



City of Dublin
General Plan

Chapter 8

ENVIRONMENTAL RESOURCES MANAGEMENT: SEISMIC SAFETY AND SAFETY ELEMENT

8.1 INTRODUCTION

Government Code sec. 65302(g) requires safety elements to address 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 or geologic hazards; flooding; and wildfires and urban fires. The statute requires that seismic and geologic hazard areas be mapped. It also requires the element to address evacuation routes, military installations, peakload water supply, minimum road widths and clearances around structures for geologic and fire hazards identified in the element.

Addressing the hazards relevant to Dublin, this Seismic Safety and Safety Element provides an assessment of the risk of ground shaking, rupture, and failure due to earthquakes. The element discusses landslide, subsidence and liquefaction hazards. It also discusses flooding, and urban and wildfires fires. Related discussion and analysis of these hazards is located in the Technical Supplement and the Conservation Element (Chapter 4).

Chapter One of the General Plan defines the City's Planning Area to include the Primary Planning Area, Eastern Extended Planning Area, Western Extended Planning Area, Dublin's Crossing Planning area, and the area known as Doolan-Collier Canyons. The City's Planning Area, herein referred to as the Planning Area, offers examples of most of the geologic hazards commonly found in California, but only two—downslope movement (mainly landslides) and surface fault rupture due to earthquakes—are significant constraints on the location of urban development. Downslope movement includes landslides, rockfalls, debris flows, and soil creep. Factors affecting downslope movement are groundwater, rock and soil type, slope angle, propensity to erosion, seismic activity, vegetation, and grading or other human alterations.

The Calaveras Fault is the major active fault in the Planning Area with rupture potential and runs parallel to and just west of San Ramon Road. The Pleasonton Fault, near the west edge of Camp Parks, is difficult to locate precisely. The State has identified Alquist-Priolo Earthquake Fault Zones along both faults, requiring detailed studies of rupture hazards prior to construction.

Few potential building sites within the Primary or Extended Planning Areas are without geologic impact or hazard. The hazard may be actual, such as an active landslide or proximity to an active fault, or potential, such as a proposed cut that might activate a landslide. Mitigation of hazards may increase construction cost, but will reduce long-term costs to both property owners and the City.

8.2 SEISMIC SAFETY

8.2.1 ALL PLANNING AREAS

8.2.1.1 GEOLOGICAL AND SEISMIC HAZARDS IN DUBLIN

The Planning Area is diverse geologically, as a result of the seismic setting of the region and the effects of climate. Figure 8-1 shows the different geological foundations of the Planning Area. Susceptibility

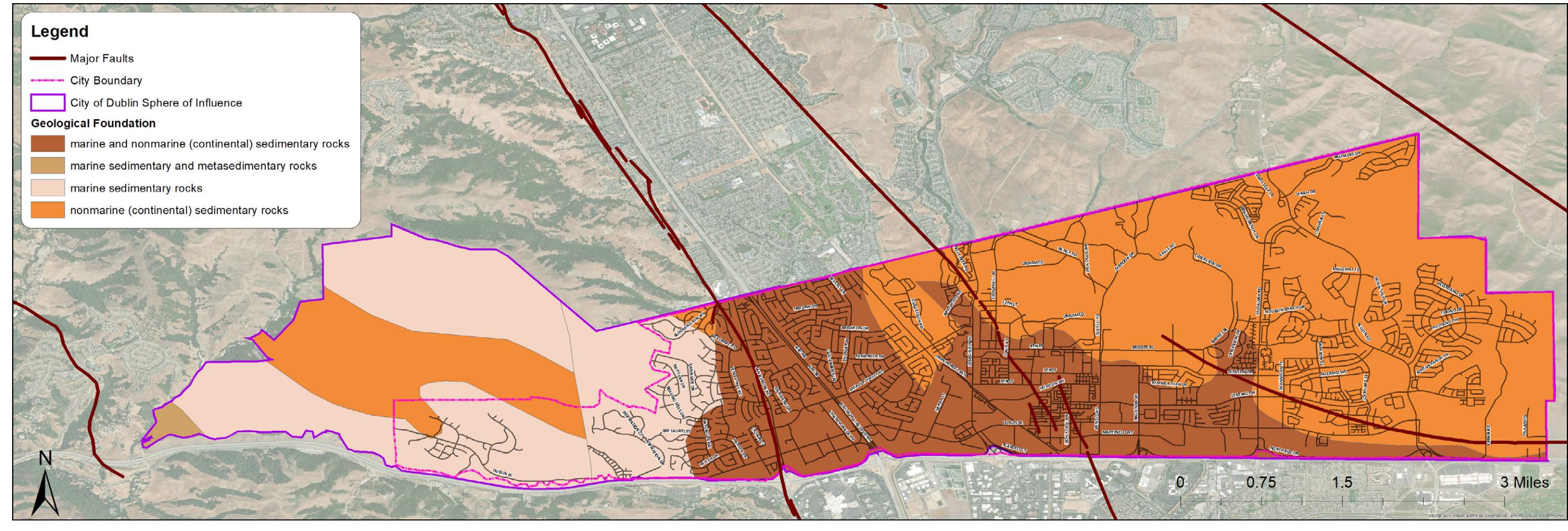
to geological and seismic hazards is directly related to proximity to active faults.

The Calaveras Fault runs through the western portion of the Planning Area along San Ramon Road and extends 76 miles. Figure 8-1 and Figure 8-2 illustrate the location of the Calaveras Fault as well as other onshore and structural faults. According to the California Department of Conservation 2010 Geological Map data, Dublin has synclines and quaternary faults throughout the Planning Area. Synclines are folds in the Earth's crust with younger layers closer to the center of the structure, leading to a less stable structural foundation. Quaternary faults are faults that have evidence of movement in the past 1.6 million years. Thus, these faults are considered active and a geological hazard. Because of the Planning Area's proximity to active faults, the ground is susceptible to geological and seismic hazards, including expansive soils, subsidence, liquefaction, and landslides.



DUBLIN GENERAL PLAN DUBLIN GEOLOGIC AREA MAP

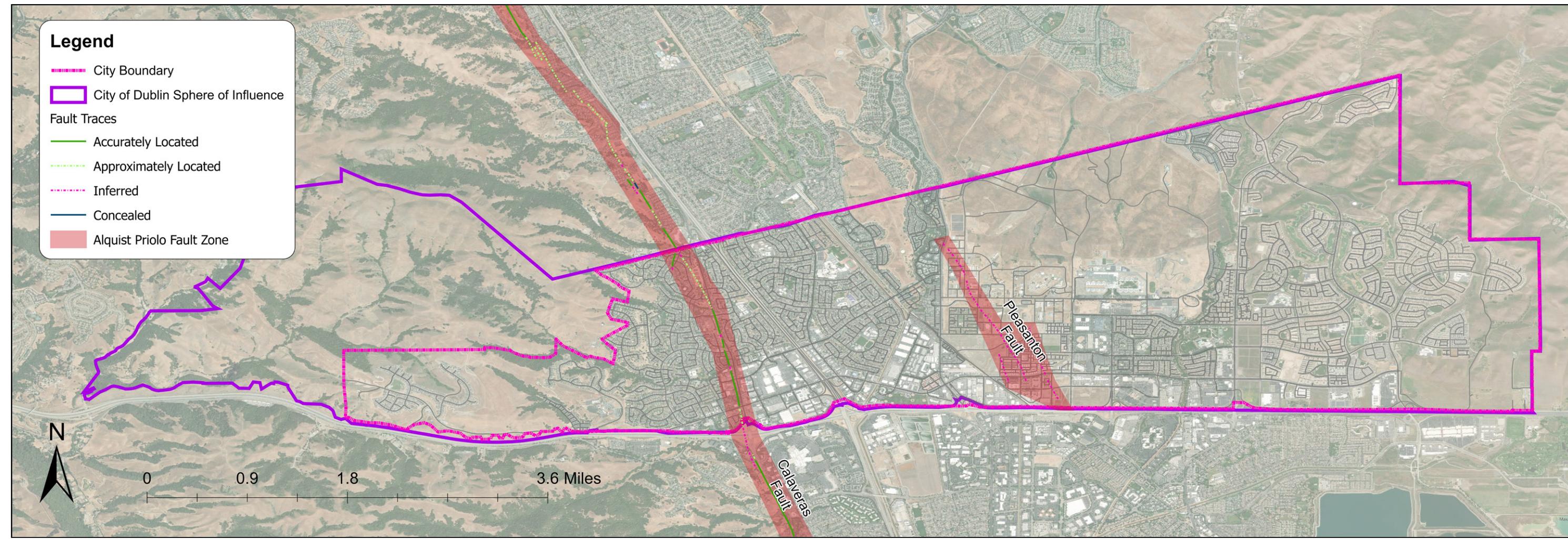
(Figure 8-1)



Source: California Geological Survey, Geologic Map of California, 2010

 DUBLIN GENERAL PLAN DUBLIN
ALQUIST PRIOLO FAULT AREA MAP

(Figure 8-2)



Source: California Geological Survey, Seismic Hazard Zones: Alquist-Priolo Fault Zones & Alquist-Priolo Fault Traces, 2021

8.2.1.2 LIQUEFACTION AND LANDSLIDE HAZARDS

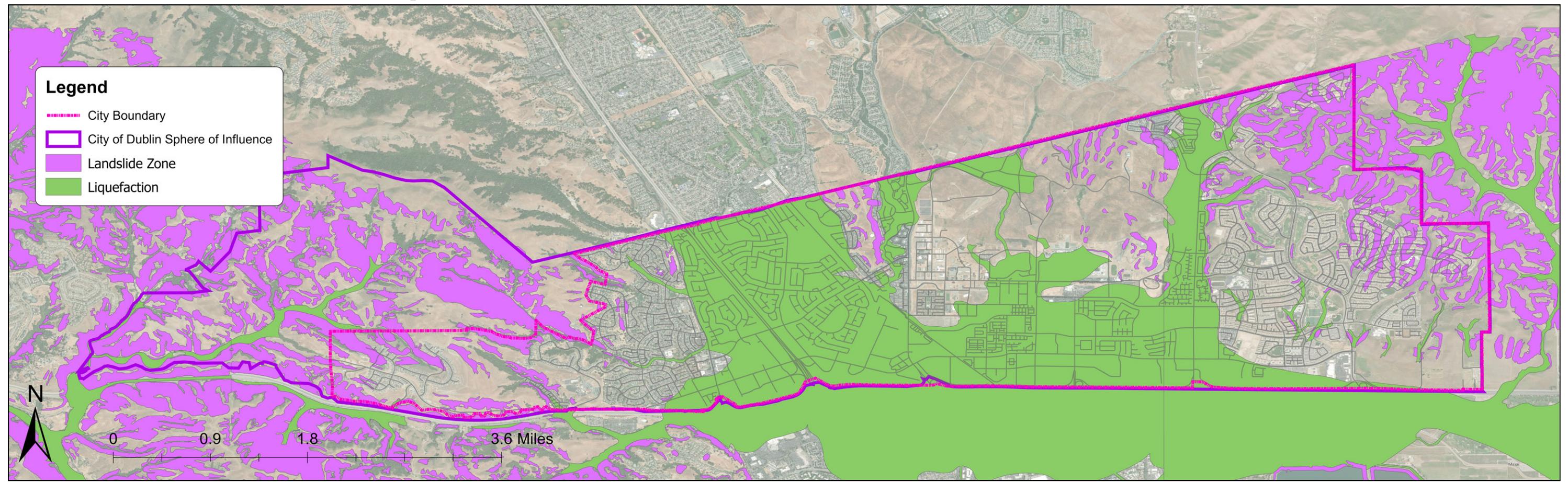
Liquefaction is one of the most destructive secondary effects of seismic shaking. According to the United States Geologic Survey (USGS), liquefaction takes place when loosely packed, water-logged sediments at or near the ground surface lose their strength in response to strong ground shaking. Expansive soils and subsidence occur due to an abundance of moisture in the soil, causing the soil's foundation to move unstably. This leads to liquefaction and landslide hazards. Liquefaction occurring beneath buildings and other structures can cause major damage during earthquakes. It occurs primarily on saturated and loose, fine to medium grained soils, in areas where the groundwater table is 50 feet or less below the surface. Liquefaction and landslide hazards often occur due to expansive soils. In general, according to the United States Department of Agriculture (USDA) Natural Resources Conservation Service, Dublin is underlain by sediments, such as clays, silt loams, and substratum. As shown in Figure 8-3, the zones with higher liquefaction potential exist along Dublin Boulevard, Village Parkway, and Tassajara Road.

Landslides are often associated with earthquakes, but other factors may also influence their occurrence, including slope, soil moisture content, and subsurface geology composition. The potential for landslides increases with vegetation loss from wildfires or droughts. The City's hillside areas are located west of San Ramon Road, east of Tassajara Road, and northwest of Camp Parks. As shown in Figure 8-3, the hillside areas in the eastern and western portions of the Planning Area have higher landslide susceptibility. The City has adopted hazard mitigation requirements in the Dublin Municipal Code and Tri-Valley Hazard Mitigation Plan (HMP), including programs to retrofit and relocate structures in high hazard areas. With existing hazard mitigation in place, the Planning Area is considered to have a slight risk for landslides.



DUBLIN GENERAL PLAN DUBLIN LANDSLIDE AND LIQUEFACTION RISK ZONES

(Figure 8-3)



Source: California Geological Survey, Seismic Hazard Zones: Landslide and Liquefaction Zones, 2021

A. Guiding Policy

1. Geologic hazards shall be mitigated or development shall be located away from geologic hazards in order to preserve life, protect property, and reasonably limit the financial risks to the City of Dublin and other public agencies that would result from damage to poorly located public facilities.

B. Implementing Policies

1. Structural and Grading Requirements

- a. All structures shall be designed to the standards delineated in the Dublin Building Code and Dublin's Grading Ordinance. A "design earthquake" shall be established by an engineering geologist for each structure for which ground shaking is a significant design factor.
- b. Structures intended for human occupancy shall be at least 50 feet from any active fault trace; freestanding garages and storage structures may be as close as 25 feet. These distances may be reduced based on adequate exploration to accurately locate the fault trace.
- c. Generally, facilities should not be built astride potential rupture zones, although certain low-risk facilities may be considered. Critical facilities that must cross a fault, such as oil, gas, and water lines, shall be designed to accommodate the maximum expected offset from fault rupture. Site specific evaluations shall determine the maximum credible offset.

2. Required Geotechnical Analyses

- a. A preliminary geologic hazards report shall be prepared for all subdivisions. Any other facility that could create a geologic hazard, such as a road or a building on hillside terrain, must also have such a study. Each of the geologic and seismic hazards described in the Seismic Safety and Safety Element must be evaluated. This hazard analysis shall be prepared by a California licensed engineering geologist.
- b. Detailed geologic studies shall be required at the tentative subdivision map stage for all projects located within a landslide and/or liquefaction zone as identified in Figure 8-3, and for other proposed projects if the preliminary investigation indicates a potential geologic hazard. Proposals for mitigation shall be included at this stage. The detailed analysis for projects in a landslide and/or liquefaction zone must consider:
 - Cumulative effect of new development on a partially developed slide;
 - Effects of septic leach systems, garden watering, and altered drainage patterns;
 - Impact of a maximum credible earthquake;
 - Where applicable, passage of the Calaveras Fault through or under landslide deposits;
 - Debris flow and other downslope hazards (especially common in the Eastern Extended Planning Area). Care must be taken not to locate structures in the path of potential debris flows; and

- Where published maps identify or show “ancient” or quaternary slides on sites of proposed development, their stability must be analyzed, and effects of the proposed development on the area’s stability must be evaluated by a soils engineer.
- c. If the preliminary report indicates liquefaction potential, an engineering analysis and design, if necessary, to mitigate liquefaction hazards, shall be required for all structures planned for human occupancy.
- d. Evaluation for shrink-swell potential shall be included with all soils reports and design recommendations formulated where the potential is present. These analyses and recommendations shall include public streets and utilities to reduce future public repair costs.
- e. A surface fault rupture evaluation, as outlined by the State of California Department of Conservation, California Geological Survey, and in accordance with the Alquist-Priolo Earthquake Fault Zoning Act shall be required for all development within the identified Earthquake Fault Zones as shown on Figure 8-1). The surface fault rupture evaluation shall be conducted as part of the development review process after building sites are specifically defined
- f. Any changes in grading or building design that would be significantly affected by geologic hazards or soils conditions, or in turn would significantly alter geologic or soils conditions, shall be accompanied by a re-analysis of those conditions. In addition, any conditions discovered during excavation or grading that significantly depart from the previously described geologic and soils setting shall be evaluated.

3. Existing Structures

- a. Post-earthquake or damage reconstruction of existing structures shall be permitted only if mitigating factors are incorporated.

4. Data Review and Collection

- a. All required reports and data shall be reviewed by the Alameda County Geologist or a consulting engineering geologist. This individual shall participate in the review process from the earliest proposal stage to completion of the project.
- b. A file of all geologic and soils reports and grading plans shall be maintained as reference material for future planning and design on each site as well as on adjacent sites.
- c. City and developer shall endeavor to fully disclose hazards to present and future occupants and property owners.

5. Earthquake Response Plan

- a. In 2020, the City adopted an Emergency Operations Plan which serves as the foundation for disaster response and recovery operations in Dublin. The City will periodically review the Plan to prepare for and respond to seismic events.
- b. The City shall continue to partner with Alameda County to generate evacuation routes based upon the incident.

8.3 FIRE SAFETY

8.3.1 ALL PLANNING AREAS

8.3.1.1 WILDFIRES

A wildfire is any uncontrolled fire occurring on undeveloped land that requires fire suppression. Wildfires can be ignited by lightning or by human activity such as smoking, campfires, equipment and vehicle use, and arson. Fire hazards present a considerable risk to vegetation and wildlife habitats throughout Alameda County. While the primary fire threat in the Bay Area is from wildfire, urban conflagration is a major hazard that can occur due to many causes such as wildfires, earthquakes, gas leaks, chemical explosions, or arson. Wildfire risk increases due to climate change because of higher temperatures and longer dry periods over longer fire seasons. Additionally, wildfire risk will also be influenced by potential changes in vegetation.

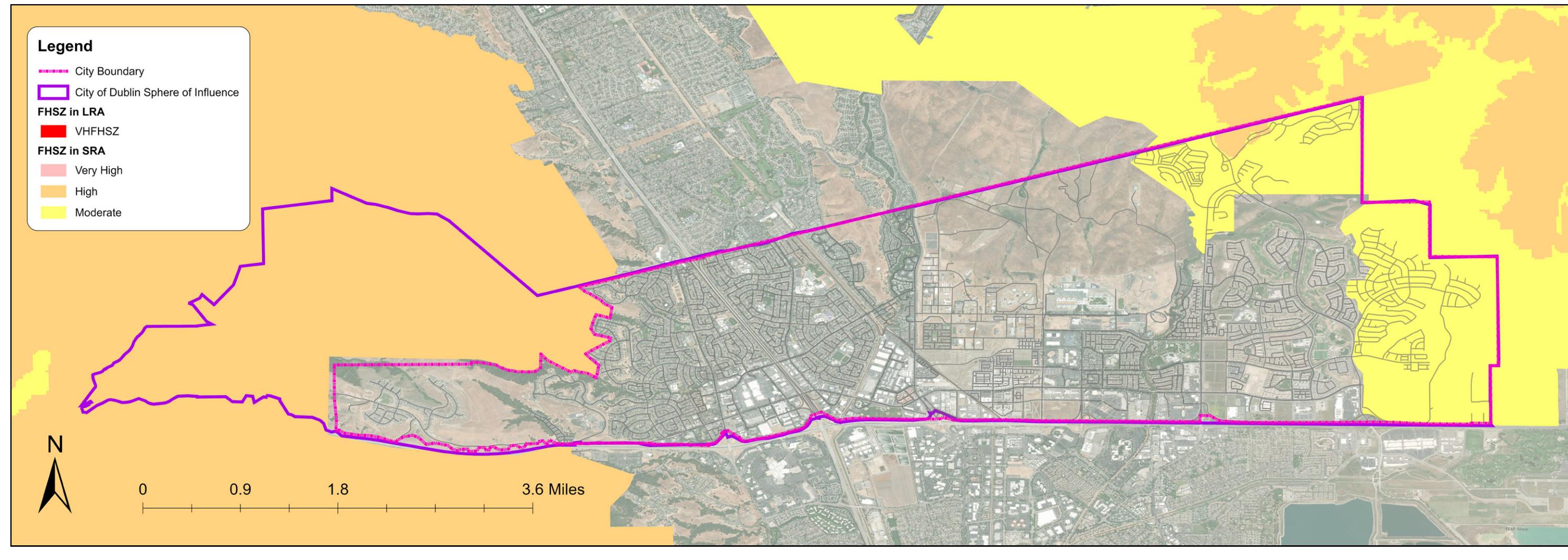
The size and location of housing stock and critical infrastructure determine the severity of wildfires. The impacts of a fire are felt long after the fire is extinguished. In addition to the loss of property in fires, the loss in vegetation and changes in surface soils alter the environment. When all supporting vegetation is burned away, hillsides become destabilized and prone to erosion. The burnt surface soils are harder and absorb less water. When winter rains come, this leads to increased runoff, erosion, and landslides in hillside areas. According to the USGS, steep drainage basins recently burned by wildfire can generate deadly and destructive debris flow. To help reduce losses from this type of landslide and hazards associated with wildfires, the USGS conducts post-fire debris-flow hazard assessment for select fires in the western U.S. As of 2022, the USGS Emergency Assessment of Post-Fire Debris-Flow Hazards does not have wildfire debris-flow hazard data for the City of Dublin.

Wildfires present a substantial hazard to life and property in areas of Dublin that are built within or adjacent to hillside areas, commonly known as the Wildland Interface. The northeast and east regions of the Planning Area are located in Moderate Fire Hazard Severity Zones (MFHSZ), as shown on Figure 8-4. The west regions of the Planning Area and portions of the northeast region are located in High Fire Hazard Severity Zones (HFHSZ). According to the California Department of Forestry and Fire (CalFire), the City only has one area that is located in a High Fire Hazard Severity Zone (HFHSZ). This area is located along the City boundaries east of Fallon Road and Palisades Drive. According to CalFire and as shown on Figure 8-4, there are no areas within the Planning Area that are classified as a Very High Fire Hazard Severity Zone (VHFHSZ).



DUBLIN GENERAL PLAN DUBLIN FIRE HAZARD SEVERITY ZONES

(Figure 8-4)



Source: California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP), Alameda County CAL FIRE Fire Hazard Severity Zones, Alameda County CAL FIRE State Responsibility Areas, Alameda County CAL FIRE Incorporated Cities, 2021

According to CalFire, the following wildfires of over 10 acres were recorded near the City in recent years:

- *June 8, 2013, Vasco Fire*: Burned 240 acres off Vasco Road and North Vasco Road, north of Livermore. The fire was contained within one day.
- *July 6, 2013, Fallon Fire*: Burned 38 acres off Fallon Road and Camino Tassajara, near Dublin. The fire was contained within one day by Alameda County Fire Department (ACFD).
- *October 4, 2013, Highland Fire*: Burned 150 acres along Highland Road, near Livermore. The fire was contained within one day by CalFire's Santa Clara Unit (SCU).
- *June 25, 2015, Tesla Fire*: Burned 53 acres off Tesla Road, southeast of Livermore. The fire was contained within one day by CalFire's SCU.
- *August 22, 2015*: Burned 2,700 acres off Tesla Road near Corral Hollow Road, between Livermore and Tracy. This fire took four days to contain with 18 fire personnel and five engines.
- *July 16, 2020, Hollow Fire*: Burned 253 acres along Tesla Road and McLaughlin Road, southeast of Livermore. The fire was contained within three days by CalFire's SCU.
- *August 18, 2020, SCU Lightning Complex Fire*: Burned 396,624 acres within multiple locations throughout Santa Clara, Alameda (southeast of Livermore), Contra Costa, San Joaquin, Merced, and Stanislaus Counties. The fire was contained within 45 days.
- *August 16, 2022, Eden Fire*: Burned 58 acres along Eden Canyon Road and Interstate 580. The City of Dublin opened the Shannon Community Center as a space for evacuees. The fire was contained within a day.

8.3.1.2 URBAN FIRES

Fires could also ignite in urbanized areas of the Planning Area because of a wildfire, earthquake, or some other phenomena. A disruption in the water system, causing a reduction in hydrant pressures, could allow a normally controllable structure fire to escape containment by firefighting forces and spread to adjoining buildings or cause spot fires with flying brands and ignite other buildings downwind by igniting wood roofs or vegetation. Steep, inaccessible slopes and brush create a high fire hazard in the western hills. Additionally, areas within the Extended Planning Areas adjacent to open space are susceptible to fire hazards. For projects that are constructed outside a fire station service area (greater than 1.5 miles from the nearest fire station) and/or interface with open space, certain built-in fire protection measures are required.

8.3.1.3 FIRE HAZARD SEVERITY ZONES AND FIRE RESPONSE

There are no areas within the Planning Area that are classified as a VHFHSZ. The Alameda County Fire Department (ACFD) serves as the fire department for the City of Dublin and provides all fire prevention, fire protection, and First Responder Emergency Medical Services including advanced life support (paramedics) within the City. ACFD includes three specialized response teams, which include Hazardous Materials Unit, Urban Search and Rescue Unit, and Water Rescue Team Unit.

Dublin San Ramon Services District (DSRSD) supplies water to the City of Dublin for both domestic use and fire protection purposes through a series of pipelines, pump stations, and reservoirs. For

fire protection, Alameda County Fire specifies the required fire flows which the DSRSD system is designed to provide. The ACFD requires a minimum of 1,500 gallons of water per minute for two hours. The DSRSD system has separate fire protection storage with an adequate volume of water for two simultaneous fires and storage is kept full at all times.

In Dublin, the ACFD is responsible for Locally Responsible Areas (LRAs). LRAs are incorporated cities, urban regions, agriculture lands, and portions of the desert where the local government is responsible for wildfire protection. The U.S. Army is responsible for Federal Responsibility Areas (FRAs) in Dublin. The FRA in Dublin, as depicted in Figure 8-5, is located in the Parks Reserve Forces Training Area (Camp Parks), east of Dougherty Road, west of Arnold Road, and north of Dublin Boulevard. While the State Responsibility Areas (SRAs) are not located within City boundaries, there are SRAs adjacent east and west of City boundaries.

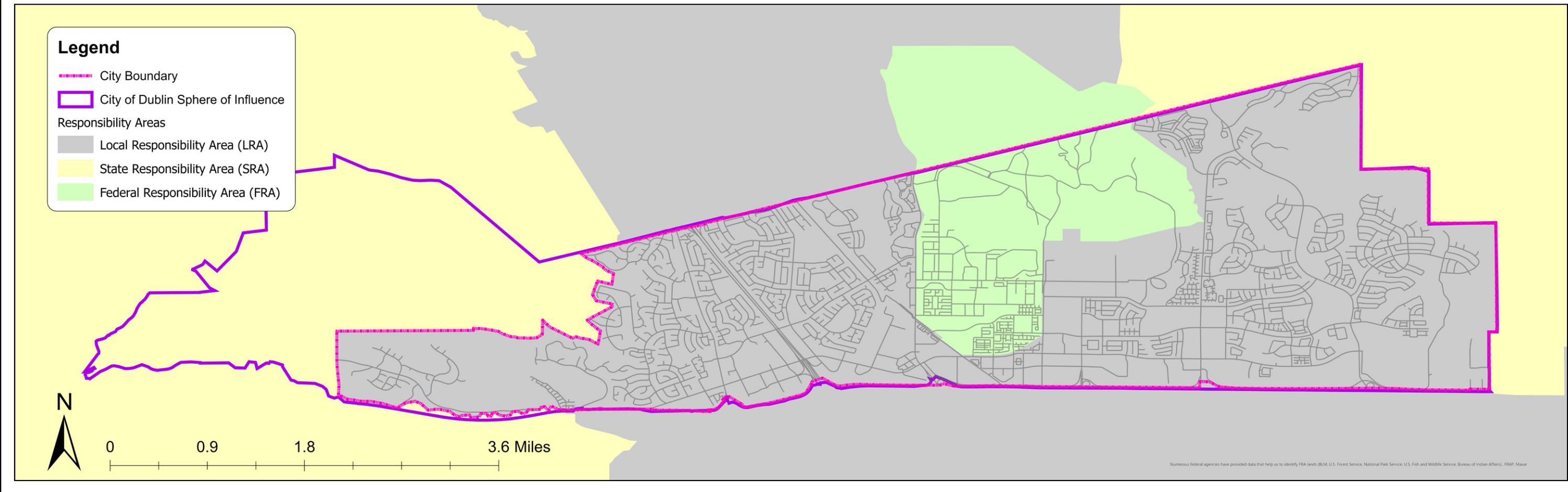
Evacuation plans in the event of a fire emergency can be found on the City's website. The City partners with Alameda County to create evacuation routes for the City. As of 2022, the City has an "Emergency Alerts" page on the City website. In the event of an emergency, residents can opt-in to receive emergency communication and notifications. For more information on emergency procedures, the City has a "Disaster Preparedness" webpage available for up-to-date information on how residents can best prepare for an emergency event.



DUBLIN GENERAL PLAN DUBLIN

FIRE RESPONSIBILITY AREAS

(Figure 8-5)



Source: California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP), Alameda County CAL FIRE Fire Hazard Severity Zones, Alameda County CAL FIRE State Responsibility Areas, Alameda County CAL FIRE Incorporated Cities, 2021

Figure 8-6 depicts essential facilities located throughout Dublin, including those near or in MFHSZ and HFHSZ. Essential facilities include fire service and emergency responder locations as well as places that can be used as emergency shelters, such as schools, in the event of a hazardous event. Essential public facilities work together with fire stations during hazardous events to provide community organization and services in the event of an emergency.

The City continues to implement mitigation and emergency preparedness programs and policies. The City enforces the California Building Code which are outlined in Dublin Municipal Code Chapter 7.32. The City's mitigation plans include programs and policies that provide outreach activities related to hazard mitigation and disaster preparedness, utilize vegetation management, and encourage postdisaster recovery planning in development. More information on programs and procedures in response to hazardous events in the City can be found in the Tri-Valley HMP.

A. Guiding Policy

1. The Local Hazard Mitigation Plan (LHMP) for the Tri-Valley was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA's 2011 Local Hazard Mitigation Plan guidance. The LHMP, included as an appendix to the Comprehensive Emergency Management Plan, incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risks. The implementation of these mitigation actions, which include both short- and long-term strategies, involve planning, policy changes, programs, projects, and other activities. The City will periodically review and update the Plan to prepare for emergencies.

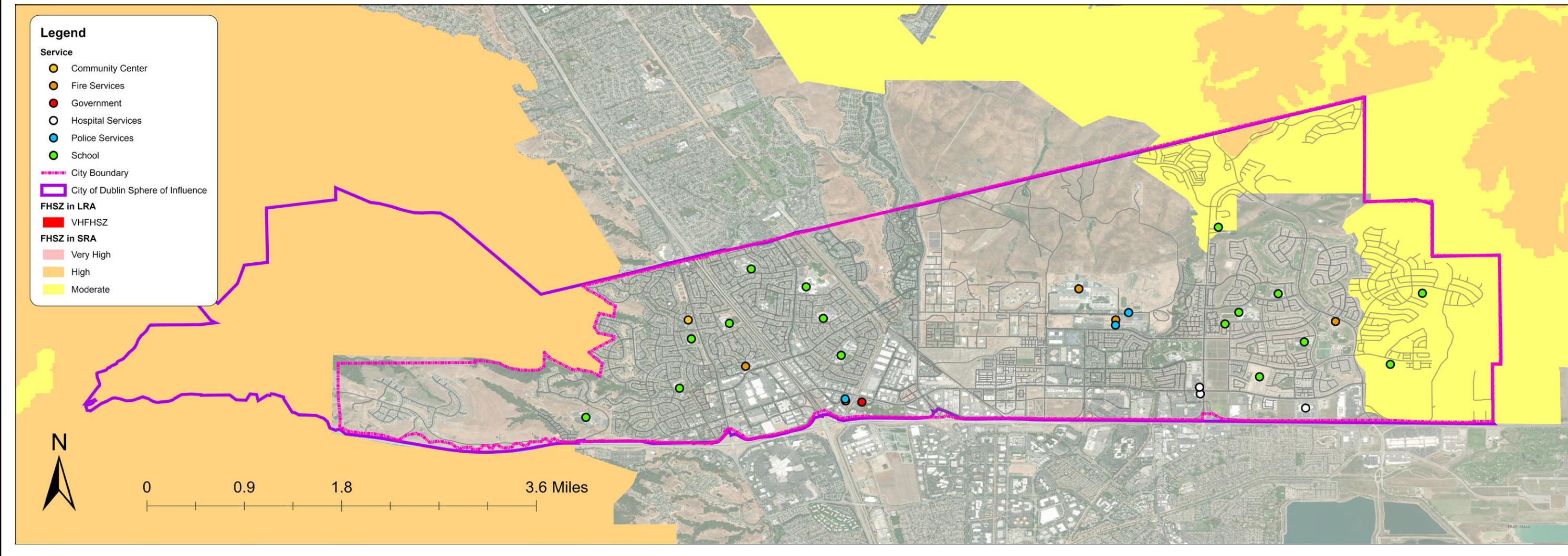
A. Implementing Policies

1. The City shall continue to enforce the wildfire urban interface regulations to mitigate wildfire risk.
2. The City shall encourage voluntary avoidance of planting certain undesirable vegetation that are invasive due to their physical or chemical characteristics related to flammability risk on private properties in the Moderate or High Fire Hazard Severity Zones.
3. The City shall continue to require property owners to conduct regular maintenance on their properties and roadways to reduce the fire danger and maintain a fire-safe landscape.
4. The City shall partner with Alameda County to map evacuation routes and periodically update as necessary in accordance with applicable state laws.
5. The City shall require special precautions against fire as a condition of development approval in the western hills and elsewhere in the Extended Planning Areas where proposed development would interface with open space.



DUBLIN GENERAL PLAN DUBLIN ESSENTIAL FACILITIES & FIRE HAZARD SEVERITY

(Figure 8-6)



Source: California Department of Forestry and Fire Protection, Fire and Resource Assessment Program (FRAP), Alameda County CAL FIRE Fire Hazard Severity Zones, Alameda County CAL FIRE State Responsibility Areas, Alameda County CAL FIRE Incorporated Cities. Google Earth, 2021

8.4 FLOODING AND DAM FAILURE

8.4.1 ALL PLANNING AREAS

8.4.1.1 FLOODING

The Federal Emergency Management Agency (FEMA) defines flooding to be a general or temporary condition of partial or complete inundation of two or more acres of normally dry land or of two or more properties. Flooding can occur from an overflow of inland or tidal waters, unusual and rapid accumulation or runoff of surface waters, mudslides, and collapse or subsidence of land along a body of water due to erosion. Flash floods are an example of what results from large and intense rainfalls that occur over short periods of time. The responsibility for managing flood risks is shared across federal, state, and local government agencies and the private sector. The U.S. Army Corps of Engineers (USACE) established the National Flood Risk Management Program (NFIP), which provides current and accurate floodplain information by identifying and assessing flood hazards, improving public awareness and comprehension of flood hazards and risk, and integrating flood damage and flood hazard programs across federal, state, and local agencies. Flooding associated with severe storms has been among the most common disasters in the Bay Area during the period from 1950 to 2015, occurring on average 1.3 times a year over the past 60 years. Heavy rainfall often brings many areas of localized flooding, especially in low-lying areas of the region.

Figure 8-7 illustrates flood prone areas in the City of Dublin based on data from FEMA. The areas shown identify the 100- and 500-year flood zones in portions of the Primary and Eastern Extended Planning Areas; no 100- or 500-year flood zones have been identified in the Western Extended Planning Area. Areas along Alamo and Tassajara Creeks, and near Interstate 680 are within the 100 year flood zone. Locations near Interstate 580, including a portion of the downtown area, are within the 500-year flood zone. The Planning Area is not located within a 200-year flood zone.

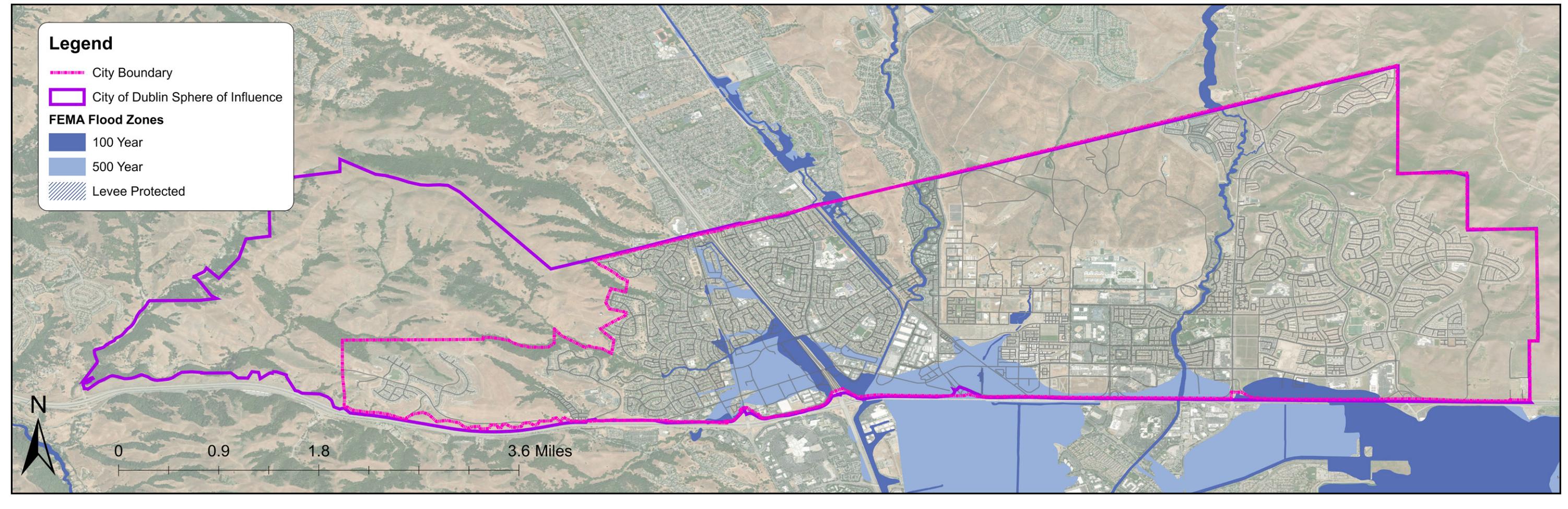
Most of the areas in the 100-year flood and 500-year flood zones have been built upon. Any new construction in flood prone areas must comply with Dublin Municipal Code Chapter 7.24 (Flood Control) including constructing the first floor above the flood level.

A number of channel improvements have been implemented since the early 1990s as a result of local developments partnering with Zone 7 and/or the City of Dublin, and Caltrans transportation projects. Channel improvements have been made along Tassajara Creek (Line K), Alamo Creek (Line F), and Big Canyon Creek (Line J-1). In addition to the major creeks in Dublin, several tributaries have undergone improvements as well, including the undergrounding of Line G-3 and raising the channel wall of Line G-5. Based on recent FEMA Preliminary Flood Insurance Rate Map Panels and designated floodway maps available from the Central Valley Flood Protection Board, portions of the City are in "Zone X," defined as an "area of minimal flood hazard." As of 2021, the Department of Water Resources' "Best Available Map" tool shows that portions of the Planning Area are located within a 100-year or 500-year flood zone. Due to the City's location, floodway maps from the Central Valley Flood Protection Board do not show any floodways and levee centerlines in the City of Dublin, and the Planning Area is not located in any levee protection zones.

Responsibility for flood protection in Dublin lies with Zone 7, which maintains improved flood-control channels and installs new drainage channels. Under Zone 7 permits, development projects have improved many of the existing channels and created new flood protection facilities. Zone 7 continues to work with local jurisdictions and the development community to identify means and methods to provide greater flood protection for its service area, including the City of Dublin. Figure 8-8 includes essential facilities that can provide emergency shelter and response in the event of a flood emergency.

 DUBLIN GENERAL PLAN DUBLIN
FEMA FLOOD RISK MAP

(Figure 8-7)

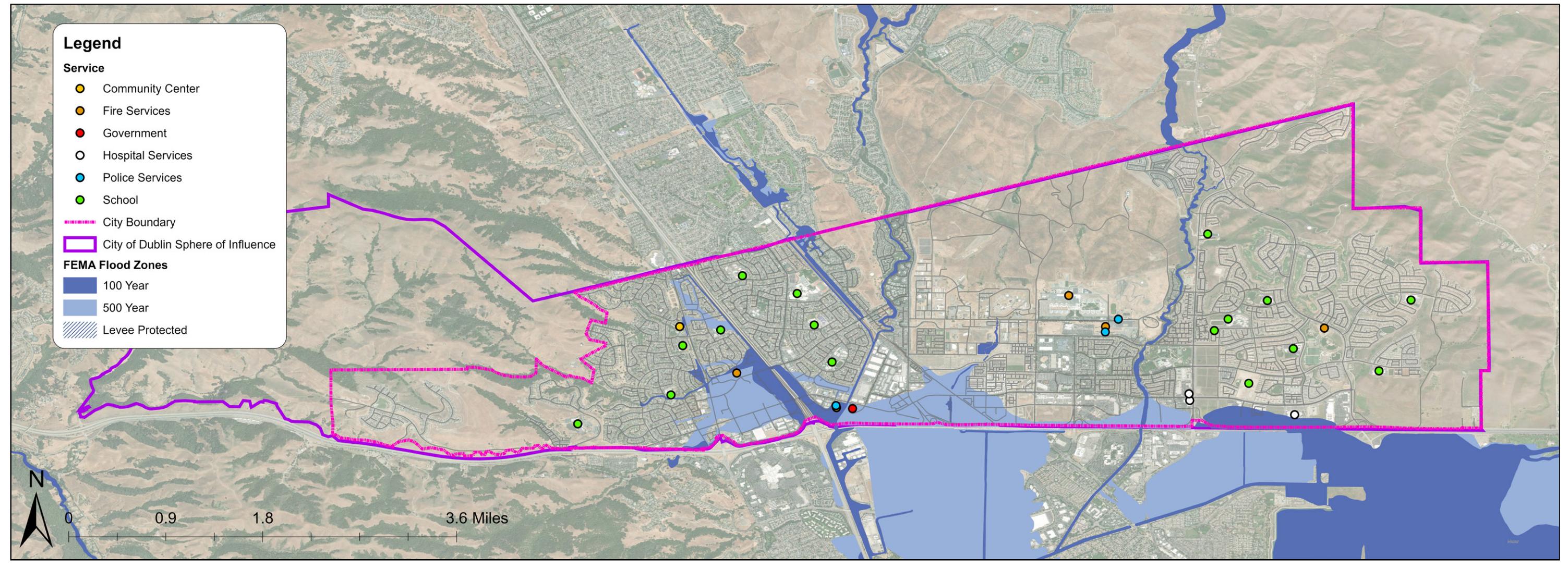


Source: Federal Emergency Management Agency (FEMA), FEMA Flood Maps, National Flood Hazard layer, 2021



DUBLIN GENERAL PLAN DUBLIN ESSENTIAL FACILITIES AND FEMA FLOOD RISK ZONES

(Figure 8-8)



Source: Federal Emergency Management Agency (FEMA), FEMA Flood Maps, National Flood Hazard Layer, 2021

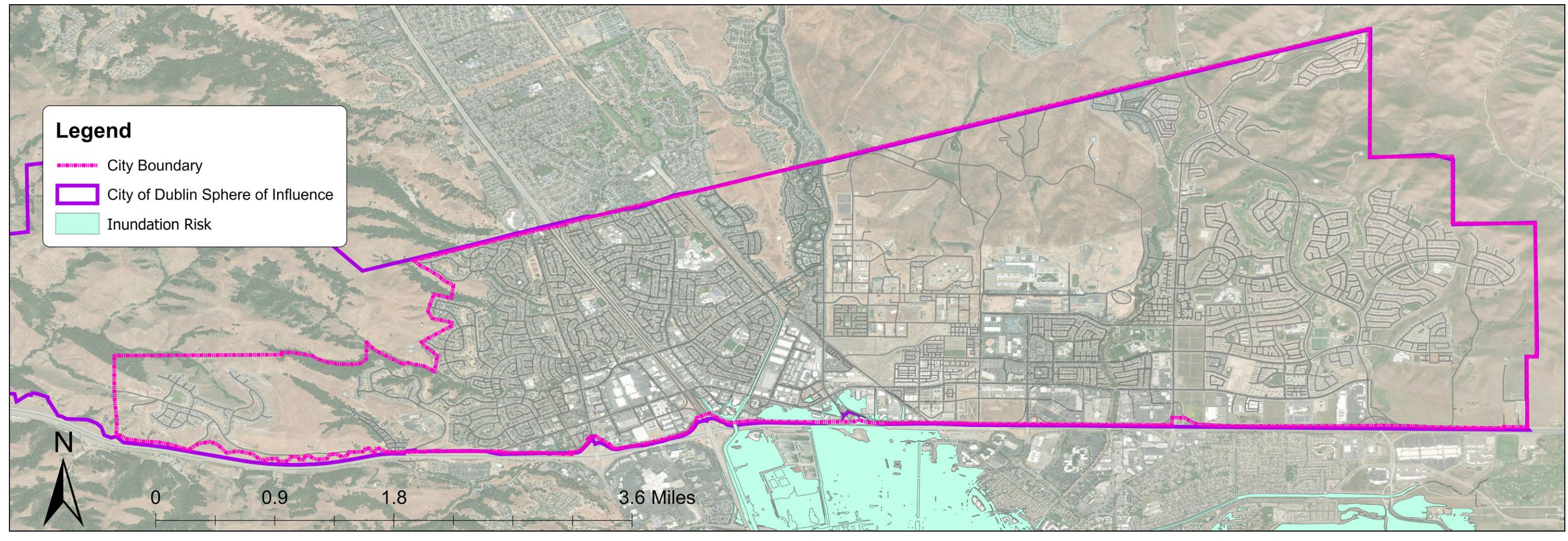
8.4.1.2 DAM FAILURE

Dam failure is an uncontrolled release of impounded water from a reservoir through a dam due to structural failures or deficiencies in a dam. A dam is an artificial barrier that can store water, wastewater, or liquid-borne materials for reasons such as flood control, human water supply, irrigation, livestock water supply, energy generation, containment of mine tailings, recreation, or pollution control. More than a third of the country's dams are greater than 50 years old. Approximately 14,000 dams nationally pose a significant hazard to life and property if failure occurs. Reservoir or dam failure may result in loss of life and damage to structures, roads, and utilities. Several influences can affect the severity of a reservoir or dam failure event: the amount of water impounded and the density, type, and value of the development and infrastructure located downstream of the reservoir or dam. Furthermore, downed tree limbs and other debris can cause localized flooding during heavy rain events.

According to the California Division of Safety of Dams (DSOD) Dam Breach Inundation Map, as of 2022, there are 23 dams in Alameda County of which 18 are classified as high or extremely high hazard according to the DSOD Downstream Hazard Classification Guidelines. Of these, the Del Valle Dam has the highest potential to impact the City of Dublin if a dam failure were to occur. Figure 8-9 depicts the inundation risk for the City of Dublin. As shown in Figure 8-9, a portion of the southern area of the City, along Interstate 580 near Dougherty Road, is of extremely high inundation risk due to the proximity to the Del Valle Dam.

 DUBLIN GENERAL PLAN DUBLIN
INUNDATION RISK

(Figure 8-9)



Source: California Geological Survey, California Governor's Office of Emergency Services, and AECOM, 2021 State of California, Tsunami Hazard Area Map, Alameda County, 2021

According to the 2021 Alameda County Local Hazard Mitigation Plan, there have been three recorded dam failures in Alameda County, all of which did not take place in Dublin. The three recorded dam failures in Alameda County are:

- 1905: Piedmont #1 Dam had an outlet wall sheared off at the core wall.
- 1918: Calaveras Dam failure during construction in 1918. A landslide damaged the upstream shell of the dam and destroyed the dam's outlet tower.
- 2015: Inflatable dam on Alameda Creek (Rubber Dam 3) failed due to vandalism, releasing a significant supply of the community's water into San Francisco Bay.

Dam failures have a low incidence of occurrence. Since 2017, DSOD has instituted stricter inspection and emergency response procedures. To mitigate and prepare for dam failure events, the City has implemented mitigation activities and programs, including retrofitting and relocating structures in high hazard areas, streamlining permit processes of residential and commercial structures following disaster, and providing outreach activities related to hazard mitigation and disaster preparedness.

A. Guiding Policy

1. Regulate development in hillside areas to minimize runoff by preserving woodlands and riparian vegetation. Retain creek channels with ample right-of-way for maintenance and for maximum anticipated flow

B. Implementing Policies

1. Dedication of broad stream corridors shall be required as a condition of subdivision or other development approval.
2. Riparian vegetation shall be protected and removal of woodlands shall be prohibited wherever possible. Vegetation shall be replanted according to the standards in the Eastern Dublin Specific Plan or other applicable standards (see also General Plan Guiding Policy 3.1.A).
3. Drainage studies of entire small watersheds shall be required and assurance that appropriate mitigation measures will be completed as needed prior to approval of development in the extended Planning Areas.
4. The City shall continue to participate in the Federal Emergency Management Agency's (FEMA) flood insurance program.
5. See additional policies in the Conservation Element (Chapter 7).

8.5 HAZARDOUS MATERIALS

Hazardous materials are defined as any material that due to its quantity, concentration, physical, or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released. Federal, state, and local agency databases maintain comprehensive information on the location of facilities that use large quantities of hazardous materials, as well as facilities that generate hazardous waste. Hazardous materials are transported on the freeways, and some are used by Dublin industries. The Dublin San Ramon Services District, Alameda County Fire Department, and the Dublin Police Services form the City's hazardous materials team.

8.5.1 ALL PLANNING AREAS

A. Guiding Policies

1. The City shall maintain and enhance the ability to regulate the use, transport, and storage of hazardous materials and to quickly identify substances and take appropriate action during emergencies.
2. The City shall minimize the risk of exposure to hazardous materials from contaminated sites.

B. Implementing Policies

1. The City shall consider formation of a regional hazardous materials team consisting of specially trained personnel from all Tri-Valley public safety agencies.
2. As part of the City's Comprehensive Emergency Response Plan, the City has adopted a Hazardous Materials Response Plan. The City will periodically review the Plan to prepare for and respond to emergencies related to hazardous materials.
3. The City shall review and enforce the City's ordinances regulating the handling, transport, and storage of hazardous materials and hazardous waste.
4. The City shall require site-specific hazardous materials studies for new development projects where there is a potential for the presence of hazardous materials from previous uses on the site. If hazardous materials are found, require the clean-up of sites to acceptable regulatory standards prior to development.

8.6 AIRPORT LAND USE COMPATIBILITY

8.6.1 EASTERN EXTENDED PLANNING AREA

A. Guiding Policy

1. All proposed land uses within the Airport Influence Area (AIA) shall be reviewed for consistency with the safety compatibility policies and airspace protection policies of the Airport Land Use Compatibility Plan (ALUCP) for the Livermore Municipal Airport.

B. Implementing Policy

1. Adopt an Airport Overlay Zoning District to ensure that all proposed development within the Airport Influence Area (AIA) is reviewed for consistency with all applicable Livermore Municipal Airport, Airport Land Use Compatibility Plan (ALUCP) policies.