-attainment areas (“marginal” to “extreme”). In 1994, the California Air Resources Board adopted a revised State Implementation Plan for ozone to meet the requirements of the 1990 amendments.

California Senate Bill 1000

Senate Bill 1000 (SB 1000) requires cities with identified disadvantaged communities (DACs) to include environmental justice goals and policies in the jurisdiction’s General Plan. Per SB 1000, the California EPA uses CalEnviroScreen, a mapping tool, to identify disadvantaged communities throughout the state. CalEnviroScreen uses a variety of statewide indicators to characterize pollution burden (the average of exposures and environmental effects) and population characteristics (the average of sensitive populations and socioeconomic factors). The model scores each of the indicators using percentiles and combines the scores for individual indicators to determine an overall CalEnviroScreen score for a given census tract relative to others in the state. Figure Safe – 1 shows the CalEnviroScreen results for Duarte. One census tract in west Duarte has a combined DAC score of 75% or higher, thus exceeding the minimum criterion for DAC designation. As mandated under SB 1000, the Safety Element includes policies to address environmental justice through reducing health risks to DACs, promoting civil engagement, and prioritizing the needs of these communities.

California Senate Bill 379

As required under Senate Bill 379, the City of Duarte completed a local climate change vulnerability assessment, which concludes that Duarte will be most vulnerable to extreme heat events, droughts, storm flooding, wildfires, and resulting decreased air quality conditions in a changing climate. As discussed in the vulnerability assessment, communities most affected by the effects of climate change in Duarte are older adults, non-white communities, non-English speakers, individuals with physical disabilities, isolated individuals, uninsured individuals, and renters. The Safety Element includes policies to increase the community’s ability to cope with climate change impacts, also known as adaptive capacity.

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California Senate Bill 1241

Senate Bill 1241 requires review and update of the safety element, upon the next revision of the housing element on or after January 1, 2014, as necessary to address the risk of fire in state responsibility areas and very high fire hazard severity zones. The specific requirements are codified in GC § 65302(g)(3) and 65302.5(b).

California Senate Bill 99

Wildfires and other hazards, such as flood events, can isolate areas of the City and create severe health and safety risks. Senate Bill 99, adopted August 2020, requires identification of neighborhoods that have fewer than two emergency evacuation routes. The Fire Hazards subsection of the Safety Element provides information regarding fire risk in the community and analysis of emergency evacuation routes.

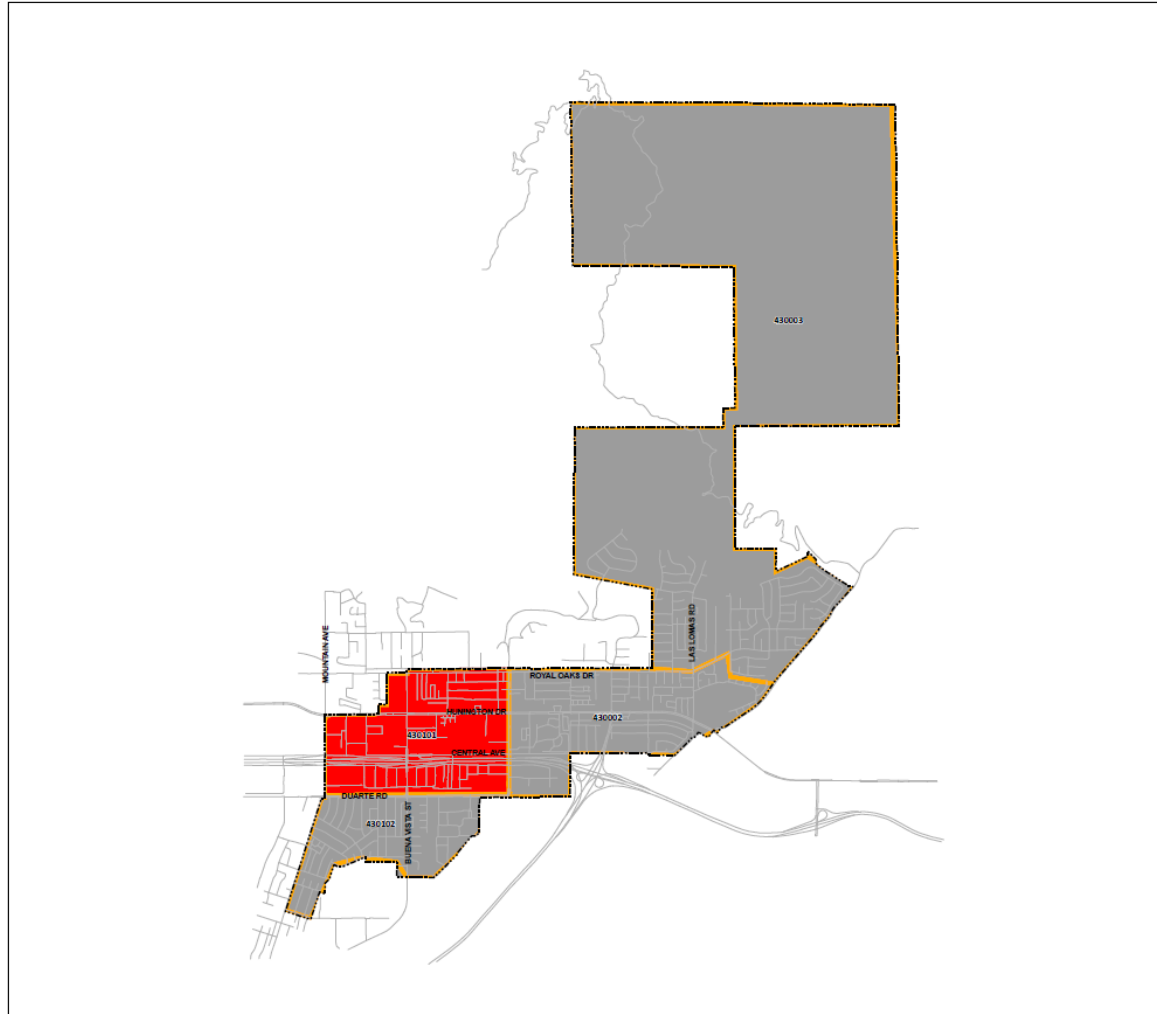
California Assembly Bill 2140

Assembly Bill 2140 limits the amount of additional state funding for certain disaster recovery projects funded by the California Disaster Assistance Act unless the local agency has complied with the provisions set forth in the bill. Among other requirements, local agencies must provide a certified copy of the Resolution of Adoption to the Federal Emergency Management Agency (FEMA) demonstrating that the approved Hazard Mitigation Plan (HMP) has been adopted and incorporated into the Safety Element of the General Plan. Compliance with Assembly Bill 2140 is optional; however, noncompliance limits the City's ability to obtain additional funding for certain disaster recovery projects. The Safety Element references the City's 2020 Hazard Mitigation Plan.

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Figure Safe – 1 Disadvantaged Communities



Disadvantaged Communities

Legend

- Duarte City Limits
- Disadvantaged Communities
- Census Tracts



October 19, 2021

Source: City of Duarte, 2021, Census Bureau, 2020 and CalEnviroScreen, 2018.

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City of Duarte Hazard Mitigation Plan

In May of 2020 the Duarte City Council approved Resolution No. 20-15 adopting the 2020 Hazard Mitigation Plan in accordance with the Federal Disaster Mitigation Act of 2000. This plan established goals and objectives to ensure health, safety, and welfare of Duarte citizens, even in the event of a disaster. The plan was a result of a process involving city departments, local agencies, business people, landowners, developers, and citizens, and reflects local values and concerns.

The City of Duarte Hazard Mitigation Plan adopted the following Goals:

Minimize Risk

- Avoid or reduce long-term vulnerabilities to hazards.

Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural, human-caused, and technological hazards.
- Improve hazard assessment information to make recommendations for avoiding new development in high hazard areas and encouraging preventative measures for existing development in areas vulnerable to natural, human-caused, and technological hazards.

Increase Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural, human-caused, and technological hazards.
- Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.

Preserve Natural Systems

- Support management and land use planning practices with hazard mitigation to protect life.
- Preserve, rehabilitate, and enhance natural systems to serve hazard mitigation functions.

Unified Hazardous Waste and Hazardous Materials Management Regulatory Program

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The Los Angeles County Fire Department Health Haz Mat Division administers the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program for the City of Duarte.

Senate Bill 1082 (1993) established the "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program". The Unified Program consolidates, coordinates, and makes consistent the following hazardous materials and hazardous waste programs (Program Elements):

- Hazardous Waste Generation (including onsite treatment under Tiered Permitting),
- Aboveground Petroleum Storage Tanks (only the Spill Prevention Control and Countermeasure Plan or "SPCC"),
- Underground Storage Tanks (USTs),
- Hazardous Material Release Response Plans and Inventories,
- California Accidental Release Prevention Program (Cal ARP), and,
- Uniform Fire Code Hazardous Material Management Plans and Inventories.

OVERVIEW OF DUARTE'S SAFETY ISSUES

Fire Hazards

The California Department of Forestry and Fire Protection (CalFire) ranks fire hazard of wildland areas of the state using four main criteria: fuels, weather, assets at risk, and level of service. According to Cal Fire's Fire Hazard Severity Zone map, Duarte is located in a Very High Fire Hazard Severity Zone. Duarte's location at the base of the San Gabriel Mountains creates an urban/wildland interface that makes Duarte more susceptible to wildfires than cities that do not border the foothills. The most recent wildfire in the northeastern portion of Duarte was the San Gabriel Complex Fire in 2016, which required evacuation of 1,376 homes. As shown in Figure Safe – 2, residents living north of Royal Oaks Drive are at substantial risk of a wildland fire. This has resulted in low densities in the privately held hillside areas. The City's Development Code has established Hillside Development Standards that include minimizing risk to properties associated with wildfires and requires that all new construction on hillside areas comply with California Building Code and California Fire Code. In addition, Duarte has a Hazard Mitigation Plan to assist in identification and mitigation of hazards, including wildfire.

According to the Los Angeles Region Report of California's Fourth Climate Change Assessment, wildfire is expected to increase due to climate change. Climate change has the potential to affect multiple elements of the wildfire

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system, including fire behavior, ignitions, fire management, and vegetation fuels. Hot dry spells create the highest fire risk and increased temperatures may intensify wildfire danger by warming and drying vegetation. As identified in the Duarte Climate Change Vulnerability Assessment, the City’s sensitive people assets (e.g., older adults and non-white communities), infrastructure assets (e.g., access roads and energy delivery), buildings and facilities (residential buildings and government facilities), and natural and managed resources (e.g., open space) are vulnerable to wildfire impacts.

Senate Bill 99 requires identification of neighborhoods that have fewer than two emergency evacuation routes. The neighborhood located at the northernmost end of Mount Olive Drive and highlighted in Figure Safe – 3 is the only neighborhood in the City with fewer than two emergency evacuation routes. This Safety Element includes policies to improve emergency evacuation procedures throughout the City, including in the most vulnerable areas. Assembly Bill 747, which will go into effect January 1, 2022, requires cities to evaluate route capacity, safety, and viability under a range of emergency scenarios. This requirement will be addressed in the next Safety Element update.

Historic Wildfires in the City of Duarte

1953 Duarte Fire

This fire originated between Spinks Canyon and Maddock Canyon in wildland area. A total of 561 acres burned in this fire. Of the 561 acres that burned, 256 acres were considered within the “Duarte area”.

1958 Norum Fire

This fire burned in the foothills north of Monrovia, Duarte, Bradbury, and Azusa. A total of 6,440 acres burned in the Norum Fire. Of the 6,440 acres, 2,505 acres of land were within Duarte’s boundaries. (Mostly wilderness areas).

1980 Stable Fire

On November 16, 1980 a fire storm that had been fanned by Santa Ana Wind conditions swept down from the foothills and destroyed 35 homes in the City of Duarte and 14 homes in the City of Bradbury. Reports indicated that the fire had moved from the City of Azusa, east of the San Gabriel River to the Duarte and Bradbury homes in 8 to 10 minutes, due to a strong shift in winds.

Immediately after the fire, city and county personnel began taking measures to deal with the devastation. A Disaster Assistance Center was established at City Hall and Federal and State agencies were contacted for help. The Los Angeles County Fire District set up a mobile command center and the City set up an emergency shelter. In the weeks that followed the fire, the City established

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several programs to deal with possible floods and mudslides that could occur due to the bare slopes where all vegetation had been burned off. Mud diversion structures were constructed, 50,000 sandbags were distributed, and parking was restricted on streets with potential slides. Since the Stable Fire occurred during California’s rainy season, “Storm Watch” flyers were also issued to residents in Duarte’s hillside areas. The Disaster Center at City Hall monitored weather reports and storm situations and kept residents informed of these situations. City staff was also prepared to mobilize personnel and equipment if needed to clear mud flows from the public streets and parkways. As quickly as possible, several temporary debris basins were constructed, and existing debris basins were cleared and reinforced with sandbags.

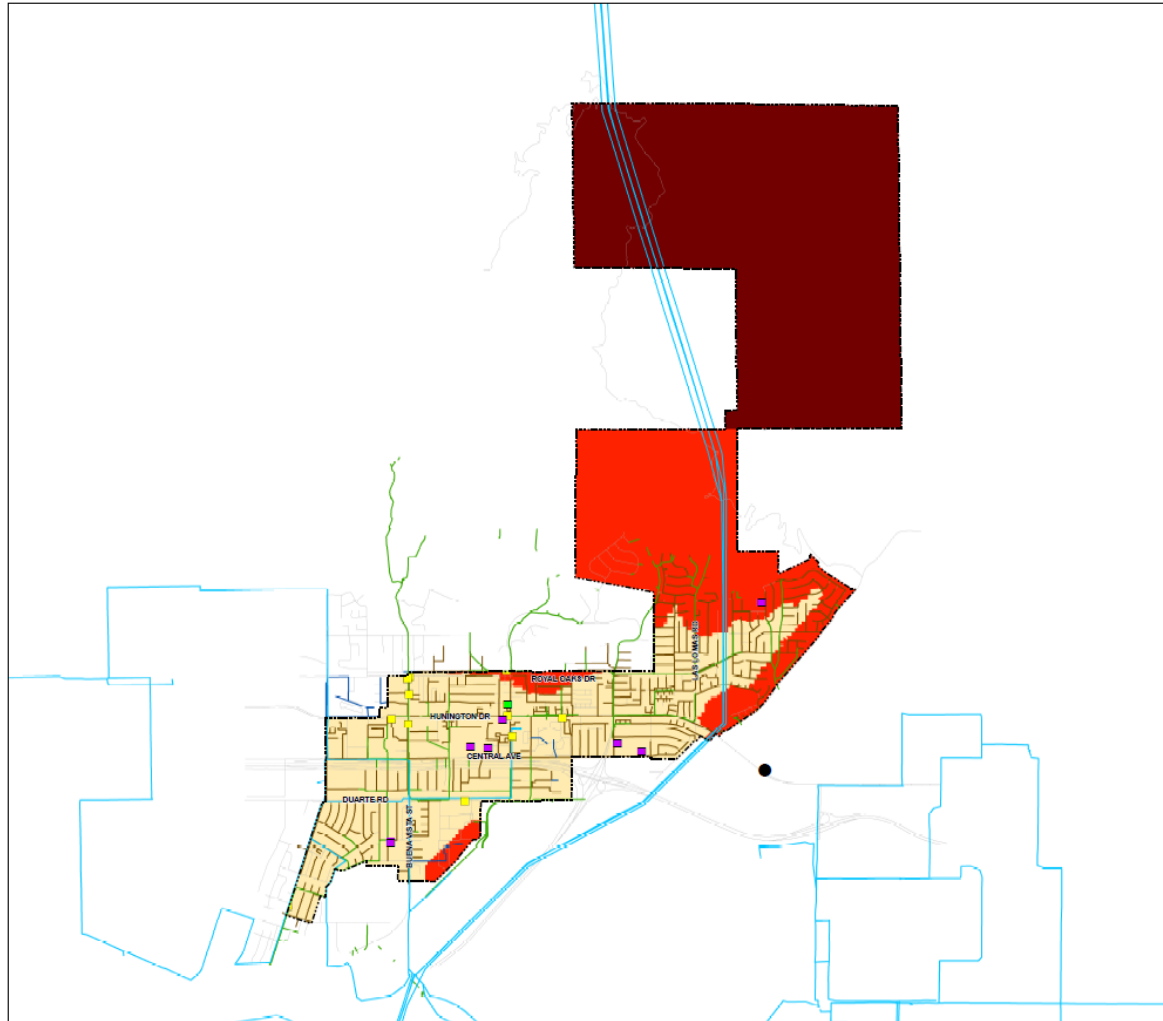
2016 San Gabriel Complex Fire

On the morning of June 20, 2016, the San Gabriel Complex fire ignited. The San Gabriel Complex fire consisted of two fires: the Reservoir Fire and the Fish Fire. Both fires originated northeast of the City limits. The cause of the Reservoir Fire was a vehicle crash while the cause of the Fish Fire is unknown. At the height of the fire, 1,376 homes were evacuated. The American Red Cross established an Evacuation Center and 1,460 staff from multiple local, state, and federal agencies worked to protect property and suppress the fire. Road closures were in place and law enforcement patrolled for security while firefighters worked through the night to contain the fire. Although the San Gabriel Complex Fire threatened homes in the City, no property damage was reported.

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Figure Safe – 2 Fire Hazard Zones



Fire Hazard Zones

Legend

- Duarte City Limits
- Sewer Pump Station
- Fire Stations
- Schools
- General Acute Care Hospital
- Electric Transmission Lines
- Gravity Main
- Non-SMD Pipe
- Sewer Pipe
- State or Federal Responsibility Area**
- Very High Fire Hazard Severity Zones
- Local Responsibility Area**
- Very High Fire Hazard Severity Zones
- Non-Very High Fire Hazard Severity Zones



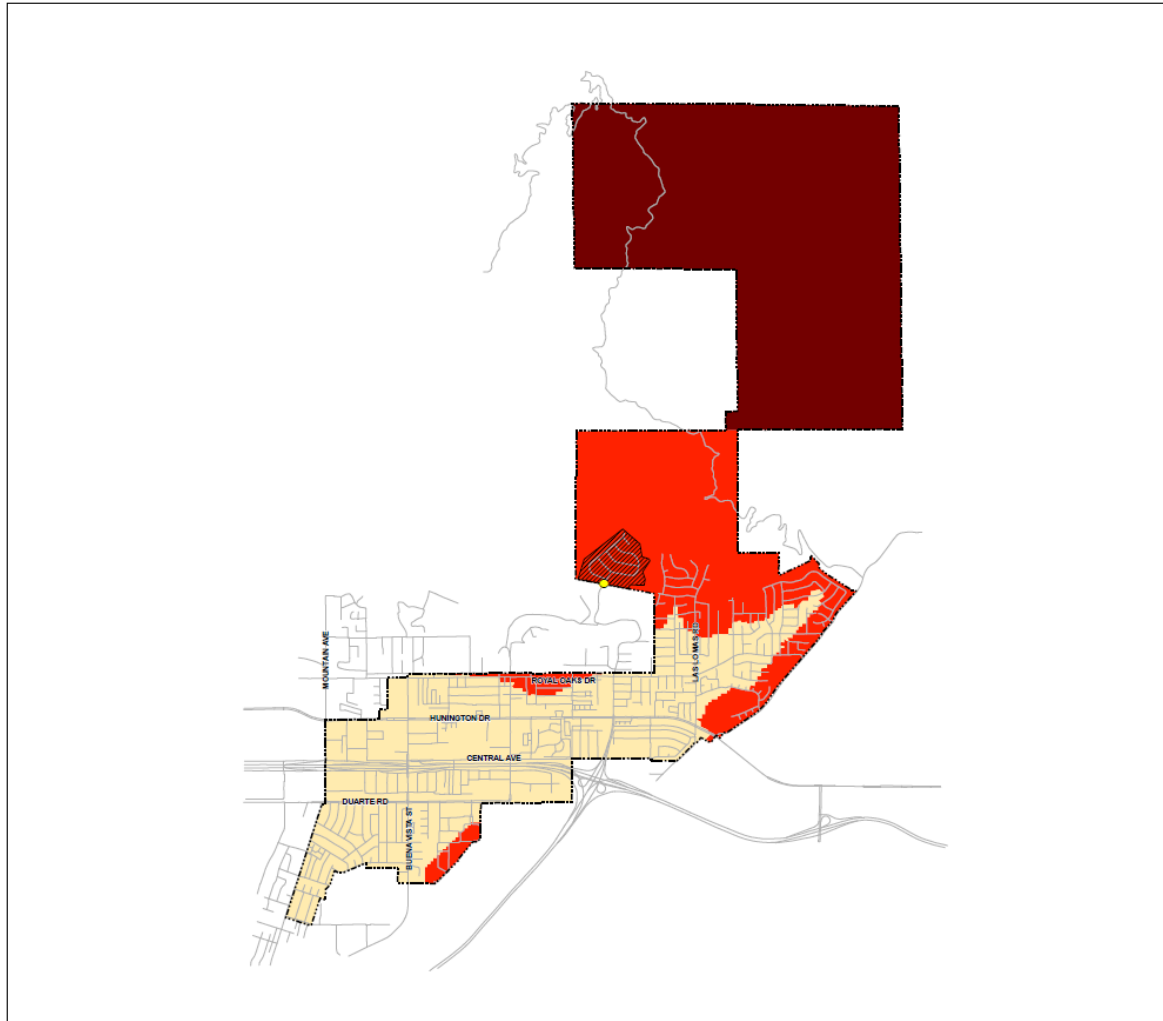
July 14, 2021

Source: City of Duarte, 2021; CalFire, 2020; CEC, 2021; SCG, 2021.

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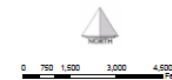
Figure Safe – 3 Emergency Evacuation Routes



Neighborhood with a Single Point of Access

Legend

- Duarte City Limits
- Single Entry and Exit Point
- Single Entry and Exit Community
- State or Federal Responsibility Area**
- Very High Fire Hazard Severity Zones
- Local Responsibility Area**
- Very High Fire Hazard Severity Zones
- Non-Very High Fire Hazard Severity Zones



October 19, 2021

Source: City of Duarte, 2021; CalFire, 2020; CEC, 2021; SCG, 2021;

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Seismic and Geologic Hazards

The Sierra Madre Fault crosses through the City and the City is in close proximity to the Raymond Fault, Walnut Creek Fault, Sawpit Canyon Fault, and the San Andreas Fault. According to the City's 2020 Hazard Mitigation Plan, the probability of an earthquake affecting the City is likely and could impact all areas of the City. In 2007, the Southern California Earthquake Center concluded that there is a 99.9% probability that an earthquake of magnitude (M) 6.7 or greater will hit California within 30 years. Earthquakes that could affect the City would most likely originate along the San Andreas (M7.8), Sierra Madre (M7.2), or Puente Hills (M7.0) Faults. These faults are close enough to generate strong enough shaking that could substantially impact the City. Figure Safe – 4 shows the various major faults located in and around Duarte, and Figure Safe – 5, Figure Safe – 6, and Figure Safe – 7 show the specific risk to the City based on earthquake scenarios for Puente Hills (M 7.0), Sierra Madre (M 7.2), and San Andreas (M 7.8).

Geologic conditions in and around Duarte may cause problems if proper precautions are not taken. The northeast mountainous areas of the City are generally too steep and bedrock is too unstable for typical construction. Erosion, landslides, and shaking from earthquakes can be severe hazards within these areas. Factors contributing to landslide potential are steep slopes, unstable terrain, and proximity to earthquake faults.

Potential liquefaction hazard zones are in the southeastern portion of the City, which consists of alluvial valleys, floodplains, and canyons. In addition, areas with expansive soils can cause problems such as damage to building foundations if not properly mitigated prior to construction. Figure Safe – 8 identifies the portions of Duarte susceptible to landslide and liquefaction.

Although it is not possible to prevent earthquakes, their destructive effects can be minimized through comprehensive hazard-mitigation programs and efforts. For all buildings construction techniques are regulated according to the latest edition of the California Building Code (CBC) with City of Duarte amendments or increased requirements as necessary to reduce geologic and seismic risks to acceptable levels.

Flood Hazards

The City generally falls into an area of minimum flooding, as defined by the Federal Emergency Management Agency. As shown in Figure Safe – 9, there are no 100-year or 500-year flood zones in Duarte according to FEMA. The City is located in Flood Zone "D" and "X", where flood hazards are possible, but no analysis has been conducted. Flooding does occur in the City. For example in

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2017, streets in the foothills were flooded with water and debris from heavy rains in January and February. In addition, certain parts of the City are susceptible to urban flooding, including:

- Huntington Drive, north side, west side of Buena Vista Street
- Encanto Parkway, north of Huntington Drive
- Encanto Parkway near Fish Canyon Road

Three major dams in the upper watershed of the San Gabriel River provide flood protection for the City of Duarte. Two of these dams, Cogswell Dam and San Gabriel Dam, were built in San Gabriel Canyon between 1934 and 1937 respectively. A third dam, known as Morris Dam was constructed in 1934 by the City of Pasadena. There is a fairly low possibility for a severe earthquake to cause flooding due to the failure of Morris, San Gabriel and/or Cogswell dams. Figure Safe – 10 shows areas subject to dam inundation in the City. According to the City’s 2020 Hazard Mitigation Plan, all the City’s critical facilities are located in dam failure inundation areas and the populated area affected by dam failure is a total of 1,643 acres. A total of 18,773 residents, approximately 88 percent of the City’s population, could be affected in the event of a dam failure.

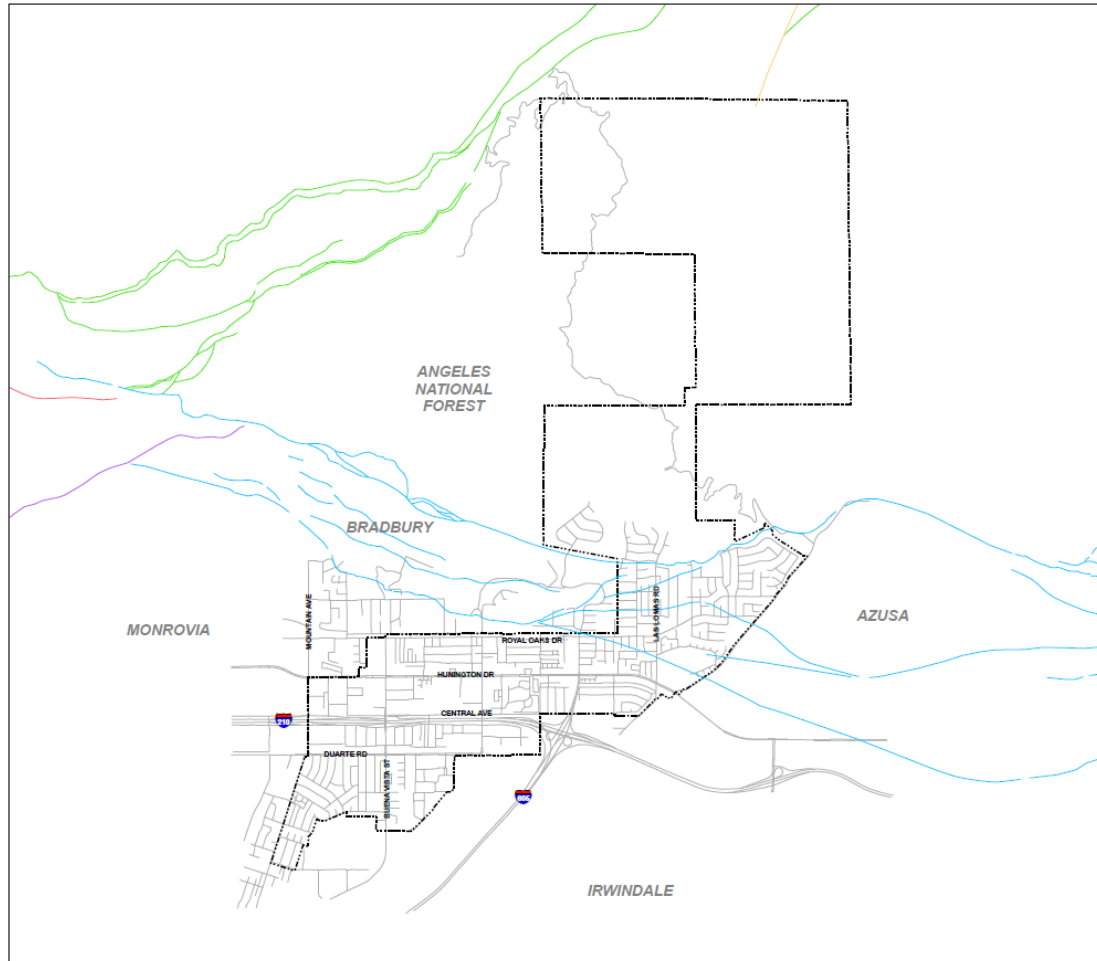
Figure Safe – 11 shows how long it would take for flood waters to reach different parts of Duarte in the unlikely possibility of a flood. Should this happen flood waters would last about one hour then recede.

To ensure against damage to existing development in these areas, the City participates in the Federal Emergency Management Agency’s Flood Insurance Program. Development must follow the City’s Municipal Code standards requiring permits to be reviewed by the Floodplain Administrator prior to construction and all new buildings in the flood hazard area to be constructed with materials resistant to flood damage. Equipment and other service facilities must also be designed to prevent water from entering or accumulating in their components during a flood.

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Figure Safe – 4 Fault Lines



Fault Lines

Legend

- Duarte City Limits
- Pine Mountain Fault
- Raymond Fault
- Sierra Madre Fault Zone - Clamshell-Sawpit Section
- Sierra Madre Fault Zone - Sierra Madre C Section
- Sierra Madre Fault Zone, Sierra Madre D Section



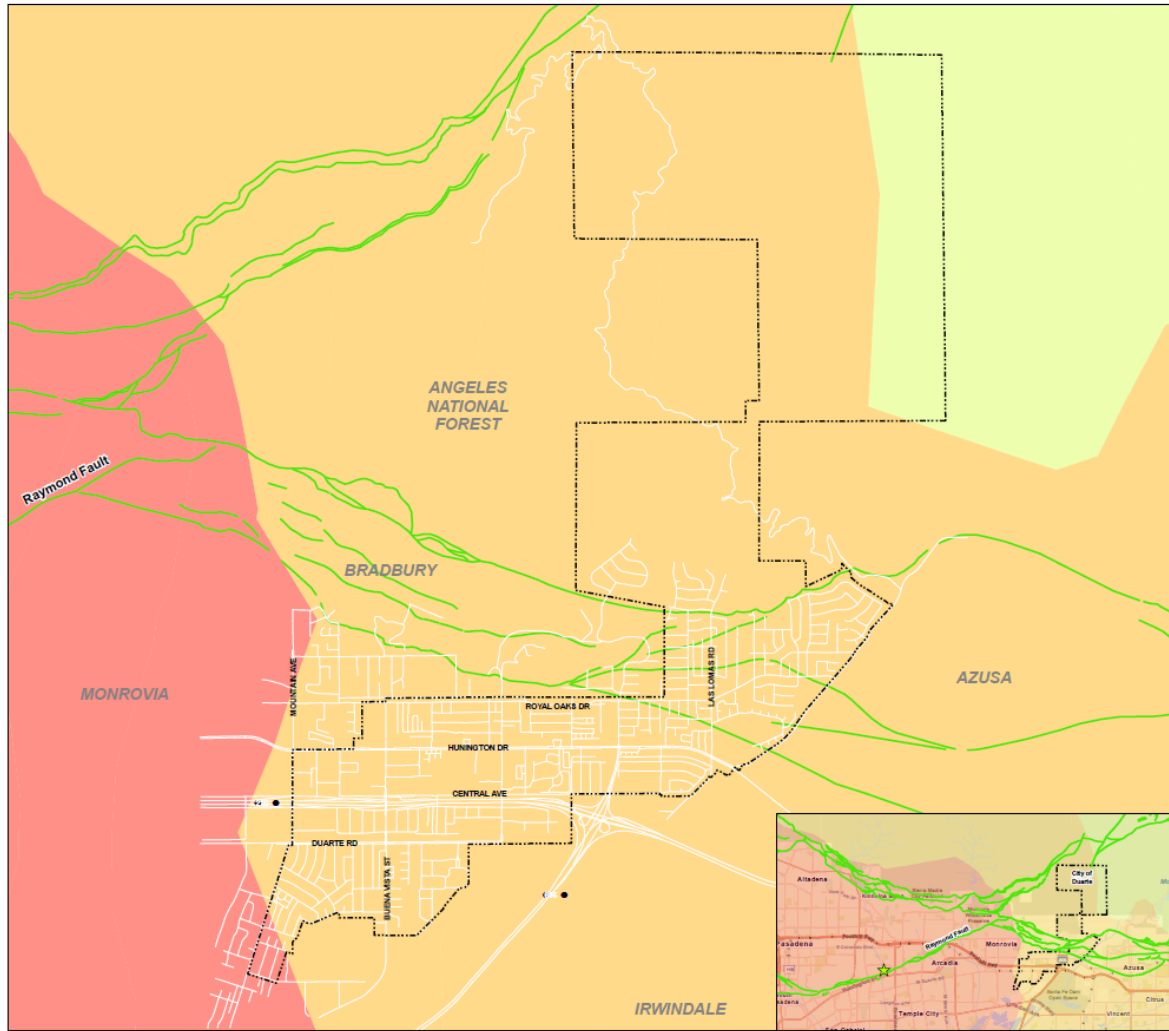
October 19, 2021

Source: City of Duarte, 2021 and USGS, 2020.

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Figure Safe – 5 Earthquake Scenario Map – Puente Hills M 7.0

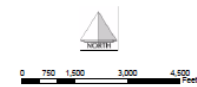


Ground Shaking Data provided by USGS, Shake Map, 2021



Earthquake Scenario Map -
Puente Hills M 7.0

- Legend
- Duarte City Limits
 - Epicenter
 - Faults
 - Peak Ground Acceleration
 - Weak
 - Light
 - Moderate
 - Strong
 - Very Strong
 - Severe

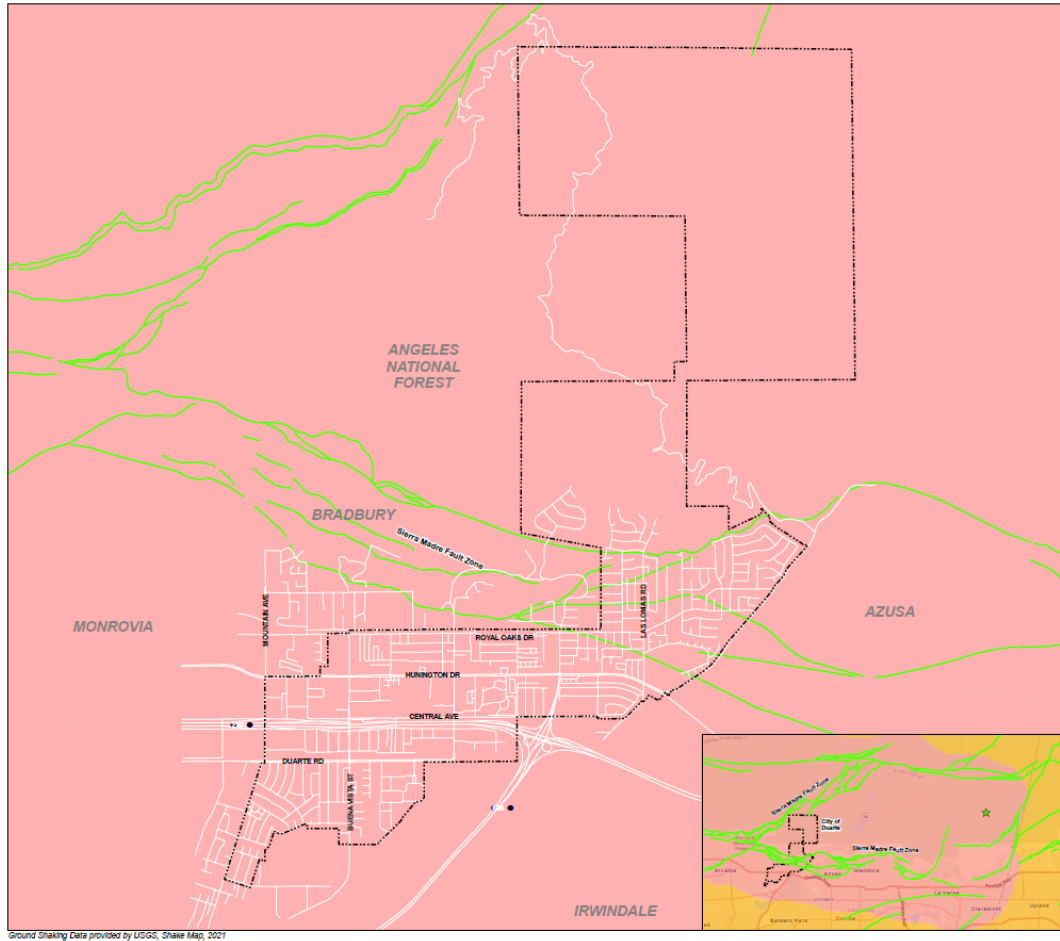


October 19, 2021

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Figure Safe – 6 Earthquake Scenario Map – Sierra Madre M 7.2

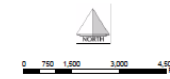


Ground Shaking Data provided by USGS, Shake Map, 2021



**Earthquake Scenario Map -
Sierra Madre M 7.2**

- Legend**
- Duarte City Limits
 - Epicenter
 - Faults
 - Peak Ground Acceleration**
 - Light
 - Moderate
 - Strong
 - Very Strong
 - Severe

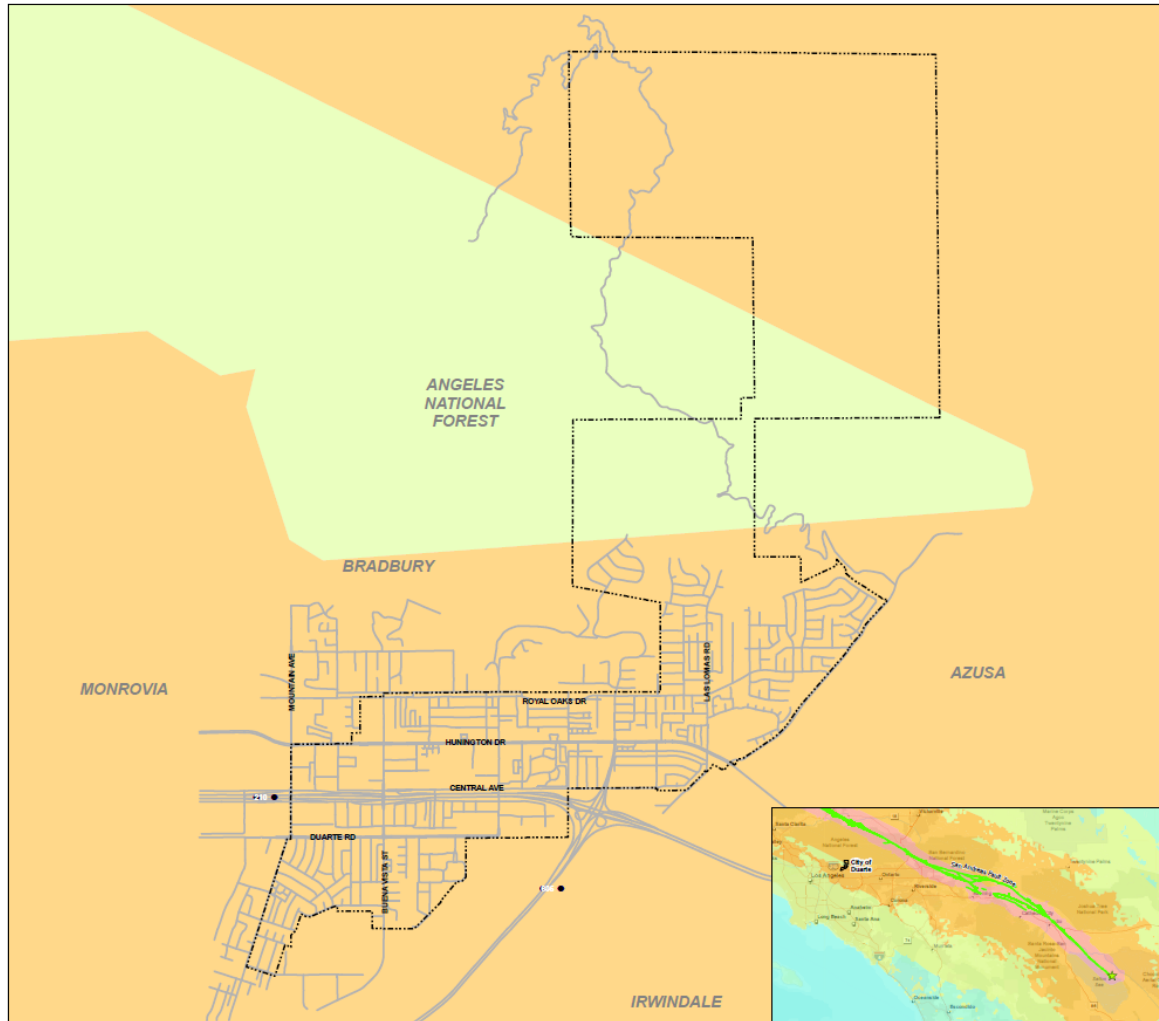


October 19, 2021

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Figure Safe – 7 Earthquake Scenario Map – San Andreas M 7.8

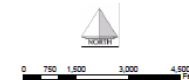


Ground Shaking Data provided by USGS, Shake Map, 2021



Earthquake Scenario Map -
San Andreas M 7.8

- Legend
- ▬ Duarte City Limits
 - ★ Epicenter
 - Peak Ground Acceleration
 - Light
 - Moderate
 - Strong
 - Very Strong
 - Severe

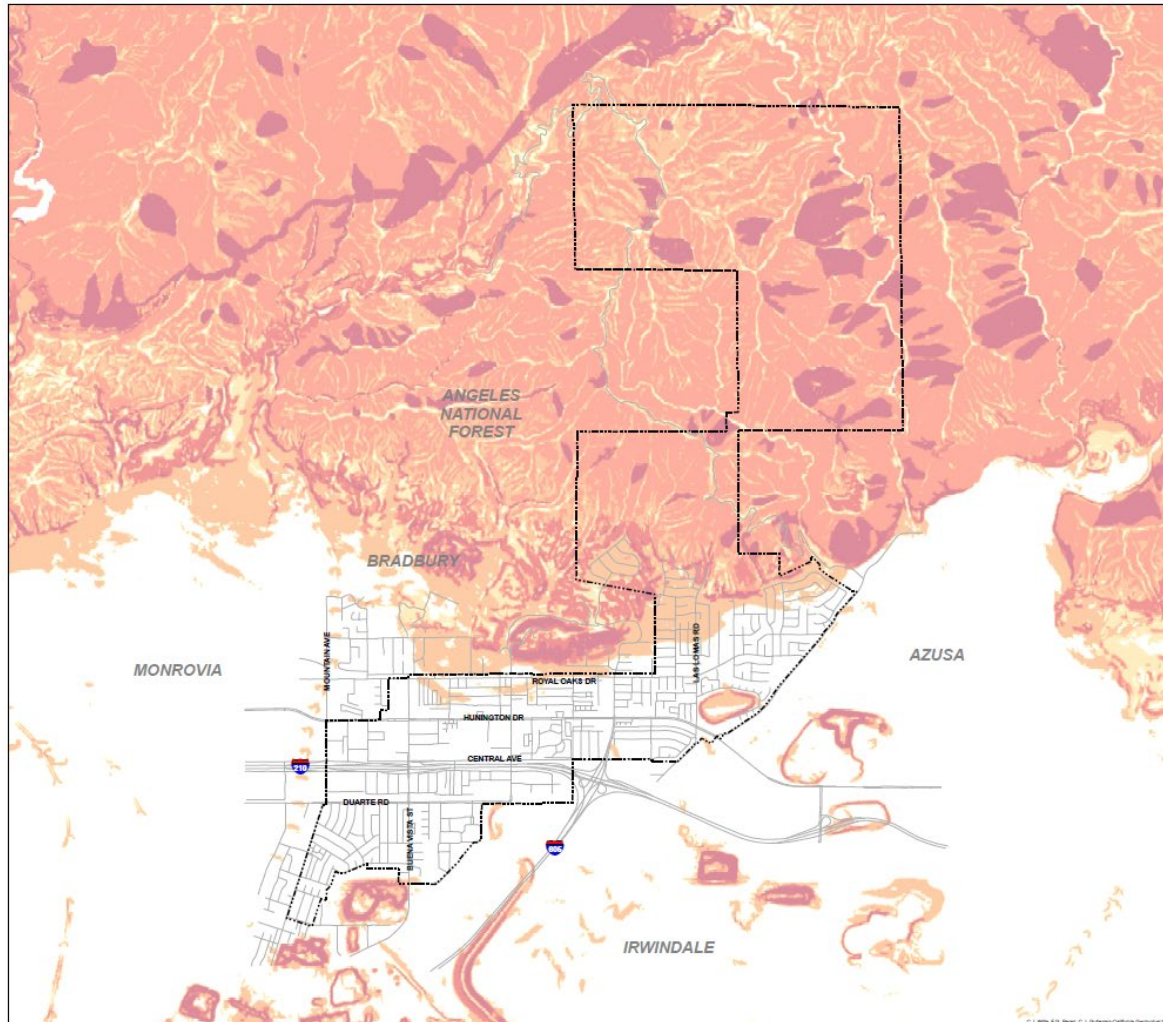


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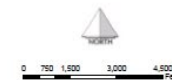
Figure Safe – 8 Landslide and Liquefaction



Fault Lines

Legend

- Duarte City Limits
- Liquefaction Zones
- Landslide Susceptibility Classes**
- 0
- III
- V
- VI
- VII
- VIII
- IX
- X



October 19, 2021

Source: City of Duarte, 2021 and USGS, 2020.

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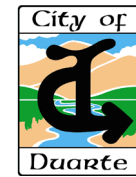
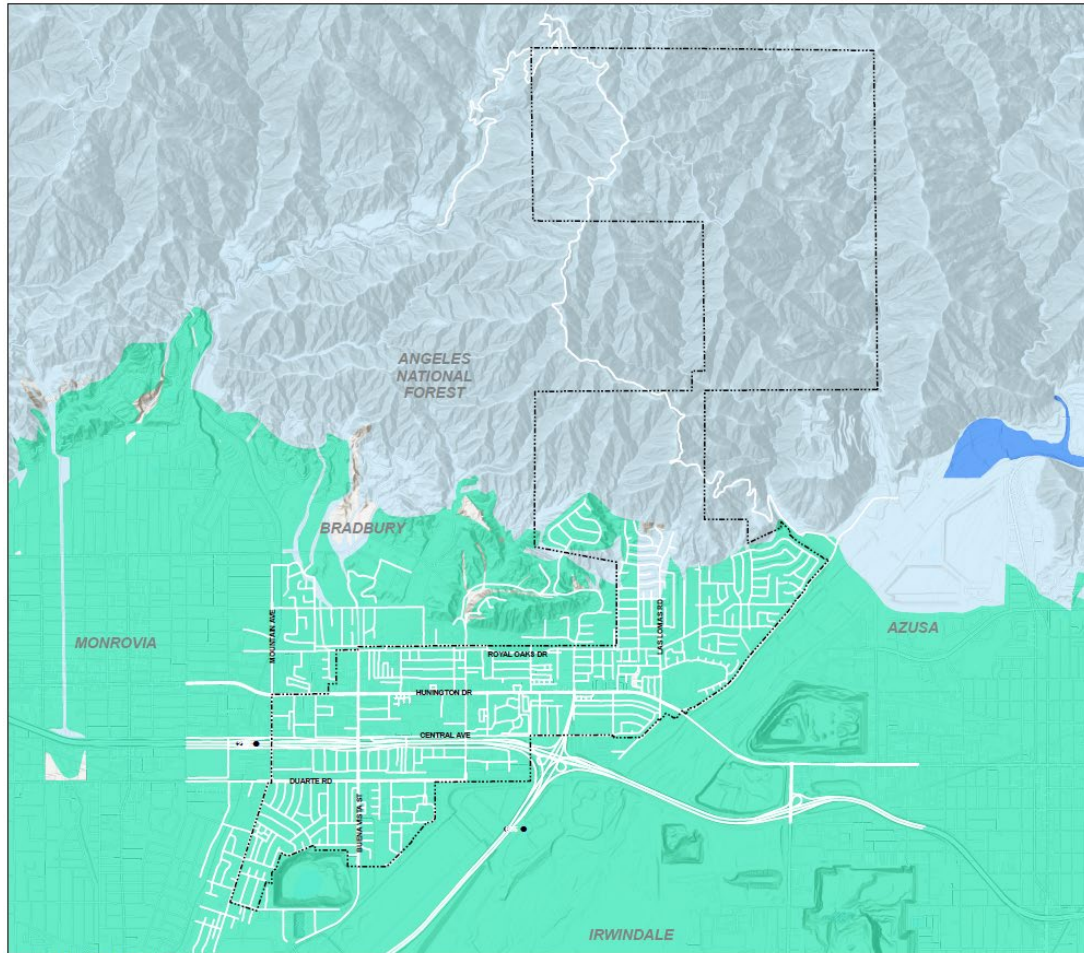



Figure Safe – 9 FEMA Flood Zones



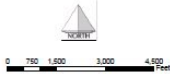
Flood Zone data provided by FEMA Flood Map, 2021



FEMA Flood Zones

Legend

- Duarte City Limits
- Zone D (Flood Hazards Possible but Undetermined)
- Zone X (Outside 500 year Floodplain)
- Zone A (area subject to inundation by the 1 percent annual chance flood event)

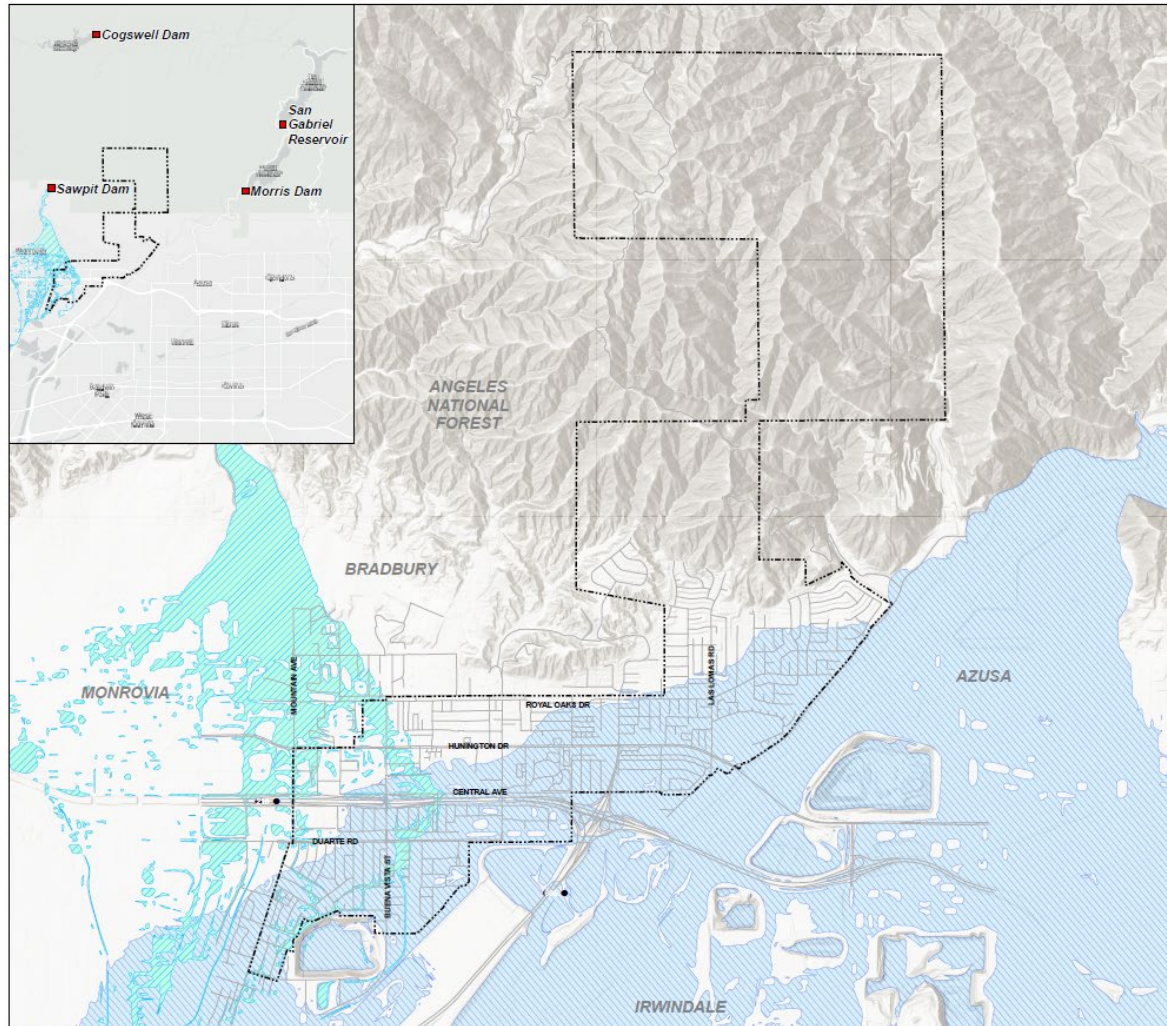


October 10, 2021

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Figure Safe – 10 Dam Failure Inundation Areas



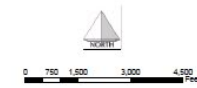
Dam Breach Inundation Map, FIMCIS water, 2021



Dam Failure Inundation Areas

Legend

- Duarte City Limits
- Sawpit Reservoir Dam Failure Inundation Area
- San Gabriel Dam Failure Inundation Area
- Downstream Hazard**
- Extremely High

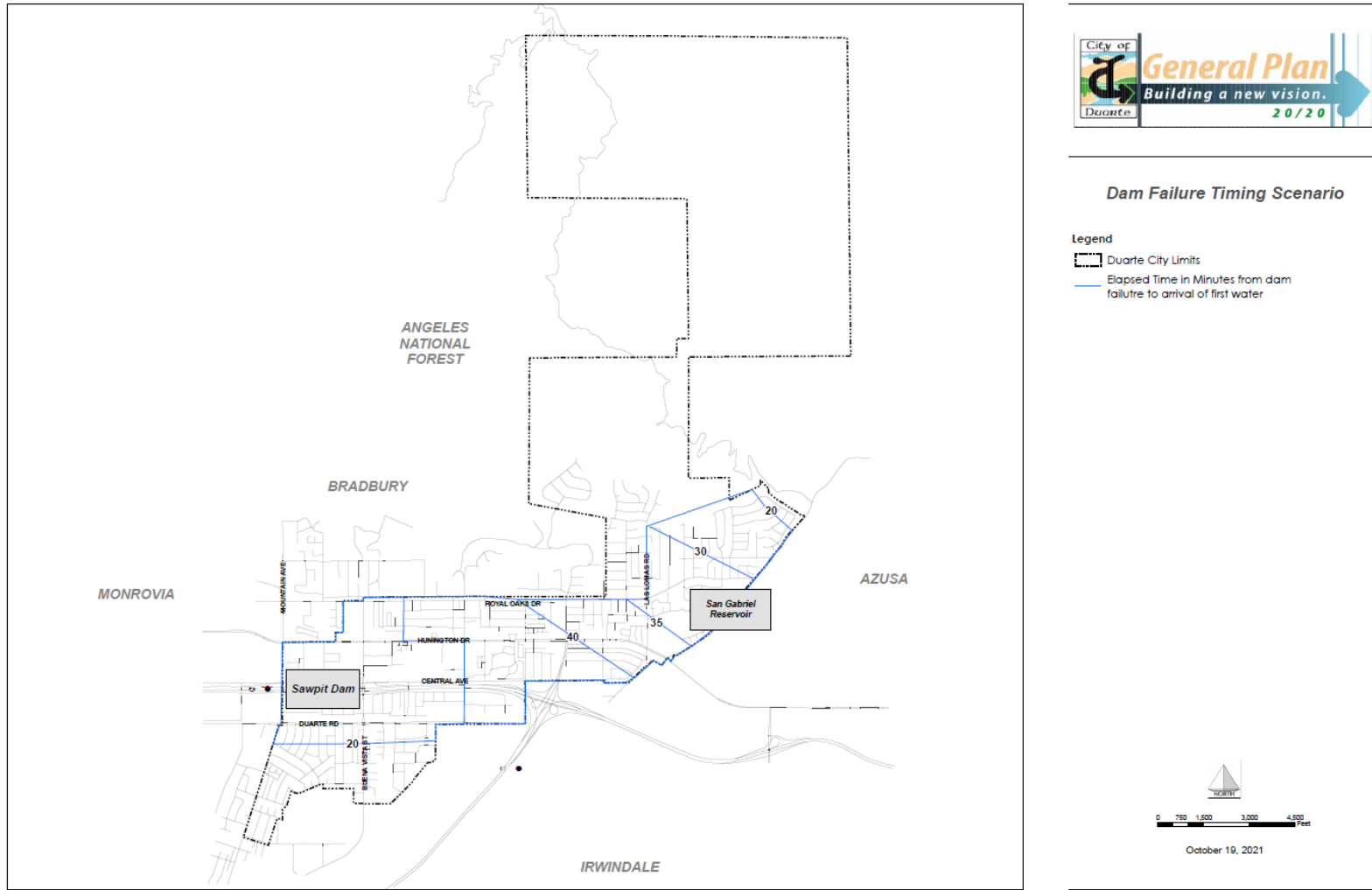


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Figure Safe – 11 Dam Failure Timing Scenario



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Hazardous Materials Management

The Los Angeles County Fire Department Health Haz Mat Division administers the Unified Hazardous Waste and Hazardous Materials Management Regulatory Program for the City of Duarte. Refer to the Related Agencies, Laws, and Plans section of this element to find more about the City of Duarte Hazard Mitigation Plan which addresses hazardous materials in the City.

Emergency Preparedness

In May 2020, the Duarte City Council approved Resolution No. 20-15 adopting the 2020 Hazard Mitigation Plan in accordance with the Federal Disaster Mitigation Act of 2000. This plan established goals and objectives to ensure health, safety, and welfare of Duarte citizens, even in the event of a disaster. The plan was a result of a process involving city departments, local agencies, business people, landowners, developers, and citizens, and reflects local values and concerns. Refer to the Related Agencies, Laws, and Plans section of this element to find out more about the City of Duarte Hazard Mitigation Plan which addresses emergency preparedness.

There are no above or below ground petroleum storage facilities in Duarte other than those used by service stations and individual businesses. City staff did not have any information on pipelines within the City. Regarding other potential hazardous conditions, the Rancho Duarte Golf Course was formerly a landfill. The City of Duarte owned this 18.5 acre golf course until 2004. This golf course is designated Open Space in the Open Space and Land Use Elements.

Law Enforcement

Police protection is provided by the Los Angeles County Sheriff out of the Duarte Satellite Station. The Duarte Satellite Station is the launching center for 30 male and female officers that begin and end their shift to provide Duarte, Bradbury, and the unincorporated area west of Duarte with law enforcement services 24 hours a day. The station does not have dispatch or booking ability. Non-emergency dispatch is routed through the Deputy Dispatch Desk at Temple Sheriff's Station. Special Assignment Deputies handle gang identification, operations pertaining to narcotic sales, probation sweeps, Sting Operations, Neighborhood Watch interactions, including speaking to and gathering intelligence, and overall trouble shooting of crimes that may be on the increase. A School Resource Officer works pro-actively with Duarte schools to provide prevention, intervention, and suppression services. In addition to working with the schools, this officer also assists in Duarte's gang enforcement and D.A.R.T.

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(Duarte Area Resource Team) program. The law enforcement agencies of Duarte and Monrovia collaborate through D.A.M.A.G.E. (Duarte and Monrovia Active Gang Enforcement) program resulting in dramatic reductions in gang activity through shared information and resources. The program also helps to reduce graffiti and thefts. Detective services and a variety of other services are provided by the Sheriff's office as prescribed by the contract between the City and County Sheriff.

Fire Services

Fire protection in the City of Duarte is provided by the Los Angeles County Fire Department (LACFD). LACFD fire station 44 is located at 1105 S. Highland Avenue. This station provides the following apparatus and personnel including engines # 44, # 244, and # 444, and patrol truck # 44. The station is typically staffed by an eight-member crew.

Los Angeles County Fire also provides Hazardous Material services. The U.S. Forest Service in San Dimas provides wildfire service in the Angeles National Forest.

Peakload Water Supply

Peakload water supply is defined as the supply of water available to meet both domestic water and firefighting needs during the particular season and time of day when domestic water demand on a water system is at its peak. California – American Water Company provides potable water to the Duarte service area which includes about 300 metered connections in Bradbury and all of the incorporated area of Duarte. Potable water is provided from eight wells in and around Duarte.

The San Gabriel groundwater basin has been found to be contaminated with volatile organic compounds (VOCs). A strategy for addressing the problem and ultimately removing the contamination is being successfully implemented. Section 28 of the Main San Gabriel Basin Watermaster's Rules and Regulations details the region's long-term commitment to cleaning up contaminated areas of the basin. There are many key provisions laid out in the document. One notable restriction is that producers cannot drill replacement wells, either by location, depth or screening, to avoid contamination that exists in its current well. Instead, the Watermaster requires producers to pump and treat those contaminated supplies to ultimately rid the basin of those contaminants. These efforts will continue for decades.

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Water storage in the Duarte Service Area is provided by 7 reservoirs including 4 steel tanks with a total storage capacity of 5.1 million gallons. All of the reservoirs are covered to reduce evaporation and control losses.

Maximum Day Water demand was 12.9 million gallons a day in 2004 and in 2010 the maximum day demand was 9.16 million gallons a day. Peakload water demand is always highest during the hottest summer months and is important to know so that adequate water is available in case of an emergency.

IMPLEMENTATION MEASURES

Government Code 65400 requires the legislative body to consider and adopt reasonable and practical means for implementing the general plan. This is necessary so that the plan will serve as an effective guide for orderly growth and development, preservation and conservation of open-space land and natural resources, and the efficient expenditure of public funds relating to the subjects addressed in the general plan. The State also requires an annual report to the legislative body, State Department of Housing and Community Development (HCD) and State Office of Planning and Research on the status of the plan and progress in implementing the plan. HCD checks to see if the city is making progress in meeting its fair share of regional housing needs.

This section provides an implementation matrix for policies found in the Safety Element. The matrix identifies the policy to be implemented, the implementation measure to be used for that policy, the responsible agency or department that will be implementing the measure, the funding source, and the estimated timeframe to complete the implementation.

Responsible Agency:

All = All Departments	AS = Administrative Services
CD = Community Development	PS = Public Safety
CM = City Manager	P&R = Parks and Recreation

Partnered County Department:

LACoFD = Los Angeles County Fire Department
LASD = Los Angeles County Sheriff's Department
LACPH = Los Angeles County Public Health Department
LACDoA = Los Angeles County Department of Agriculture

Funding Source:

GF = General Fund	SF = State funds
RA = Redevelopment Agency	FF = Federal Funds
G = Grants	OF = Other Funds
DF = Development Fees	

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Implementation Timeframe (or as resources provide):

ST = Short-term by 2025

LT = Long Term by 2030

MT = Mid-term by 2040

On = Ongoing

Table Safe - 1
Safety Element Implementation Measures

Measure #	Implementation Measure	Responsible Agency	Funding Source	Time frame
Safe 1.1.2.1	Update registry of volunteers who live and work in the city and will be able to perform medical assistance, security, and damage assistance in an emergency.	PS	GF, G	ST
Safe 1.1.2.2	Promote training programs on hazard mitigation and disaster planning through the City website.	CM	GF	On
Safe 1.1.2.3	Coordinate with citizen groups, organizations, and volunteers in the Public Safety Department registry to establish procedures for decision-making, and line of command for providing emergency assistance in the event of a natural disaster.	PS	GF	ST
Safe 1.1.3.1	Prepare and implement programs which will help mitigate risk and minimize losses to the most sensitive communities and assets identified in the Climate Change Vulnerability Assessment.	PS	GF, G, FF, SF	ST, On
Safe 1.1.3.2	The City will update the Hazard Mitigation Plan every five years to reduce the risk from hazards by identifying resources, information, and strategies for risk reduction, while helping to guide and coordinate mitigation activities throughout the City.	CD, PS	GF	On
Safe 1.1.4.1	Continue to update and enforce the City's fire and building codes as appropriate.	CD, LACoFD	GF	On
Safe 1.1.4.2	Incorporate climate change vulnerability and climate hazard mitigation into the City's Capital Improvement Plan for new construction and updates to City-owned facilities and infrastructure.	CD	GF	ST
Safe 1.1.5.1	Incorporate fire and police department expansion needs in each year's	AS	GF, FF, SF, G	On

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	operating budget as the yearly budget provides.			
Safe 1.1.6.1	Support federal, state, and county regulations pertaining to health and safety, and fire regulations and ordinances. Train City personnel to help identify hazardous materials and associated violations.	CM, PS	GF	On
Safe 1.1.7.1	Conduct periodic emergency exercises among City staff members and other key personnel and implement and update the City's emergency preparedness plan on an on-going basis.	CM, PS	GF	On
Safe 1.1.7.2	Update the City of Duarte Hazard Mitigation Plan every five years. Periodically update the Emergency Operations Plan.	CD, PS	GF	On
Safe 1.1.8.1	Incorporate standards for emergency services training and emergency responses for climate hazards into Emergency Operations Plan during the next EOP update.	PS, CD	GF	ST
Safe 1.1.8.2	Produce evacuation route maps that incorporate potential road closures and highest-risk areas for each climate hazard (e.g. wildfire, storm flooding).	PS, CD	GF	ST
Safe 1.1.9.1	Develop heat hazard response in next EOP update, and heat hazard mitigation measures in next HMP update. Designate community cooling centers for extreme heat days that are accessible to those living in identified disadvantaged communities within the City.	CD, PS, P&R	GF	ST, MT
Safe 1.1.10.1	City staff will update inventory of water storage facilities and sources of potable water that could be used in the event of an emergency and the means to distribute that water to residents.	CD	GF	ST
Safe 2.1.1.1	Prepare communication materials and support education programs that familiarize the citizens of Duarte with emergency preparedness and procedures to follow in the event of a major disaster. These materials will be posted on the City website in multiple languages as needed to be accessible to both English-speaking and non-English speaking residents.	PS, CM	GF, G	ST
Safe 2.1.2.1	Update and disseminate a disaster preparedness plan to enable the community to be self-sufficient for a	PS	G, FF, SF	ST

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	minimum of 7 days following a natural or man-made disaster.			
Safe 2.1.3.1	The City will prepare and distribute educational materials outlining recommendations for stockpiling supplies for employees.	PS	GF	MT
Safe 2.1.4.1	The City will provide communication materials outlining emergency and evacuation procedures to high-occupancy facilities, dependent care centers, and critical facilities managers.	PS	GF	MT
Safe 2.1.5.1	Partner with community groups and neighborhood organizations already engaged with populations at greatest risk to hazards, to increase awareness of evacuation routes, emergency shelters, and City emergency response plans as well as what resources are available to residents.	PS	GF	MT
Safe 2.1.6.1	Review the early warning system and determine its effectiveness to reach all populations within Duarte, such as non-English speaking individuals.	CM, PS	GF	MT
Safe 2.1.7.1	Partner with the Los Angeles County Department of Public Health to develop and enhance disaster and emergency early warning systems to incorporate objective data and information for potential health threats such as heat-illness, illnesses complicated by low air quality, and precipitation events.	PS, LACPH	GF	MT
Safe 2.1.8.1	Consider establishing a wild animal task force to study providing hard copy and web material on how to store and secure trash; relocation of bear and mountain lions; and installing bear and mountain lion warning signs.	PS	G, SF, FF, GF	ST
Safe 3.1.1.1	Establish a minimum level of emergency service. Ensure that these services are responsive to the community's needs by periodically evaluating these services through the use of surveys and questionnaires.	PS	GF, FF, SF	On
Safe 4.1.2.1	Comply with the provisions of the Alquist-Priolo Act requiring site-specific soils, geologic, or geotechnical engineering studies prior to development approval of sites potentially subject to seismic activities.	CD	GF	On
Safe 4.1.3.1	Require appropriate engineering and design mitigations for new structures	CD	GF	On

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	proposed in geologic or seismic hazard areas.			
Safe 5.1.2.1	Continue to participate in the mutual assistance program.	PS	GF	On
Safe 5.1.3.1	Ensure that all buildings and areas are accessible to fire vehicles and firefighting equipment. Support fire department policy of controlled burns in high risk areas.	CD	GF	On
Safe 5.1.4.1	Develop a system of fire hazard mitigations based upon the probability of occurrence and number of people at risk. Replace out-of-date apparatus and equipment on a scheduled basis. Determine peakload water demand and supply.	PS, LACoFD, CD	FF, SF, GF	ST
Safe 6.1.4.1	Prepare and make available educational materials regarding the proper storage and disposal of hazardous materials and e-waste to community members.	PS	GT	LT

Safety Element Definitions

Active Fault: A fault which has exhibited surface displacement within Holocene time (approximately the past 11,000 years).

Alquist-Priolo Earthquake Fault Zone: A regulatory zone, delineated by the State Geologist, within which site-specific geologic studies are required to identify and avoid fault rupture hazards prior to subdivision of land and/or construction of most structures for human occupancy.

Critical Facility: Facilities that either (1) provide emergency services or (2) house or serve many people who would be injured or killed in case of disaster damage to the facility. Examples include hospitals, fire stations, police and emergency services facilities, utility facilities, and communications facilities.

Development: The physical extension and/or construction of urban land uses. Development activities include: subdivision of land; construction or alteration of structures, roads, utilities, and other facilities; installation of septic systems; grading; deposit of refuse, debris, or fill materials; and clearing of natural vegetative cover (with the exception of agricultural activities). Routine repair and maintenance activities are exempted.

Disadvantaged Community: means an area identified by the California Environmental Protection Agency pursuant to Section 39711 of the Health and

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Safety Code or an area that is a low-income area that is disproportionately affected by environmental pollution and other hazards that can lead to negative health effects, exposure, or environmental degradation.

Environmental Justice: The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies. (Cal. Gov. Code, § 65040.12, subd. (e).)

Fault: A fracture or zone of closely associated fractures along which rocks on one side have been displaced with respect to those on the other side. A fault zone is a zone of related faults which commonly are braided, but which may be branching. A fault trace is the line formed by the intersection of a fault and the earth's surface.

Flooding: A rise in the level of a water body or the rapid accumulation of runoff, including related mudslides and land subsidence, that results in the temporary inundation of land that is usually dry. Riverine flooding, coastal flooding, mud flows, lake flooding, alluvial fan flooding, flash flooding, levee failures, tsunamis, and fluvial stream flooding are among the many forms that flooding takes.

Ground Failure: Mudslide, landslide, liquefaction, or soil compaction.

Hazardous Building: A building that may be hazardous to life in the event of an earthquake because of partial or complete collapse. Hazardous buildings may include:

1. Those constructed prior to the adoption and enforcement of local codes requiring earthquake resistant building design.
2. Those constructed of unreinforced masonry.
3. Those which exhibit any of the following characteristics:
 - exterior parapets or ornamentation which may fall on passersby
 - exterior walls that are not anchored to the floors, roof, or foundation
 - sheeting on roofs or floors incapable of withstanding lateral loads
 - large openings in walls that may cause damage from torsional forces
 - lack of an effective system to resist lateral forces
 - non-ductile concrete frame construction

Hazardous Material: An injurious substance, including pesticides, herbicides, toxic metals and chemicals, liquefied natural gas, explosives, volatile chemicals, and nuclear fuels.

Landslide: A general term for a falling, sliding, or flowing mass of soil, rocks,

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water, and debris. Includes mudslides, debris flows, and debris torrents.

Liquefaction: A process by which water-saturated granular soils transform from a solid to a liquid state during strong ground shaking.

Peakload Water Supply: The supply of water available to meet both domestic water and firefighting needs during the particular season and time of day when domestic water demand on a water system is at its peak.

Potentially Active Fault: A fault which shows evidence of surface displacement during Quaternary time (the last 2 million years).

Seiche: An earthquake-induced wave in a lake, reservoir, or harbor.

Seismic Hazard Zone: A regulatory zone, delineated by the State Geologist, within which site-specific geologic, soils, and foundation engineering studies are required to identify and avoid earthquake-caused ground-failure hazards, or selected other earthquake hazards, prior to subdivision of land and for construction of most structures for human occupancy.

Seismically Induced Surface Rupture: A break in the ground's surface and associated deformation resulting from the movement of a fault.

Subsidence: The gradual, local settling or sinking of the earth's surface with little or no horizontal motion (subsidence is usually the result of gas, oil, or water extraction, hydrocompaction, or peat oxidation, and not the result of a landslide or slope failure).

Tsunami: A wave, commonly called a tidal wave, caused by an underwater seismic disturbance, such as sudden faulting, landslide, or volcanic activity.

Wildland Fire: A fire occurring in a suburban or rural area which contains uncultivated lands, timber, range, watershed, brush, or grasslands. This includes areas where there is a mingling of developed and undeveloped lands.