CITY OF ETNA

GENERAL PLAN SAFETY ELEMENT

AUGUST 11, 2025

CITY OF ETNA
442 MAIN STREET
ETNA, CA 96027

Figures*

* The maps included herein are provided for information purposes only and are subject to change. Lines, roads, topography, and other planimetric features shown on the maps are compiled from different sources and may not be current or reliable. The City of Etna assumes no liability for the accuracy of the data shown on the maps.

7.1 INTRODUCTION

The purpose of the Safety Element is to promote public safety and the protection of residents and property in the City through identification of natural and human-derived hazards with the potential to impact Etna, by incorporating identified hazard and risk considerations into the land use planning process, and through the inclusion of strategies to mitigate such hazards to the extent feasible.

7.2 STATUTORY REQUIREMENTS

California Government Code Section 65302(g) requires that each city and county develop 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 … and other geologic hazards known to the legislative body; flooding; and wildland and urban fires." In accordance with Government Code Section 65302(g)(3), information regarding fire protection and emergency services agencies must be included along with information on fire hazards, such as historical wildfire data, fire hazard severity zone maps, wildfire hazard areas, and the general location and distribution of existing and planned uses of land in Very High Fire Hazard Severity Zones. The Safety Element must also identify residential developments in hazard areas lacking sufficient emergency egress; include mapping of known fire, flood, and seismic and other geologic hazards; and address evacuation routes, military installations, water supply requirements, and minimum road widths and clearances around structures as they relate to fire and geologic hazards.[1] Climate change impacts and adaptation strategies must be addressed in the Safety Element or through adoption of a Local Hazard Mitigation Plan or other document that includes this information.

7.3 EMERGENCY SERVICES

7.3.1 Law Enforcement

Police protection services for the City are provided by the City of Etna Police Department. The Police Department is centrally located at 155 Diggles Street and is staffed between the hours of 8:00 a.m. and 3:00 p.m. Monday through Friday. Dispatch services are provided under contract by the Siskiyou County Sheriff's Office (SCSO). As of 2025, the Etna Police Department includes a full-time chief, three full-time officers, one part-time detective, and one part-time Community Service Officer (CSO). The Department is presently looking to hire an additional full-time officer and another part-time CSO. The Department's two volunteer reserve officer positions are currently vacant. Staffing is such that at least two officers are available to respond to calls. In addition to providing for law enforcement in the City, the Etna Police Department extends police protection services under contract to the nearby Town of Fort Jones, which allows both communities additional police coverage when needed. The Etna Police Department maintains mutual aid agreements with surrounding jurisdictions, including the SCSO, city police departments, the California Highway Patrol (CHP), and California Department of Forestry and Fire Prevention (CAL FIRE).

[1] There are no military installations within 50 miles of the City of Etna. Consequently, the Safety Element does not discuss hazards relative to facilities.

7.3.2 Fire Protection

Fire protection services for the City are provided by the City of Etna Fire Department. In 2025, the Fire Department is staffed by a chief, an assistant chief, and 10-12 volunteer firefighters. Because there are presently fewer volunteer firefighters than there have typically been in the past, the Fire Department would like to add an additional 8-10 volunteer firefighters. The Fire Station is centrally located at 400 Main Street, and response times within city limits are routinely under five minutes. Because older portions of the station are not designed to accommodate the Fire Department's modern equipment and are in poor condition, the Department is looking to construct a new facility that can fulfill the Department's operational needs.

In addition to protecting properties in the City, the Etna Fire Department maintains mutual aid agreements with nearby jurisdictions, including CAL FIRE, and automatic aid agreements with the Town of Fort Jones and the Scott Valley Fire Protection District (SVFPD). At present, the Department responds to all calls for fire and vehicle accidents in the Town of Fort Jones and SVFPD, which includes the City's sphere of influence, as well as to requests for assistance with medical calls. In recent years, the Etna Fire Department has been in discussions with the Town of Fort Jones, the SVFPD, and others to consolidate emergency response services throughout the Scott Valley, a move that is expected to increase efficiencies and improve the delivery of services for valley residents. Further beyond the Scott Valley, the Department assists the Salmon River Volunteer Fire and Rescue Company on a goodwill and as-needed basis due to the Company's limited resources.

The Fire Suppression Rating Schedule (FSRS) is a scoring system used by the Insurance Services Office (ISO) to rank a community's fire protection capabilities on a scale of 1 to 10. A high score of 1 is awarded to communities with superior fire protection capabilities and a classification of 10 is assigned to communities with fire protection capabilities that do not meet minimum criteria for ISO recognition. At the time of the most recent ISO rating in 2017, the Etna Fire Department received a Public Protection Classification (PPC) score of 5-5Y. A split rating was used to differentiate between areas that are within the City of Etna (5) and those areas that are within the Department's response area but outside city limits (5Y).

7.3.3 Medical Services

The nearest hospital to the City of Etna is Fairchild Medical Center (FMC), located approximately 28 road miles northeast in the City of Yreka. FMC and its clinics provide a variety of healthcare services, including emergent, medical, surgical, and ancillary services such as laboratory and imaging. The 25-bed hospital includes a Level IV Trauma Center and FMC in the process of constructing a new emergency department to increase capacity. FMC's Scott Valley Rural Health Clinic is located at 8 Commercial Street in Etna and is open during normal business hours Monday through Friday. According to FMC, its facilities meet the highest seismic rating and the organization maintains constant preparation and readiness for the next disaster. Located slightly further away in Mt. Shasta (62 road miles to the southeast) is Dignity Health's Mercy Medical Center (MMC), a 25-bed hospital offering similar services as FMC in addition to a Level III Trauma Center. Patients brought to MMC requiring a Level II Trauma Center are taken by air ambulance to Dignity Health's MMC in Redding. Medical air transport is provided by REACH Air Medical Services and PHI Air Medical, both of which operate air ambulances out of the Redding Municipal Airport. Depending upon the type of care needed, there are additional hospitals in Ashland, Medford, and Redding. For ground ambulatory services, the City of Etna Ambulance Service provides advanced life support and emergency medical transport services to all areas of the City and Scott Valley, as well as to the geographically isolated Salmon River area via mutual aid.

7.3.4 Disaster Management

The Siskiyou County Office of Emergency Services (OES), located in the City of Yreka, is the primary disaster management agency for Siskiyou County. Siskiyou County OES coordinates with local, state, and federal agencies to prepare for, respond to, and recover from emergencies and disasters. This includes helping communities like Etna develop the resources to mitigate risks, such as emergency preparedness plans, and supporting training for first responders.

Through the Ready Siskiyou program, Siskiyou County OES makes resources for disaster preparation and response available to the public. During large-scale events, Siskiyou County OES activates and maintains the Emergency Operations Center that is used to coordinate and support responses among the various agencies. Following major incidents, Siskiyou OES facilitates post-disaster response and recovery by providing technical advice, assisting with emergency declarations, and working with the California Governor's Office of Emergency Services to obtain Presidential proclamations.

7.4 EMERGENCY PREPAREDNESS

7.4.1 Local Hazard Mitigation Plan

In addition to the information contained herein, the City of Etna participated in the development of the Siskiyou County Local Hazard Mitigation Plan (LHMP). The LHMP was developed in accordance with the Disaster Mitigation Act of 2000 (DMA 2000) and followed FEMA's Local Hazard Mitigation Plan guidance. The LHMP incorporates a process where hazards are identified and profiled, the people and facilities at risk are analyzed, and mitigation actions are developed to reduce or eliminate hazard risk. The implementation of these mitigation actions, which include both short- and long-term strategies, involve planning, policy changes, programs, projects, and other activities. The current LHMP is incorporated into the City of Etna General Plan Safety Element by reference and is available on the City's website. A link to the current LHMP is included in Section 7.8, Resources.

7.4.2 Community Wildfire Protection Plan

The primary purpose of the Community Wildfire Protection Plan for Siskiyou County (CWPP) is to provide guidance that enhances protection of human life and to help Siskiyou County communities become more adaptable to wildfire, while reducing the wildfire threat to community values such as structures, critical infrastructure, businesses, and natural and historic resources. The CWPP is designed to guide future actions by residents, property owners, business owners, homeowners associations, fire safe councils, agencies, and citizens. It provides an understanding of how to plan and implement specific actions to reduce wildfire threat, live more safely in a wildfire prone environment, and build more resilient communities.

7.4.3 Water Conservation Plan

As discussed in the Circulation Element, a diversion dam on Etna Creek is presently the sole source for the City's domestic water supply. Because California law requires the City and other diverters to leave water instream for the benefit of other diverters and for wildlife, the amount of water the City can lawfully divert from Etna Creek decreases as instream flows diminish over the dry summer months and/or in response to droughts. To address the City's limited water resources and ongoing drought-related shortages, the City Council adopted the City of Etna Water Conservation and Outreach Plan in 2021. The Plan, which was most recently updated in June 2024, promotes the wise and responsible use of water as a scarce and valuable resource by: (1)

encouraging programs to minimize waste; (2) supporting public education programs that promote water conservation and a better public understanding of water usage; and (3) working through the City Council to develop, adopt, and implement water conservation policies and ordinances that help the City meet its mandate of delivering an adequate supply of water for the needs of Etna's residences, businesses, and schools and for fire protection in a manner consistent with state law.

7.4.4 Evacuation and Preparedness Plan

The Siskiyou County Local Transportation Commission (SCLTC) is presently developing the Siskiyou County Evacuation and Preparedness Plan in coordination with the County of Siskiyou, tribal governments, and the nine cities in Siskiyou County, including Etna. The objectives of the Evacuation and Preparedness Plan are to:

- Develop an understanding of current emergency preparedness plans and how transportation organizations, assets, and services are included in them.
- Analyze infrastructure deficiencies and recommend improvements to help mitigate risks related to natural disasters.
- Create and adopt a region-wide evacuation and preparedness plan detailing standardized practices and protocols for transportation services and evacuation centers for use by Siskiyou County OES, local and regional fire departments, local law enforcement personnel, transit and other transportation providers, the County, cities, and other local jurisdictions.
- Work to ensure regional cooperation, coordination, and capacity building with respect to emergency plans.
- Educate the public, with an emphasis on vulnerable communities, on related emergency protocols developed in the plan (e.g., designated locations for transportation evacuation, emergency shelters, etc.).

7.4.5 CAL FIRE Unit Plans

CAL FIRE utilizes strategic plans to guide its operations and resource allocation in wildfire prevention and suppression, as well as natural resource management. These plans are developed collaboratively with input from various stakeholders and focus on reducing wildfire risk, protecting lives and property, and managing California's forests. CAL FIRE's unit plans are specific to each of CAL FIRE's administrative units and focus on pre-fire management, hazard reduction, and wildfire response within their respective areas. They complement other planning documents like community wildfire protection plans and general plan safety elements. Unit fire plans often address issues like ingress/egress routes, operational training, and fuels reduction. The Unit Strategic Fire Plan for CAL FIRE's Siskiyou Unit was most recently updated in May 2025 and includes the following goals:

- Identify and evaluate wildland fire hazards and recognize life, property, and natural resource assets at risk, including watershed, habitat, social, and other values of functioning ecosystems.
- Promote and support local land use planning processes as they relate to individual landowner objectives and responsibilities and the protection of life, property, and natural resources from risks associated with wildland fire.

- Facilitate the collaborative development and sharing of all analyses and data collection across all ownerships for consistency in type and kind.
- Support and participate in the collaborative development and implementation of local, county, and regional plans that address fire protection and landowner objectives.
- Increase fire prevention awareness, knowledge, and actions implemented by individuals and communities to reduce human loss, property damage, and impacts to natural resources from wildland fires.
- Integrate fire and fuels management practices with landowner/land manager priorities across jurisdictions.
- Determine the level of resources necessary to effectively identify, plan, and implement fire prevention using adaptive management strategies.
- Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.
- Implement post-fire assessments and programs for the protection of life, property, and natural resource recovery.

7.4.6 Other Disaster Preparedness Resources

7.4.6.1 Emergency Preparedness Guidebook

The Siskiyou County Department of Public Health and Siskiyou County OES collaboratively developed The Siskiyou County Emergency Preparedness Guidebook to help prepare and keep Siskiyou County residents safe in the event of an emergency. The Guidebook includes a list of resources for staying informed prior to and during an incident, it details the steps to take when planning to evacuate, it describes the evacuation process, and it includes instructions for preparing for wildfires, smoke-related hazards, contaminated water supplies, earthquakes, volcanic eruptions, flood hazards, and power outages. Opportunities and programs for public involvement to increase a community's emergency response capacity are also identified. The Siskiyou County Department of Public Health prints and makes hardcopies of the Guidebook available to the public, and it publishes a digital version to the Department's website along with other resources, such as an Access and Functional Needs registry that is used to identify individuals who require additional assistance during emergencies or disasters.

7.4.6.2 ReadySiskiyou

ReadySiskiyou is a public notification system utilized by Siskiyou County OES that allows the public to sign up for and receive time-sensitive phone, text, and email alerts about emergencies and other important community information, including severe weather, evacuations, unexpected road closures, and missing persons.

7.4.6.3 Genasys Protect

Genasys Protect (formerly Zonehaven Aware) is an evacuation management tool utilized by Siskiyou County OES that helps first responders and communities more effectively plan, communicate, and execute evacuations through evacuation zones developed and approved in close collaboration with law, fire, and emergency service agencies. Using Genasys Protect, emergency responders and the public can identify Siskiyou County addresses and evacuation zones on an online map and view current evacuation information for the area. Evacuation zones in and around the City of Etna, as identified by Genasys Protect, are shown on **Figure 7-1,**

Evacuation Zones at the end of the Safety Element. The evacuation zones shown are for informational purposes only and are subject to change.

7.4.7 Evacuation Routes

The City of Etna strives to be prepared for natural disasters or other emergency events requiring evacuation in partnership with surrounding jurisdictions and Siskiyou County OES. In accordance with California Government Code Section 65302.15(a), which requires that cities and counties identify evacuation routes and their capacity, safety, and viability under a range of emergency scenarios, the City of Etna has identified State Route 3 (SR 3) and Main Street/Sawyer's Bar Road/Island Road as the City's evacuation routes (see **Figure 7-2, Evacuation Routes**). These evacuation routes are consistent with the evacuation routes identified by the County of Siskiyou in its General Plan Safety Element. Although the City maintains control over Main Street only, with Sawyer's Bar Road and Island Road being county roads and SR 3 a state highway, these roadways were identified by the City due to their higher capacity relative to other streets in the City in accordance with the functional classifications assigned to them by the California Department of Transportation (Caltrans). As discussed in the Circulation Element, Caltrans has classified SR 3 as a minor arterial, Main Street and Sawyers Bar Road as major collectors, and Island Road as a minor collector. The areas adjacent to these roadways inside city limits are largely free of significant fuel loading and overhead vegetation, however, additional vegetation clearance and on-street parking restrictions should be implemented to improve public safety during emergency events. Ongoing coordination with the County and Caltrans will be necessary to ensure the evacuation routes under their ownership and control provide sufficient capacity, safety, and viability for evacuations under a range of emergency scenarios.

Which direction evacuations will proceed will depend upon the specific disaster, but in general evacuations are expected to move people north out of the City on SR 3. SR 3 has the highest capacity of any roadway in the Scott Valley and it leads directly out of the valley and to the City of Yreka to the north. The nearest hospital is in Yreka, and during emergencies in the past, the evacuation center has typically been established at the Siskiyou County Fairgrounds in Yreka. Though significantly less direct and with lower capacity than SR 3, Island Road leads north through irrigated farmland and reconnects with SR 3 south of the Town of Fort Jones. Travelling SR 3 southeast from Etna toward Weaverville is a winding 75-mile journey along two rivers and through heavy forest. The journey southwest along Sawyers Bar Road from Etna to Forks of Salmon is a 40-mile drive through steep forested terrain that starts with a long climb over Etna Mountain and ends with a long twisting decent along the North Fork of the Salmon River. For this reason, most evacuations are expected to move northward.

The use of evacuation routes in the City under a variety of scenarios is discussed below.

- Following a volcanic eruption, or in advance of an eruption if there is sufficient warning, residents will be directed to either evacuate of shelter in place depending upon the nature of the eruption and distance to the hazard. For ash fall, the most likely direct impact to the City from an eruption of either the Mount Shasta or Medicine Lake volcanoes, sheltering in place is likely to be sufficient. However, if there are secondary effects, such as a fast moving wildfire sparked by a lateral blast or pyroclastic flows, the Incident Commander will make an assessment of areas at risk in close coordination with other agencies, and the Etna Police Department and Siskiyou County Sheriff's Office will direct the evacuation, if needed, accordingly.
- Earthquakes occur suddenly and for the most part without warning. Evacuation may be necessary post-disaster if the ground shaking causes a secondary disaster, such as a fire,

hazardous materials spill, or landslide. The evacuation route(s) to follow would be determined by the Etna Police Department and Siskiyou County Sheriff's Office based on an assessment of which areas are at risk from secondary hazards.

- Wildfires in the area have historically occurred in the mountainous areas surrounding the Scott Valley with little fire activity on the valley floor. Nevertheless, the threat of wildfire to the City of Etna is of great concern. Should winds driven by an afternoon thunderstorm spread a wildfire into the City, evacuation of potentially affected neighborhoods is likely. The evacuation route(s) would be determined based on an assessment of areas at risk and the evacuation directed by the Etna Police Department and Siskiyou County Sheriff's Office.
- Localized flooding due to storm events can and does occur within the planning area, typically where low spots in the topography capture storm water. Less often flooding occurs within the Etna Creek and Johnson Creek floodplains. The appropriate evacuation routes to use in the event of flooding will depend on where flooding is more severe and on the evacuee's destination. Evacuation may involve merely getting out of the low spots and onto higher ground. However, if flooding is widespread in the community, the evacuation route(s) to follow would be determined by the Etna Police Department and Siskiyou County Sheriff's Office based on an assessment of affected areas.
- Releases of hazardous materials, either as a result of a leak or due to an accidental spill, generally will require the evacuation of a relatively small area, generally within a one- to two-mile radius of the release. However, due to the small size of the City, that potentially encompasses all of Etna. The evacuation route(s) to follow would be determined by the Etna Police Department based on an assessment of the leak location, prevailing wind directions, traffic flow, and location of the emergency shelter, if any, opened for the event.

7.4.7.1 Single-Access Roadways

A key element of being able to safely evacuate is having access to multiple ingress and egress routes in case one roadway becomes blocked. While multiple access points are not presently required in the City's Subdivision Ordinance, the City is located entirely within a Very High Fire Hazard Severity Zone, and as such, the City also enforces the State's Minimum Fire Safe Regulations (Title 14 of the California Code of Regulations (CCR), Division 1.5, Chapter 7. Subchapter 2, Articles 1-5). In accordance with 14 CCR Section 1273.08 (Dead End Roads), roads without more than one access point are limited to 800 feet in length when they serve parcels zoned for less than one acre, which are most lots in Etna. Accordingly, such a requirement is enforced during the City's review and approval of subdivision maps, when needed, to ensure public safety. However, because older subdivisions may have been approved without such a requirement, and in an effort to eventually improve access to all areas of the City, an assessment of the dead-end roadways in Etna was prepared. These roadways are shown on **Figure 7-3, Single-Access Roadways** at the end of the Safety Element.

As determined through the City's assessment, there are only two single access roadways in Etna that exceed 800 feet in length, Vernon Street and Callahan Street east of its intersection with Callahan Road. Vernon Street is an approximately 1,040-foot unpaved roadway that is restricted to a 15-foot right-of-way and serves the City's water treatment plant and four residential lots, three of which are developed. Callahan Street east of its intersection with Callahan Road is an approximately 1,020-foot partially paved roadway located within a 50-foot right-of-way that serves 12 residential lots inside city limits and two parcels outside the City. Residential uses have been established on ten of the city parcels and one of the county parcels. An additional single-access,

unpaved roadway, Pleasure Park Road, weaves in and out of city limits a total distance of approximately 1,500 feet and serves five parcels, two of which are developed with dwellings. Other single-access roadways or road segments in the City, all of which are less than 800 feet in length include: Cleveland Street (350 feet) and Howell Avenue (350 feet) south of Woodland Street, Callahan Road east of Lovers Lane (300 feet), Commercial Street west of Industrial Parkway (90 feet), Telco Way north of Commercial Street (400 feet), Industrial Parkway north of Commercial Street (680 feet), and two segments of Pleasure Park Road, the longest of which is approximately 570 feet. Where feasible and appropriate, access should be improved for properties along these roadways.

7.4.8 Municipal & Emergency Water Supplies

The City obtains its water from a diversion on Etna Creek. From there the water is conveyed via gravity to the City's Water Treatment Plant where it is filtered and chlorinated before entering a 155,000-gallon in-ground reservoir and two above-ground steel tanks with a combined capacity of 338,000 gallons. To ensure the City maintains adequate water supply and fire flows for existing and future development, the City has an ongoing program of upgrading its water distribution system as funding allows, and the City has been successful obtaining grants for this purpose. Most recently in 2022, the City was awarded grant funding through the State's 2021 Urban and Multibenefit Drought Relief Grant program to increase the City's water supply and storage capacity. Improvements approved for funding include replacement of water meters throughout the City with automated meter reading devices, installation of a 250,000-gallon water storage tank, and development of a secondary water supply for use during emergencies. The new water meters and storage tank have been installed and are in service, and the second phase of the project, which entails developing up to two groundwater wells at Johnson-Joss Memorial Park, is in process and scheduled for completion in 2025.

With the addition of the recently installed 250,000-gallon water storage tank, the City's storage capacity has been increased to 493,000 gallons. This allows the City's water distribution system to deliver 1,000 gallons per minute (GPM) for 48 hours, including during those times when system demand is at its highest (i.e., peak load conditions).[2] However, once the City's water storage is depleted, the supply of water available to meet the City's domestic water and firefighting needs drops to 800 GPM. This can currently be increased to 1,000 GPM and greater by means of a bypass valve at the City's Etna Creek diversion that must be opened manually. Once the new emergency water supply is developed and in service, the ability to quickly increase flows during an emergency event will be greatly improved.

7.4.9 Road Minimum Widths and Turnouts

Minimum road widths and turnouts are essential for designing a safe environment so that emergency vehicles can access all areas of the City. The City of Etna requires that all new road widths and turnouts comply with the minimum street standards of Chapter 16.24 (Street and Highway Design) of the Etna Municipal Code, as well as Article 2 (Ingress and Egress) of the State Minimum Fire Safe Regulations. Where inconsistencies exist, the more restrictive standards apply. Where existing roadways do not meet either set of standards, improvements are scheduled in the Siskiyou County Regional Transportation Plan (RTP) as funding allows. The City's Public Works, Engineering, and Fire Departments are responsible for implementing and ensuring public roads are designed to these standards.

[2] There is expected to be some variability in pressure depending upon location within the distribution system.

7.4.10 Defensible Space

Defensible space is the area around a structure where vegetation and other combustible materials are managed to slow or stop the spread of wildfire. Defensible space can protect structures from direct flame impingement and radiant heat, as well as reduce the number of burning embers. It also helps to safeguard fire fighters who may be attempting to save the structure during a fire. It is considered crucial for structure survivability during wildfires.

California Government Code Section 51182 requires that any person owning, leasing, controlling, operating, or maintaining an occupied structure in VHFHSZ maintain 100 feet of defensible space around that structure. In the immediate five feet surrounding the structure, the most intense fuel modification is required. This zone must be kept ember-resistant through use of non-combustible hardscaping, pruning overhead vegetation, removing branches within 10 feet of chimneys, regular debris removal, and relocating combustibles outside this zone. In the intermediate area surrounding the structure (5-30 feet or to the property line), grass must be kept short, trees kept trim, dead and dying plants and dry vegetation removed, and trees, shrubs, and other combustible items kept separate. In the extended zone surrounding the structure (30-100 feet or to the property line), grass must be kept short, dried vegetation removed, vertical and horizontal spacing established between lawn, shrubs, and trees, and the areas around wood piles, outbuildings, and propane tanks kept clear.

Because most of the City has only recently been designated as VHFSZ, the creation of defensible space, while advisory, has not been a citywide requirement. With recent changes to the Fire Hazard Severity Zone map for Etna, the creation and maintenance of defensible space has become mandatory throughout the City. Accordingly, the City is working to improve resident awareness of the defensible space requirements and to obtain grant funding for defensible space improvements.

7.4.11 Fuel Breaks

The Etna Shaded Fuel Break is an approximately 100 to 200-foot wide shaded fuel break that runs south and west of the City. The fuel break has been in existence since 1979 and has been maintained at various intervals over the years.[3] The fuel break begins at Sawyers Bar Road south of Etna Cemetery, proceeds west approximately one-half mile along a dirt road until it intersects with another dirt road, turns north, and proceeds along this other dirt road one and three-fourths miles to the center of Section 20 where it shifts east and terminates at SR 3. Fuel reduction treatments within the Etna Fuel Break have included prescribed burns, mastication, thinning, pruning, and burning of brush piles. The City of Etna Fire Department uses the opportunities for training.

In 2021, CAL FIRE worked throughout Siskiyou County on fuel reduction projects, including within the Scott Valley. CAL FIRE worked with landowners and others to educate and assist them with fuel reduction projects utilizing broadcast burning to enhance agriculture production and fire safe landscapes. Opening and maintaining fire access roads was a priority. Work continued through cooperation with private timber companies and landowners to open previously impassable fire access roads.

[3] Some landowners with property in the fuel break have been conducting fuel reduction treatments to enhance fire safety since the 1950s.

Private timber companies have continued the fuel reduction efforts from Patterson Creek to Crystal Creek accounting for about 11 miles of treatment varying in width from 600 feet to one-half mile. Timber companies have also thinned along Sniktaw Road above Shackleford Creek and continue to work on improving ingress and egress routes. These projects seek to bolster and extend the Etna Fuel Break to protect of stakeholders on the west side of Scott Valley from wildfires.

The Scott River Watershed Council and the Siskiyou Prescribed Burn Association have submitted grants for education and fuels reduction projects in the Scott Valley that connect previously completed fuel breaks and proposed Fire Safe Council grant fuel breaks.

7.5 HAZARDS

Emergency preparedness measures in the City of Etna and elsewhere are driven by the risks and potential hazards affecting the area. For Etna, vulnerabilities include the City's climate and setting, seismic and geologic hazards, urban and wildland fires, flood hazards, hazardous materials spills, and the effects of climate change, such as drought, wildfire, extreme weather, and flooding.

7.5.1 Climate and Setting

The City of Etna is located at an average elevation of 2,936 feet above sea level in the approximately 100-square mile Scott Valley. The long, narrow valley sits in an approximately 814-square mile watershed drained by the Scott River and its tributaries. The Scott Valley is situated within and surrounded by the rugged and heavily forested Klamath Range approximately 28 miles west of Mount Shasta in the volcanic Cascade Range. Topography within the Scott Valley is relatively flat, gaining only 355 feet of elevation between Meamber Creek in the north and Sugar Creek roughly 25 miles to the south. The elevation change outside the valley is more sudden. Because of the surrounding topography, road access in and out of the Scott Valley is limited and at times difficult.

The Scott Valley's climate is classified as Mediterranean, which is characterized by high seasonal variability, including hot, dry summers and cool, wet winters. The average high temperature in the Scott Valley in July is 91.4° F and the average low temperature in January is 23.0° F. Most precipitation in the Scott Valley falls over a roughly five-month period from late October/early November until late March/early April, with snowfall common between late November and early March. The Scott Valley receives 20.47 inches of total annual average precipitation and 19.5 inches of total average snowfall. The least amount of precipitation occurs during the summer months, with July receiving an average of 0.40 inch. When precipitation does fall during the summer, it typically arrives in a thunderstorm. Agricultural uses, particularly alfalfa production, are widespread in the Scott Valley, and much of the valley floor is irrigated between spring and early fall.

Like the topography of the Scott Valley, much of the City is relatively level, sloping gently to the northeast and the nearby Scott River. Two of the river's tributaries, Etna Creek and Johnson Creek, and their floodplains are within the City's planning area. Etna Creek borders the City to the south and Johnson Creek passes through Etna in the north. A short distance outside city limits to the west, the land ascends abruptly and the valley floor gives way to the Marble Mountains, a subrange of the Salmon Mountains, which are themselves a subrange of the Klamath Range. In addition to the forested slopes along the City's western border, vegetative cover in or near the City includes irrigated farmlands, open land, dry farmland, and some brushy areas. Cover in the

brushy areas include thorn-apple thickets, willows, wild chokecherry, and cottonwoods. The understory vegetation is annual and perennial grasses, wild rose bushes, weeds, and hemlock.

Etna's geographical setting presents several unique public safety concerns:

- The City of Etna is susceptible to impacts resulting from volcanic activity at the Mount Shasta and Medicine Lake volcanoes. The most likely impacts would be from tephra ash, which are fine fragments of volcanic rock formed in an explosive eruption.
- The Klamath Range that encompasses the City of Etna and the Scott Valley was formed through long, complex and ongoing geologic processes that continue to generate seismic activity in the region.
- Isolated areas of steeper slopes north and west of the City are potentially unstable and susceptible to deep-seated landslide activity.
- Wildfires are a regular occurrence in the mountains surrounding Etna, most of the City is considered Wildland Urban Interface, and all of Etna is designated as being in a Very High Fire Hazard Severity Zone.
- Persistent drought in the region and/or a catastrophic wildfire in the Etna Creek watershed could adversely impact the City's surface water supply.
- There are approximately 129.3 acres in the City that are within the 100-year floodplains for Etna Creek and Johnson Creek and an additional 30.6 acres in Etna within 500-year floodplains.
- The dominant soil types in Etna have moderately slow permeability, which can cause localized flooding during extreme weather events, particularly where stormwater drainage improvements are absent or otherwise inadequate.
- A toxic or hazardous chemical accident on SR 3 or elsewhere in the City could have serious and immediate implications in Etna.

7.5.2 Seismic and Geologic Hazards

The Klamath Range where Etna is located is noted for its complex geologic history, while the Cascade Range a short distance to the east is known for its large and recently active volcanos.

7.5.2.1 Volcanic Hazards

The two Cascade Range volcanoes nearest to the City of Etna are Mount Shasta and Medicine Lake. Though Mount Shasta has not been active for more than two centuries and Medicine Lake for almost a millennium, both volcanoes are only dormant and will almost certainly erupt again. Experience with Cascade Range volcanoes, including Mount St. Helens (1980 to present) and Mt. Lassen (1911-1920), demonstrates that eruptive episodes can and do occur in present time involving volcanoes that are generally considered inactive. The Mount Shasta and Medicine Lake volcanoes and the potential hazards associated with them are discussed below.

Mount Shasta

Mount Shasta is a 14,163-foot-high stratovolcano located approximately 28 miles east of Etna. The current volcano formed on the remnants of an older volcano that collapsed sometime roughly 380,000 to 330,000 years ago. The collapse created one of the largest landslides known on Earth, depositing volcanic rock and other materials across approximately 260 square miles of the Shasta

Valley to the northwest. Since then, Mount Shasta has had long lulls in eruptive activity punctuated by brief period of many eruptions. Eruptions around 11,000 years ago built nearby Black Butte and the Shastina dome on the west flank of Mount Shasta. In the last few millennia, there have been eruptions at the volcano's summit and from vents on Mount Shasta's east flank. The most recent well-documented eruption occurred around 3,000 years ago. According to the US Geological Survey (USGS), small, short-lived blasts of steam and ash may have occurred as recently as 1,800 to 200 years ago, but additional field verification is required.

Research published to date suggest that Mount Shasta may have erupted about once every 800 to 600 years over the last 10,000 years. This corresponds to a 3.5 percent chance of eruption within the next 30 years. USGS seismometers and GPS receivers operated by EarthScope Consortium, formerly UNAVCO, form the monitoring network for Mount Shasta. The volcano has been relatively quiet for at least the past 15 years, with only a handful of small-magnitude earthquakes and no demonstrable ground deformation. Although geophysically quiet, periodic geochemical surveys indicate that volcanic gas emanates from a fumarole at the summit of Mount Shasta from a deep-seated reservoir of partly molten rock. According to USGS, Mount Shasta is the most likely Cascade Range volcano to produce an explosive eruption of very large volume. Future eruptions, like those of the last 10,000 years, are likely to produce deposits of ash, lava flows, domes, and pyroclastic flows, and could endanger infrastructure and lives within several miles of the volcano. It is ranked by USGS as the fifth highest threat volcano in the United States.

Medicine Lake

Medicine Lake volcano is a large, shield volcano located roughly 63 miles to the east/northeast of Etna. Located at the volcano's summit (elevation 7,913 feet) is a water-filled caldera formed by withdrawal of magma during eruptions. The caldera is eight miles wide and 14 miles across. The intermittent, mostly nonexplosive eruptions over the last half million years produced expansive lava flows, some covering as much as 100 square miles. The volcano has erupted nine times during the past 5,200 years, and seven of those eruptions began with an explosive phase. The two youngest eruptions produced ash clouds that drifted tens of miles downwind before explosions ceased and thick, glassy lava flows began oozing from the vents forming Little Glass Mountain (1,000 years ago) and Glass Mountain (950 years ago).

Overall, the pattern of eruptions over the past 12,500 years suggests the likelihood of a future eruption from Medicine Lake volcano is one in 3,600 annually, which corresponds to about a one percent chance of eruption within the next 30 years. Seismometers and GPS receivers provide a modest volcano monitoring network at Medicine Lake volcano. Volcanic gas emissions suggest that partly molten rock lies beneath the volcano, which provides heat for a robust geothermal system underlying the caldera. Sporadic earthquake swarms are detected by the monitoring network as well as ground subsidence owing to motions on regional faults and "sagging" of rock softened by volcanic heat. The character of a future eruption is most likely to be effusive, with fountains of lava potentially rising hundreds of feet in the air. Over the course of weeks to months, a circular mound of cinder would form around the vent and slow-moving lava flows could impact areas many miles away. It is ranked by USGS as the 45th highest threat volcano in the United States.

Volcanic Activity

Several USGS reports describe the characteristics of volcanic activity likely to affect areas near each volcano, including Volcanic Hazards at Mount Shasta, California (1989), Volcano Hazards Assessment for Medicine Lake Volcano, Northern California (2007) and California's Exposure to

Volcanic Hazards (2019). These characteristics are discussed below along with their possible impact to the City of Etna. The hazard areas associated with the two volcanos are shown on USGS's "Mount Shasta, CA Simplified Hazards Map" and USGS's "Medicine Lake, CA Simplified Hazards Map," which have been incorporated into the Safety Element as **Figures 7-4, Mount Shasta Volcanic Hazards** and **7-5, Medicine Lake Volcanic Hazards**. The maps do not show areas potentially affected by volcanic ash, which is often influenced by wind direction and distance from the source.

Pyroclastic Flows: Pyroclastic flows are streams of hot ash and rock fragments, mixed with hot air and other gases, that move rapidly along the ground surface during an eruption. These flows are especially dangerous due to their high temperatures and their high speeds which may be more than 100 miles per hour. Due to the speed of pyroclastic flows, escape is nearly impossible. They are best avoided by evacuation of threatened areas before an eruption. Etna is located outside of the pyroclastic flow zones of both volcanoes.

Lateral Blasts: This type of blast is a sideways-directed volcanic explosion that carries large pieces of rock and ash at a very high speed along and above the ground surface. The rock debris carried by the lateral blast of Mount St. Helens in 1980 had an initial speed of more than 250 miles per hour, and it was still moving about 60 miles per hour near its outer limit about 15 miles from the volcano. Lateral blasts may cause fatalities as the result of impact, burial, or heat. Mount Shasta, like Mount St. Helens, is potentially subject to lateral blasts. Etna is located within an area potentially affected by lateral blasts at Mount Shasta but at the outer limits of that zone, such that the likelihood of the threat is reduced due to distance.

Lava Flows: Lava flows are rarely life-threatening because they move slowly enough for people to get out of their way and seldom occur at the outset of an eruption. Etna's distance from both volcanoes is sufficient that lava flows are not considered directly life threatening; however, lava flows can affect critical transportation corridors, such as Interstate 5 and Highway 89, and ignite wildfires in the region.

Lahars/Volcanic Mudflows: A lahar, or volcanic mudflow, is a mass of water-saturated rock debris that moves downslope generally as a fluid. Lahars can form when lava flows, pyroclastic flows, or hot lateral blasts melt snow on the side of a volcano. Mudflows tend to follow stream valleys and can travel long distances generally at a rate of 10 to 20 miles per hour, but faster on steep slopes. Due to their slower speed and distance from Etna, as well as the intervening topography between Etna, Mount Shasta, and Medicine Lake, such flows are not considered life threatening should a mudflow occur.

Landslides: A volcanic explosion, severe earthquake or heavy rains could start landslides of rock debris from the side of Mount Shasta. A landslide triggered by an earthquake at Mount St. Helens on May 18, 1980, traveled about 14 miles beyond the volcano. Mount Shasta has also been subject to mudflows that have been triggered by heavy rains on top of snow, although this type of mudflow is not considered to be a threat to Etna.

Volcanic Ash: Ash resulting from an eruption could cover a large area and could reach a depth of two inches or greater, depending on the amount of ash released into the atmosphere and the direction of wind at the time. Given that the prevailing winds generally come from the northwest and southwest, it is likely that most ash would fall east of the volcanoes and away from Etna.

7.5.2.2 Surface Rupture

As shown on **Figure 7-6, Fault Activity Map** there are several faults in the region. The closest of these are the Scott Valley Fault located approximately two miles northwest of the City near Crystal Creek, the Mallethead Fault in the hills surrounding the Scott Valley approximately 2.5 miles east of Etna, and an unnamed fault approximately 5.8 miles to the south. Though the faults that surround Etna are potentially active (i.e., they show evidence of displacement during the past 1.6 million years), the closest active fault, one which has ruptured in the last 11,000 years, is located approximately 30 miles east of Etna in the Cedar Mountain Fault System. The City is not identified by the California Geological Survey as being located in an Alquist Priolo Fault Zone.

7.5.2.3 Ground Shaking

Regions of California near major active faults experience, on average, stronger earthquake shaking more frequently. According to USGS, the nearest recorded earthquake affecting Etna in the past 125 years was a magnitude 2.6 earthquake that occurred approximately 1.9 miles east/southeast of city limits on December 4, 1997. The earthquake, although close, had little impact. The largest recorded earthquakes to affect Etna were earthquakes with magnitudes of 7.2. The first earthquake occurred on November 8, 1980, approximately 77 miles west/southwest of the City, and the second occurred on April 25, 1992, approximately 106 miles west/southwest of Etna. While both earthquakes were of the same magnitude, the latter was felt throughout much of northern California and southern Oregon and as far south as San Francisco, was followed by an earthquake with a magnitude of 6.5 a little over an hour and a half later, another quake with a magnitude of 6.7 less than four hours later, and several large aftershocks. It also resulted in significantly more injuries in the areas that were hardest hit. Due to the distance from the epicenter to Etna, the earthquake had an observed Modified Mercalli Intensity of III at the USGS monitoring station in Callahan, which is classified as weak. While all of California is earthquake-prone, according to the USGS, the City of Etna has lower potential for more frequent, stronger shakes than possible and experienced elsewhere (see **Figure 7-7, Earthquake Shaking Potential**).

7.5.2.4 Slope Instability

Slope failure is the movement of soil, rock, or other earth materials, downhill in response to gravity. Slope failure includes rock falls, debris flows, debris avalanches, earthflows, mudflows, landslides, and erosion. While slope failure can result from erosive activity, especially as climate change increases occurrences of severe rain events, the planning area is relatively flat, such that slope instability is not a significant concern within the City. In the Marble Mountains west of the City, the potential for slope instability is much greater. Nevertheless, according to the California Department of Conservation, the nearest reported landslide to the City of Etna occurred on October 24, 2021, in the Bolam Creek drainage, which is on the north slope of Mount Shasta approximately 30 miles east of Etna. The landslide was a “shallow landslide,” a type of rapid debris flow caused by a period of intense rainfall and/or rapid snowmelt where the plane failure is located 10 feet deep or less below ground. Shallow slides typically follow a long saturation period punctuated by an intense burst of precipitation over several hours or a few days. Deep-seated landslides, on the other hand, are a type of slower moving landslide where the depth of the plane failure ranges from ten feet to several hundreds of feet below the surface. These types of slides tend to result from changes in the geologic and hydrologic processes in the area of the landslide, such as earthquakes and increased groundwater levels. Once formed, deep-seated landslides can persist for a few years or even centuries. The relative likelihood of deep-seated landslides based on estimates of rock strength and steepness of slopes in and around the City is shown on **Figure 7-8, Deep Seated Landslide Susceptibility**.

7.5.2.5 Liquefaction

Liquefaction occurs when loose sand and silt that is saturated with water behaves like a liquid when shaken by an earthquake. Liquefaction can result in the following types of seismic-related ground failure:

- Loss of bearing strength – soils liquefy and lose the ability to support structures.
- Lateral spreading – soils slide down gentle slopes or toward stream banks.
- Flow failures – soils move down steep slopes with large displacement.
- Ground oscillation – surface soils, riding on a buried liquefied layer, are moved back and forth by shaking.
- Flotation – floating of light buried structures to the surface.
- Settlement – settling of ground surface as soils reconsolidate.
- Subsidence – compaction of soil and sediment.

Three factors are required for liquefaction to occur: (1) loose, granular sediment; (2) saturation of the sediment by groundwater; and (3) strong shaking. As discussed in the Open Space & Conservation Element, the soils underlying most of the City are well-drained loams. Although there are approximately 205 acres east of Howell Avenue south to Pleasure Park Road and Callahan Street where the soil types are comprised of somewhat poorly drained sand, silt, and clay, liquefaction has not been reported in the past nor has the City historically been subject to strong seismic activity.

To inform local governments about potential hazards, the California Geological Survey (CGS) designates areas of the State that are subject to potential liquefaction. The CGS does not identify Etna as being located in an area of potential liquefaction. The nearest liquefaction zones identified by CGS are located approximately 230 miles south of the City in the San Francisco Bay area.

7.5.2.6 Subsidence

Subsidence is the sinking of the ground due the underground movement of material. It is frequently caused by extracting water, oil, natural gas, and mineral resources by means of pumping, fracking, and mining activities. However, subsidence can also be caused by natural events, including earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and adding water to fine soils deposited by wind. It can happen over very large areas, such as a region of the State, or over very small areas, such as within a single parcel. The USGS identifies areas of recorded subsidence, both historical and current, across California. The City of Etna is not identified by USGS as being affected by current or historical subsidence. The USGS identifies an area located east of Sacramento as the nearest documented subsidence to Etna.[4]

7.5.3 Wildland and Urban Fire Hazards

Wildfires are a regular feature of the landscape throughout much of California, including in the Klamath National Forest (KNF) and rugged mountains west of the City which typically experience dozens of new fire starts each year. The fires are primarily the result of the region's hot, dry summer climate and recurrent afternoon and evening thunderstorms that form over the mountains

[4] Although not presently shown on the USGS map, subsidence has recently been observed in the Lower Klamath Basin following years of curtailed water deliveries by the Bureau of Reclamation and increased reliance on groundwater.

in the unstable air during the heat of summer and early fall. According to the US Forest Service, approximately 80 percent of the wildfires that occur in the KNF each year are sparked by lightning, while the remaining 20 percent are caused by other activities, such as unattended burn piles, improperly extinguished campfires, and mowing. Other potential wildfire ignition sources include downed power lines, vehicle accidents, equipment malfunctions, and arson.

Regardless of how a fire starts, once it has begun, strong winds can carry burning embers several miles from the main fire, allowing them to ignite new fires. This makes embers the primary cause of structural damage and home loss during wildfires, with some estimates suggesting they are responsible for up to 90 percent of homes destroyed. Structures within the wildland urban interface are particularly at risk.

When communities are impacted by wildfire, the destruction can be unimaginable. During the fire, residents may be given only moments to evacuate, and roadways can become blocked by flames and/or fallen debris, making it extremely difficult for residents to safely evacuate and for emergency responders to protect life and property. When residential, commercial, and industrial properties are damaged or destroyed by fire, a mess of dangerous debris and hazardous waste is left behind that must be cleaned up and removed before property owners can rebuild. Electrical transmission lines and communications equipment can be badly damaged or destroyed in a fire, leaving areas without power and/or phone service until facilities and equipment can be replaced and the power safely restored. Even when communities are spared from a fire's destruction and the wildfire is limited to wildlands, the air quality over large areas is badly impaired with the toxic particulate matter found in smoke.

The record of wildfires in the immediate vicinity of the City since 1878 is shown on **Figure 7-9, Historic Fire Perimeters**. Areas outside of the boundaries of the map, including the rest of the State, are shown on CAL FIRE's Fire and Resource Assessment Program (FRAP) website. A link to the FRAP website and the most up-to-date fire perimeters map is included in Section 7.8, Resources. As shown on **Figure 7-9**, large wildfires near Etna have typically burned in the mountains west of Etna, whereas there have so far been no large fires on the irrigated valley floor. While it also appears wildfire activity on the valley floor has been less frequent, CAL FIRE cautions that the dataset reflected on the map is incomplete, and that users should be cautious when drawing conclusions based on the data. Regardless of past fire activity, increasingly warmer temperatures resulting from climate change are expected to generate more frequent thunderstorms along with more fuel for fires. As fire conditions worsen, the potential for winds generated by a thunderstorm to push burning embers or a wildfire directly into city limits will increase. Wildfires will remain a significant issue for the City, and will continue to require the coordination, dedication, and support of multiple agencies and landowners to address.

Recent large fires in the vicinity of the City of Etna include the 33,794-acre Whites Fire, which burned within 6.7 miles of city limits in 2014, the 63,785-acre Wallow Fire, which burned within 2.5 miles of Etna in 2017, the 13,441-acre Mountain Fire, which burned within 8.5 miles of the City in 2022, and the 15,520-acre Shelly Fire, which burned within 2.8 miles of city limits in 2024. Several other recent wildfires in Siskiyou County (2016-2024) are identified in the Siskiyou County Local Hazard Mitigation Plan.

It should be noted that the Local Hazard Mitigation Plan includes additional wildfire information for Etna beyond that provided in the Safety Element, including descriptions of fire behavior by vegetation type; the National Fire Danger Rating System; consequences of fire; collaborative efforts that are underway in Siskiyou County to mitigate future fire risk and severity; and the City

of Etna's fire risk, vulnerabilities, expected losses, and risk reduction measures. Information regarding fire risks is summarized herein below.

7.5.3.1 Wildland Urban Interface

The Wildland Urban Interface (WUI) is the zone where houses and other development meet or intermingle with undeveloped wildland vegetation. The two types of WUI, interface and intermix, differ in whether there is a clear demarcation of wildland vegetation and development (interface) or whether the two are intermingled (intermix). Because of the convergence of humans and the environment in the WUI, the WUI is a zone in which fire can move readily between structures and vegetation, potentially resulting in massive fires, or conflagrations, that can lead to widespread evacuations.

In an effort to provide a framework for scientific inquiries into the effects of housing growth on the environment, as well as inform national policymakers and local land managers about the WUI and associated issues, the US Forest Service prepares detailed assessments of WUI across the United States. **Figure 7-10, Wildland Urban Interface** reflects the findings of the Forest Service's 2020 WUI assessment relative to the City of Etna. As shown on **Figure 7-10**, the Forest Service identifies almost all land within the City as Interface, the area south of Main Street principally as Intermix, and a small area north and south of Johnson Creek as non-vegetated or agricultural.

7.5.3.2 Wildfire Hazard Severity Zones

California law requires the State Fire Marshal to designate areas, or make recommendations for local agency designation of areas, that are at risk from significant fire hazards based on fuels, terrain, weather, and other relevant factors. The State Fire Marshal does so through the publication and regular update of Fire Hazard Severity Zone (FHSZ) maps, which local agencies must adopt in compliance with state law.

According to the Office of the State Fire Marshal, the FHSZ maps are developed using a science-based and field-tested model that assigns a hazard score based on the factors that influence fire likelihood and fire behavior, such as fire history, existing and potential fuel (natural vegetation), predicted flame length, blowing embers, terrain, and typical fire weather for the area. There are three levels of fire hazard assigned: moderate, high, and very high. **Figure 7-11, Fire Hazard Severity Zones** shows the designated fire hazard severity zone ratings within and surrounding the City. The Office of the State Fire Marshal makes these maps publicly available on CAL FIRE's FRAP website. A link to the FRAP website and the most up-to-date FHSZ maps is included in Section 7.8, Resources. As shown on **Figure 7-11**, the entire City of Etna is designated as being in a Very High Fire Hazard Severity Zone.

It is important to note that the FHSZ maps evaluate "hazard," not "risk". In doing so, they are like FEMA flood maps where the probability level of a particular area being inundated by floodwaters is shown, not the potential impacts of the flooding. The degree of "hazard" is based on the physical conditions that create a likelihood and expected fire behavior over a 30 to 50-year period without consideration of mitigation measures, such as home hardening, recent wildfires, or fuel reduction efforts. "Risk" is the potential damage a fire can have on an area under existing conditions, accounting for any modifications, such as fuel reduction, defensible space, and use of ignition resistant construction materials and methods.

7.5.3.3 Wildfire Risk

To help communities better understand and reduce their wildfire risk, the US Forest Service developed Wildfire Risk to Communities, a publicly accessible online source of interactive maps, charts, and other information developed using the best available science. Wildfire Risk to Communities allows users to determine how likely wildfire is in their area relative to other communities in California and the nation, areas of their community where homes are most at risk of fire, which actions are most effective to reduce wildfire risk in the community, and where vulnerable populations exist in the community and how they can be reached.

According to the Wildfire Risk to Communities website, both the risk to homes and likelihood of wildfire in Etna are higher than 92 percent of communities in California and 99 percent of communities in the United States. In general, the areas of Etna with the highest risk and likelihood of wildfire are located west of Howell Avenue and south of Main Street with several high risk/high likelihood pockets throughout the City as well, including adjacent to and north of Johnson Creek and south of SR 3. No area of the City is identified as having a concentration of vulnerable residents. Roughly half of the homes in Etna (52%) are identified as being subject to direct wildfire exposure, or potential ignition by adjacent vegetation, flying embers, and nearby structures, and the other half of homes (48%) subject to indirect exposure, or possible ignition by embers or home-to-home ignition. In both instances, the Forest Service indicates that land use planning and use of wildfire-resistant building materials/landscaping should be employed to reduce fire risk. In areas of possible direct exposure, the Forest Service identifies hazardous fuel management and the ability to respond as also being critically important.

7.5.3.4 Existing and Future Development

When evaluating wildfire hazards relative to existing and future development in Etna, it is important to recognize that the entire City is designated as VHFHSZ and nearly all of the City is identified as WUI. Consequently, both existing and future development in the City will continue to be vulnerable to wildfire hazards, as well as ongoing efforts to mitigate wildfire risk and severity. City enforcement of the State's Minimum Fire Safe Regulations in the Local Responsibility Area and County and CAL FIRE enforcement of same in State Responsibility Areas outside the City are part of that wildfire risk and severity reduction effort.

The existing and planned locations of residential, mixed-use, commercial, industrial, public agency, and open space development in the City are consistent with the land use classifications shown on the City's General Plan Land Use Map (see Land Use Element **Figure 2-14**). The distribution of existing development in the City is also shown on the County of Siskiyou's "Siskiyou County Map Viewer," an online GIS resource of parcel ownership and other geographically referenced data. A link to the Siskiyou County Map Viewer is included in Section 7.8, Resources. Residential and mixed-use lands in the City comprise roughly 75 percent of the City's total land area, while nonresidential lands, such as commercial, manufacturing, public uses, and open space, comprise approximately 25 percent. As discussed in the Land Use Element, population growth in the City is not expected to increase or decrease significantly over the next 20 years. As such, outside of the current need for additional fire fighters and a new Fire Hall and the expansion and consolidation of emergency services in the Scott Valley, as discussed herein, emergency service needs in the City are not projected to change significantly over the planning period.

Because of their importance to the resilience of the community, and to assist in planning for the expansion, hardening, and relocation of these essential public facilities, the location of public facilities relative to FEMA Flood Hazard Zones is shown on Land Use Element **Figure 2-13,**

Public Facilities and Flood Hazards. The information included on that map is reproduced herein, along with information relative to VHFHSZ and WUI in and around Etna, as **Figure 7-12, Public Facilities and Natural Hazards**.

7.5.3.5 Fire Prevention and Resident Safety

Fire prevention, fire severity reduction, and resident safety are significant concerns for the City and region. Outside city limits, the Forest Service has been actively implementing strategies in the KNF to mitigate fire risks and create more resilient landscapes, such as prescribed fire and thinning. Recently, CAL FIRE initiated the Scott Valley WUI Fuel Reduction project through the State's California Vegetation Treatment Program to create forested shaded fuel breaks within WUI adjacent to and near Etna and Fort Jones.

Presently key strategies being employed by the City to reduce fire risk and improve public safety in Etna include:

- Maintaining well-trained and staffed police and fire departments and working cooperatively with other public agencies with responsibility for public safety.
- Ensuring adequate infrastructure for new development, including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.
- Locating, when feasible, new essential public facilities outside of high fire risk areas and/or identifying construction methods or other methods to minimize damage to these facilities.
- Working with the Siskiyou County Building Department and property owners to ensure building materials and landscaping reduce the potential for ignition.
- Creating and maintaining defensible space around structures to minimize fuels and fire spread.
- Identifying areas where there is significant fire risk and a history of losses.
- Avoiding or minimizing the wildfire hazards associated with new uses of land.
- Public education.

7.5.4 Flood and Dam Inundation Hazards

7.5.4.1 Flood Hazards

Flooding can cause significant harm to buildings, people, and infrastructure. Floodwaters can be deep and fast enough to prevent passage, erode roadways, and carry away people and large objects. Flooding can be caused by heavy rainfall, moderate rainfall over long periods, or even inadequate or clogged storm drains. In rarer instances, a break in a water main or breach of a dam can also cause flooding.

Flood events do occur in Etna, and people, properties, and infrastructure located within the Etna Creek and Johson Creek floodplains are particularly vulnerable to this hazard. Additionally, two other smaller drainage areas exist which could flood. These are located southerly of Woodland Street and along a drainage swale which lies mostly north of Butcher Street and crosses over Center Street. The greatest flood potential exists within the southeastern part of Etna near Etna Creek. This large area can flood to depths of 1-3 feet over much of the identified floodplain. While most of this area is pastureland, there are numerous dwellings and a few businesses in this

location. Large floods occurred along Etna Creek in 1955, 1964, and 1974. The largest occurred in December 1964, with an estimated recurrence interval of 50 years.

The principal flood problem along Etna Creek is that the main channel capacity has become blocked by natural dams, shifting most of the flow out onto the floodplain. The dams are caused by debris lodging in the channel, followed by the buildup of cobbles and gravel. Etna Creek's main channel must be cleared of debris, gravel, rocks, and vegetation after each major flood event. The overbank flow is mainly on the left-bank floodplain between the creek and the low bank where the majority of the City is located. The overflows vary due to the location of vegetation and obstructions. During past flood events, efforts have been made to divert the creek back into the main channel by building levees of river rock and gravel. These efforts have so far been unsuccessful.

Localized flooding can also occur in or around the City's limited stormwater drainage facilities or in low-lying, non-draining areas during intense rainstorms. The primary causes of localized flooding in Etna are excessive rainfall, particularly following a snow event, somewhat poorly drained soils throughout much of the City east of Howell Avenue south to Pleasure Park Road and Callahan Street, and the lack of a true storm drain network. Curb and gutter have yet to be constructed along several city streets and the storm drain system that exists consists of a discontinuous network of natural and man-made drainage features. To address the lack of storm drain improvements, City Code requires that property owners install curb and gutter at the time of construction and that post construction storm water run-off not exceed pre-construction levels. While this approach has adequately served the City in the past, increased storm intensities resulting from climate change may eventually require that the City plan for and develop a true storm drain system to accommodate increased stormwater runoff.

7.5.4.2 FEMA Flood Hazard Zones

The Federal Emergency Management Agency (FEMA) has developed Flood Insurance Rate Maps for Etna and the surrounding area to identify flood prone areas. By showing how likely it is for an area to flood, FEMA's flood maps help mortgage lenders determine insurance requirements and help communities develop strategies for reducing their risk. Any location shown on a flood map with a one percent or higher chance of experiencing a flood each year is considered to have a high risk. Flood hazard areas affecting the planning area are shown in **Figure 7-13, FEMA Flood Hazards** at the end of the Safety Element.[5] The 100-year flood zones shown on **Figure 7-13** represent the areas with one percent chance of flooding in any given year, and the 500-year flood zone is expected to have a 0.2 percent chance of flooding in any given year. The regulatory floodway shown along Johnson Creek on **Figure 7-13** is an area within the 100-year floodplain that must remain unobstructed to to carry the base flood discharge. To protect against flooding and ensure water can flow safely during a flood event, it is a zone where construction and development are heavily restricted.

Because areas within the 100-year flood hazard area have at least a one-in-four chance of flooding during a 30-year mortgage, lenders require property owners to carry flood insurance as a condition of their loan. The rates for insurance are dependent on the floodwater depth on the affected parcel. When property owners can document that their property or structure is located

[5] FEMA conducted a detailed study of the Scott Valley which found substantial revisions are needed to the effective flood maps for Etna and the surrounding area. Once the revised maps become effective, the size and extent of Etna Creek's 100-year floodplain through Etna will be significantly reduced. When that occurs, maps in the Safety Element and Land Use Element will need to be updated accordingly.

outside of the 100-year floodplain, they can request a Letter of Map Amendment from FEMA to revise the effective flood map to remove their property or structure from a special flood hazard area.

To minimize flood damage in the City, new construction and other improvements must comply with the City's Flood Damage Prevention ordinance. The Flood Damage Prevention ordinance minimizes flood damage by:

- Restricting or prohibiting uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities.
- Requiring that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction.
- Controlling the alteration of natural floodplains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters.
- Controlling fill, grading, dredging, and other development which may increase flood damage.
- Preventing or regulating the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards in other area.

7.5.4.3 Dam Failure Inundation Hazards

Although dam failures are rare, when they do occur, they can result in significant damage and death since they may fail unexpectedly with little or no warning. To address this hazard, California Government Code Section 8589.5 mandates that owners of state-regulated dams develop and maintain Emergency Action Plans (EAPs). These plans are crucial for minimizing potential loss of life and property damage during dam failures or other emergencies. The EAPs must be based on inundation maps approved by the Department of Water Resources (DWR) and include specific details on notification procedures, response actions, and roles and responsibilities. In accordance with state law, the EAPs and inundation maps must be updated no less frequently than every 10 years, and sooner under conditions that include, but are not limited to: a significant modification to the dam or a critical appurtenant structure as determined by DWR, or a significant change to downstream development that involves people and property.

For a dam to be regulated by the State, the dam's height must be more than six feet, and it must impound 50 acre-feet or more of water, or if the dam is 25 feet or higher, it must impound more than 15 acre-feet of water. Dams meeting these criteria are considered to be high, extremely high, and significant hazard dams. The only dam in the vicinity of Etna is the City's diversion along Etna Creek that supplies the City with its water. The dam, however, does not meet the height or volume criteria established by the State, is not regulated by DWR, and poses little hazard to the City. The dam was last substantially rehabilitated by the City in 2008.

7.5.5 Hazardous Materials

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR), Title 22, Section 662601.10, as follows:

> A substance or combination of substances which, because of its quantity, concentration, or physical, chemical, or infectious characteristics, may either (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported or disposed of or otherwise managed.

Most hazardous material regulation and enforcement in Siskiyou County is managed by the Siskiyou County Community Development Department - Environmental Health Division, which refers large cases of hazardous materials contamination or violations to the North Coast Regional Water Quality Control Board (RWQCB) and the California Department of Toxic Substances Control (DTSC). When issues of hazardous materials arise, it is not at all uncommon for other agencies to become involved, such as the Siskiyou County Air Pollution Control District and both the federal and state Occupational Safety and Health Administrations.

7.5.5.1 Hazardous Materials Sites

Under Government Code Section 65962.5, both DTSC and the State Water Resources Control Board (SWRCB) are required to maintain lists of sites known to have hazardous substances present in the environment. Both agencies maintain up-to-date lists on their websites. According to the DTSC Envirostor and SWRCB GeoTracker databases, which were reviewed in May 2025, there are five SWRCB cases in the City of Etna associated with hazardous material spill sites, and no DTSC cases. All five of the SWRCB cases involve petroleum spilled from leaking underground storage tanks. Two of the leaks were remediated and their cases closed, one leak did not require remediation and its case was closed, and two leaks are in the process of being remediated and their cases are still open. The location of each case and its status in 2025 is shown on **Figure 7-14, Hazardous Materials Cleanup Sites** at the end of the Safety Element.

7.5.5.2 Hazardous Materials Transport

Concerning the transport of materials on SR 3, the California Vehicle Code assigns the California Highway Patrol the responsibility for serving as statewide information, assistance, and notification coordinator on all hazardous material spill incidents occurring on state highways. Because the City is located off major transportation routes, heavy truck traffic through Etna on SR 3 is intermittent and the risk of a hazardous material spill is considered low. Nevertheless, to direct heavy truck traffic and possible hazardous materials transport away from residential areas and other sensitive land uses, the City has established a system of designated truck routes and penalties for noncompliance that are enforced by the Etna Police Department. There have been no reported hazardous materials in Etna spills resulting from improper transport or a vehicle accident.

7.5.6 Climate Change

Over the past two hundred years, the Earth's climate has slowly been changing in response to increasing levels of heat trapping gases in the atmosphere. This long-term shift in temperature and weather is now well documented, as is the need to prepare for and adapt to the anticipated effects of climate change. Most people experience climate change as warmer temperatures and extreme weather events. This is true for residents of Etna and elsewhere in Siskiyou County as well, however, climate change has also been intensifying the impacts of other the climate-related hazards in the region, including drought, wildfire, storm severity, and flooding. Potential impacts to water supply, water quality, public health, infrastructure, wildlife, and nearby critical habitats also exist.

Because the level of impact from climate change-related events varies and is largely beyond the control of the City of Etna, a vulnerability assessment was prepared as part of the Siskiyou County Local Hazard Mitigation Plan for each climate change-related impact. The assessment was completed using data available from California's Fourth Climate Change Assessment, FEMA's National Risk Index, and the California Energy Commission's Cal-Adapt data center. The vulnerability assessment estimates the impact of climate change and the City's capacity to adapt to and moderate the impacts climate change, known as "adaptive capacity." The impacts of climate change and adaptive capacity are combined to determine climate change vulnerability and prioritize mitigation actions consistent with the California Adaptation Planning Guide. The results of the assessment are summarized below.

7.5.6.1 Extreme Heat

Heat-related illnesses are a concern when it comes to extreme heat forecasts. That's because without the ability to stay cool and adequately hydrated during periods of prolonged heat exposure, health impacts that begin with fatigue and cramping can quickly escalate to heat stroke and death. Exposure to extreme heat can affect everyone, however, health risks are greater for vulnerable members of society, including pregnant women, persons with a pre-existing chronic disease, the elderly and very young, and persons who are economically disadvantaged. Further, because of increased exposure to the environment, persons who work outdoors are also at elevated risk.

Cities with highly modified urban landscapes may also be disproportionately affected during periods of extreme heat. That's because in addition to typically having fewer shade trees and less evapotranspiration than surrounding less developed areas, urban landscapes also tend to have higher concentrations of dark, thermally absorptive surfaces, such as roads, rooftops, parking lots, and buildings. After absorbing the sun's heat throughout the day, the asphalt and concrete used in urban areas continue to radiate heat long after sundown, such that nighttime temperatures are generally warmer in cities. This phenomenon, known as urban heat island effect, can result in temperatures in cities that are as much as 10°F warmer than in surrounding areas.

According to the vulnerability assessment prepared for the Local Hazard Mitigation Plan, the extreme heat risk index for Etna is in the 47.9 percentile relative to elsewhere in the nation, which is considered low. Nevertheless, due to current and projected summer temperatures for the City and region, which could increase by as much as 5.5°F over historic conditions by the middle of the century, both the Circulation Element and Open Space & Conservation Element recommend tree planting in the City, where appropriate, as an effective, low technology means of staying cooler during summer, reducing energy demand, and achieving other social, environmental, and economic benefits.

7.5.6.2 Drought

It is the forecast of drought that generates more concern than any other climate change impact. This is because droughts can diminish water levels in lakes, reservoirs, streams, and groundwater basins, and have the potential to rapidly spread fire, create food shortages, hurt economies, and dramatically alter the living environment and people's lives. Further, despite little variability in the frequency of droughts around the world for several decades, this century has already seen record droughts on every continent outside of Antarctica. However, not all droughts are the result of climate change. In many areas of the world, such as California, droughts are a natural part of the climate's inherent variability. In fact, climate scientists believe that the prolonged drought that

gripped California between 2011 and 2017 was not due to climate change, but a recurring natural phenomenon that entailed a high-pressure ridge parking over the Pacific similar to historic droughts, albeit for an extended period of time. A study by climate scientists with the University of California Los Angeles and the National Oceanic and Atmospheric Administration, however, found that during California's 2020-2022 drought, "the higher temperatures caused by anthropogenic climate change made an ordinary drought into an exceptional drought."

As temperatures in the region continue to rise throughout the 21st century, they are expected to influence the frequency and severity of droughts in several ways, such as extended dry seasons, decreased snowpack, earlier snowmelt, increased evapotranspiration, greater variability in runoff and recharge, and increased water demand. Although nobody knows for certain how much more often droughts will occur, drought frequency in the region could increase approximately 50 percent by the end of the century. Further, it is not the incidence of drought-like conditions alone that matters when it comes to understanding how this could affect Etna and the region. This is because some droughts aren't as severe or long lasting as others, and it is the persistent strain of a drought or sequential droughts on communities, the environment, and agriculture that is so potentially detrimental.

Due to the City's reliance on surface water from Etna Creek for its municipal water supply, the City has received curtailment orders from the State during past droughts, which have historically required volunteer rationing by city residents to comply with. To address this issue and better ensure public safety during future droughts, the City is presently developing two groundwater wells to serve as an emergency water supply. The improvements are scheduled for completion in 2025.

7.5.6.3 Wildfire

There are several factors that affect the size and frequency of wildfires. The progressively warmer temperatures and associated drought stress projected for the City and region are expected to contribute to an increase in wildfire size and frequency that climate models predict will worsen over time, with some scientists noting that the probability of fire over a 30-year period is expected to increase across the region on average by 40 percent by the end of the century. Given that 19 of California's 20 largest wildfires on record have occurred since 2000, it is not surprising that climate scientists believe that the combined effects of increased heat and drought are already contributing to larger and more frequent wildfires in California. Nevertheless, a 2012 study of the Klamath, Mendocino, Shasta-Trinity, and Six Rivers National Forests found that despite wildfire size and frequency trending upward, the severity of wildfires has not been. This led the study's authors to conclude that, under appropriate conditions, fire could be more extensively used in the region to achieve management objectives. While the use of prescribed fire may not be appropriate inside city limits due to the proximity of people and structures, it is being successfully used to reduce fuels on large, forested parcels adjacent to and west of Etna.

7.5.6.4 Extreme Weather & Flooding

Extreme weather events are often cited as a likely outcome of climate change. This is because for each 1°C (1.8°F) of warming, the atmosphere can hold approximately seven percent more water vapor, and with increased warming there is more water evaporating from the Earth's surface for the atmosphere to hold. Because this water vapor contains energy in the form of latent heat, more water in the atmosphere means there is more energy to feed the atmospheric instability that drives large storms. The effect of a warming climate on extreme weather is not consistent around the globe. This is because wetter areas of the planet have more water available to feed storms

than drier areas. For this reason, the greatest observed increases in storm severity in the United States have been in the wetter areas of the country.

Extreme winter weather encompasses multiple effects caused by winter storms and conditions, including strong winds, ice storms, heavy or prolonged snow, sleet, and extreme cold. In areas and regions that only see intermittent winter storms, such as Siskiyou County, winter storms may become increasingly hazardous. According to climate models, Etna is likely to experience normal to slightly wetter winters as a result of climate change. While that alone is not expected to result in substantial increases in extreme weather, as the climate warms, more of the precipitation that does fall is expected to fall as rain. Further, climate models project less precipitation for the region during the spring and fall, essentially condensing the period of time that the region receives its annual precipitation. When these predicted shifts in the timing of runoff are combined with atmospheric rivers that already deliver most of the state's annual precipitation during relatively few days each year, increased flooding in the City due to severe winter weather events becomes more likely. Due to shifts in precipitation from snow to rain, diminishing snowpack, and earlier snowmelt and runoff, peak natural flows have already increased on many California rivers during the past 50 years. According to the Local Hazard Mitigation Plan, the severe winter weather (e.g., snow, sleet, and freezing rain) risk index for Etna is relatively moderate (71.4 percentile nationwide), while the flood risk index for the City is in the 96.6 percentile, which is relatively high.

7.6 CORRELATION WITH OTHER PLANS AND ELEMENTS

Many Safety Element policies are interrelated with topics in the Land Use, Circulation, Housing, and Open Space & Conservation Elements. For example, the Land Use Map seeks to minimize impacts as a result of future development in hazard-prone areas and to separate sensitive land uses, such as residential neighborhoods, from incompatible uses. It is important to remember, however, that policies in the Safety Element are tailored to address health and safety-related issues. The Safety Element is also closely related to the Local Hazard Mitigation Plan, which plans for mitigation of hazards in more detail and is required for access to federal and state financial assistance programs. The LHMP and this element discuss specific hazards with a high likelihood of occurrence or high impact severity that could potentially affect the City of Etna, including geologic hazards, wildfire, flood, and climate change. For these reasons, the most recent LHMP is incorporated as part of the Safety Element by reference.

7.7 SAFETY ELEMENT GOALS, POLICIES & PROGRAMS

GOAL S-1: A city prepared for necessary action, including evacuation if needed, due to disasters, and primed for recovery following a disaster.

GOAL S-2: A city that has reduced, to the extent feasible, the threat to life and property caused by fire.

GOAL S-3: A city that has minimized, to the extent feasible, potential impacts to people, structures, and the environment resulting from flood.

GOAL S-4: A city that has minimized, to the extent feasible, potential impacts to life and property caused by geologic and seismic hazards.

GOAL S-5: A city that has minimized, to the extent feasible, risks to life and property resulting from hazardous materials spills.

GOAL S-6: A city that has minimized, to the extent feasible, the risks to life and property resulting from climate change.

GOAL S-1: A city prepared for necessary action, including evacuation if needed, due to disasters, and primed for recovery following a disaster.

Policy S-1.1: The City creates and maintains a safe environment for its residents.

Policy S-1.2: The City plans for and strives to provide adequate facilities, equipment, and personnel to respond to emergencies.

Policy S-1.3: The City takes appropriate measures to prepare for natural and human-caused disasters and to protect residents should one occur.

Policy S-1.4: The City endeavors to minimize impacts to life, structures, and the environment should a disaster strike.

Policy S-1.5: The City takes appropriate measures to ensure that critical and essential city facilities remain operational during emergencies.

Policy S-1.6: The City participates in agreements for automatic and mutual aid with other local, state, federal, and nongovernmental emergency service providers to improve protection services and emergency response throughout the county.

Policy S-1.7: The City coordinates with and encourages the use of community-based networks to aid vulnerable populations prepare for emergencies and provide assistance with evacuation and recovery.

Policy S-1.8: The City engages with the community to increase awareness of and preparedness for emergencies and natural disasters.

Policy S-1.9: The City commits to the goals, objectives, and actions in the Local Hazard Mitigation Plan and subsequent amendments thereto.

Policy S-1.10: The City continues to assess and improve evacuation capacity, safety, and viability under a range of emergency evacuation scenarios.

Policy S-1.11: The City requires new development that requires additional levels of law enforcement and fire protection services to participate in offsetting costs for the additional services.

Policy S-1.12: The City strives to maintain adequate emergency response times for all existing and planned development within city limits, and for lands proposed for annexation.

Program S-1A: Coordinate with state, county, and other local agencies to build mutual aid capacity for emergency events, especially through disaster preparedness training. Develop and maintain mutual aid agreements with appropriate agencies.

Program S-1B: Periodically review, and update as necessary, plans that advise city staff, first responders, and residents on actions that should be taken in the event of an emergency. Plans should be distributed to and made readily available to the public.

Program S-1C: Expand emergency training and local expertise for emergency event response and recovery, including through volunteer roles.

Program S-1D: Locate essential public facilities outside of natural hazard areas, such as the 100-year floodplain, Wildland Urban Interface, and Very High Fire Hazard Severity Zone, when feasible. If it is not possible to locate facilities outside of these natural hazard areas, reduce vulnerabilities to essential public facilities to the maximum extent feasible by identifying and implementing construction methods and/or other methods to protect and minimize damage to these facilities.

Program S-1E: Establish minimum levels of service thresholds for fire protection and law enforcement services and maintain services at or above those thresholds.

Program S-1F: Provide rapid and timely response to all law enforcement, fire, and other emergencies. Work to maintain minimum average response times.

Program S-1G: Work with SCLTC and other partners on the development of the countywide evacuation and preparedness plan and educate the public on related emergency protocols developed in the plan.

Program S-1H: Coordinate with SCLTC, Caltrans, the County Road Department, Siskiyou County Sheriff's Office, Siskiyou OES, CAL FIRE, and other local, state and federal agencies to identify strategies that ensure the maintenance and reliability of evacuation and supply transportation routes potentially compromised during an emergency.

Program S-1I: Provide for adequate evacuation routes in areas of high fire hazard, flooding, and other natural disasters.

Program S-1J: Identify and publicize emergency shelters and sign and control evacuation routes for use during emergencies, working with Caltrans as appropriate for signs along State Route 3 and the County for signs along evacuation routes outside the City.

Program S-1K: Continue to promote and support the use of early warning notification systems, such as text messages, telephone calls, etc., to notify residents by wireless emergency alert of the need to evacuate in the event of an emergency and the location of evacuation routes, points, and critical facilities such as schools and day care centers, particularly residents of vulnerable areas and neighborhoods with constrained emergency access.

Program S-1L: Where practical, improve emergency access to dwellings that are isolated due to narrow dead-end roads. Development on vacant lots in such areas should be limited until basic safety standards have been satisfied.

Program S-1M: Ensure that applications for projects that will house infirmed, non-ambulatory persons, seniors, and children in high hazard areas include adequate provisions to mitigate known hazards.

Program S-1N: Work with community groups, faith-based organizations, and other institutions to develop a network of conveniently located community resilience hubs (e.g., public facilities, businesses, and community-oriented facilities) that are centrally located, accessible, and equipped to provide aid to vulnerable populations during emergency events, periods of poor air quality, utility disruptions, and/or climate change-related hazards.

Program S-1O: Coordinate with the Siskiyou County Office of Emergency Services, the County of Siskiyou, and other cities in Siskiyou County to implement and regularly update the LHMP and stay in compliance with relevant FEMA and state requirements.

Program S-1P: Forward all applications for building permits, tentative parcel maps, tentative maps, and use permits for development in the VHFHSZ to the Etna Police Department, Etna Fire Department, and CAL FIRE for review.

Program S-1Q: Ensure developed properties are easily identifiable by emergency responders from the street.

Program S-1R: Work with utility companies to determine the feasibility of undergrounding utility lines during construction of new developments and in the most at-risk areas, and to identify funding mechanisms to support undergrounding activities.

Program S-1S: Prioritize the needs of at-risk, vulnerable, and disadvantaged populations during emergency response and disaster recovery efforts, including increasing awareness of defensible space requirements and promoting understanding of evacuation routes.

Program S-1T: Establish standards for the development of public and private roadways to require more than one point of ingress/egress in residential areas.

GOAL S-2: A city that has reduced, to the maximum extent feasible, the threat to life and property caused by fire.

Policy S-2.1: The City endeavors to prevent fires, reduce fire severity, and safeguard residents, in part by:

- Maintaining well-trained and staffed police and fire departments and working cooperatively with other public agencies with responsibility for public safety.
- Ensuring adequate infrastructure for new development, including safe access for emergency response vehicles, visible street signs, and water supplies for structural fire suppression.
- Locating, when feasible, new essential public facilities outside of high fire risk areas and identifying construction methods or other methods to minimize damage to these facilities.
- Working with the County Building Department and property owners to ensure building construction materials and methods and landscaping reduce the potential for ignition.
- Creating and maintaining defensible space around structures to minimize fuels and fire spread.
- Identifying areas where there is significant fire risk and a history of losses.
- Avoiding or minimizing the wildfire hazards associated with new uses of land.
- Public education.

Policy S-2.2: The City desires to sustain and grow the ability of the City of Etna Fire Department to respond to fires in and around the City.

Policy S-2.3: The City considers fire-related hazards in the review of discretionary project proposals and ensures that new development in VHFHSZ is carefully sited and configured.

Policy S-2.4: The City promotes the creation of an Etna Fire Safe Council and continues to coordinate with and support the efforts of Fire Safe Councils throughout the region.

Policy S-2.5: The City supports programs to prevent and prepare for wildfires.

> **Program S-2A:** Take appropriate measures to support a well-trained, equipped, and staffed volunteer fire department
>
> **Program S-2B:** In cooperation with the Siskiyou County Building Department and Cal Fire, ensure new dwellings, structures that will be occupied, and rebuilding of occupied dwellings and structures damaged by fire in VHFHSZ comply with all applicable state and local building standards, including defensible space and fire-resistant building material and design requirements.
>
> **Program S-2C:** Identify existing public and private roadways in VHFHSZ and WUI that are not in compliance with current fire safety regulations, including road standards for evacuation and emergency vehicle access, vegetation clearance, and other requirements of the California Fire Safe Regulations to the extent resources are available. Work at retrofitting city-owned roadways as needed to meet current standards and require private

property owners to do the same, to the extent feasible and given the absence of other site constraints.

Program S-2D: Require proposed development and to the extent feasible, non-conforming development, to provide adequate access for fire and emergency vehicles and equipment, adequate infrastructure, proper vegetation clearance and maintenance on public and private roads that meets or exceeds the standards in the California Fire Safe Regulations.

Program S-2E: Reduce the risk of wildfires in the wildland urban interface in and around Etna through cooperative and timely implementation of the Community Wildfire Protection Plan.

Program S-2F: Require proactive vegetation management/hazard abatement to reduce fire hazards on existing public and private properties, along evacuation routes, and other land where applicable.

Program S-2G: Work with private property owners, Siskiyou County, and Caltrans to conduct roadside vegetation clearance along public and private roadways in VHFHSZ in and around the City. Ensure that fuel reductions provide an appropriate fuel buffer for evacuees should the roadways become congested during an emergency incident.

Program S-2H: Continue to monitor fire flow capabilities throughout the City and make improvements at any locations with flow considered inadequate for fire protection.

Program S-2I: Ensure adequate fire flow is maintained within city limits through ongoing maintenance, capital improvement public infrastructure upgrades, and improvements required in association with development projects and in compliance with applicable California Fire Safe Regulations.

Program S-2J: Maintain adequate fire flow during scheduled and unscheduled power outages and interruptions through incorporation of power source resiliency and redundancy within the City's water supply, treatment, and distribution infrastructure.

Program S-2K: Analyze known fire hazard information during the review of discretionary development applications and approve those applications only after ensuring there are adequate water storage capacity and fire flow for fire protection.

Program S-2L: Approve discretionary development proposals only when adequate fire suppression services and facilities are available or will be made available concurrent with development, considering the setting, type, intensity, and form of the proposed development.

Program S-2M: Identify streets and neighborhoods that are at increased risk of wildfire and restrict on-street parking, where needed, when fire risks are elevated to ensure full access for fire trucks and emergency vehicles and to increase roadway accessibility during evacuation events. Conduct community outreach to neighborhoods affected by the program and provide detailed information on how and when the parking restrictions will be implemented.

Program S-2N: Continue to inform residents about fire hazards, appropriate responses to fire, evacuation routes, plans to reach at-risk populations, and ways to prevent loss, including defensible space, home hardening, and landscaping improvements that can reduce the impact of fire.

Program S-2O: Identify residential areas that do not have at least two routes for emergency egress, lack adequate emergency water supply, or need vegetative fuel modification to reduce risk. Work with affected residents and the Etna Fire Department to identify potential area-specific solutions to ensure risk reduction.

Program S-2P: Work with the Siskiyou County Department of Public Health and Siskiyou County Air Pollution Control District to ensure residents are educated on wildfire smoke hazards and how to protect themselves and their homes from smoke impacts.

Program S-2Q: Ensure that new development projects include adequate measures to minimize fire hazards while remaining in compliance with housing laws regarding objective design standards and discretionary review.

Program S-2R: Strive to improve the City's current Insurance Service Office (ISO) rating for public safety and associated benefits.

Program S-2S: Following revisions to the fire hazard severity zones maps by the Office of the State Fire Marshal, maintain compliance with Government Code Sections 51179 and 65302(g)(3) by updating fire hazard severity zone designations and the Safety Element, as needed.

Program S-2T: Amend Title 15, Buildings and Construction, of the Etna Municipal Code to establish standards for development in the Very High Fire Hazard Severity Zone that meet or exceed Title 14, CCR, Division 1.5, Chapter 7, Subchapter 2, Articles 1-5 (commencing with Section 1270) (State Minimum Fire Safe Regulations) and Title 14, CCR, Division 1.5, Chapter 7, Subchapter 3, Article 3 (commencing with Section 1299.01) (Fire Hazard Reduction Around Buildings and Structures Regulations).

Program S-2U: Require that discretionary development projects in VHFHSZ prepare and submit a fire protection plan that includes the following, at a minimum:

- A wildfire hazard assessment that considers location, topography, aspect, climate, and fire history.
- Conformance with applicable wildfire protection regulations, statutes, and ordinances.
- Fire safety requirements, including defensible space, infrastructure, and building ignition resistance, fire department access, egress, road and address signage, and water supply.
- Mitigation and design considerations for non-conforming fuel modification.
- Wildfire education, maintenance, and limitations.
- Fire response capabilities.
- Evacuation planning.

Program S-2V: Continue to work with CAL FIRE, local Fire Safe Councils, the Scott River Watershed Council, timber companies, and other private landowners to regularly maintain and improve the Etna Shaded Fuel Break.

GOAL S-3: A city that has minimized, to the extent feasible, potential impacts to people, structures, and the environment resulting from flood.

Policy S-3.1: The City controls development within special flood hazard areas identified by FEMA to reduce potential damage from floods.

Policy S-3.2: The City supports efforts to protect public health and safety from flooding through sustainable and environmentally responsible floodplain management.

Policy S-3.3: The City strives to minimize localized flooding through ongoing improvements to the City's storm drain network.

Program S-3A: Continue to coordinate with local, regional, state, and federal agencies to maintain an adequate flood management information base, prepare risk assessments, and identify strategies to mitigate flooding impacts.

Program S-3B: Support and participate in the preparation of a countywide flood control plan to minimize impacts from existing and future flooding in the region.

Program S-3C: Work with the Siskiyou County Flood Control District, resource conservation districts, watershed councils, and landowners to design or approve flood control measures that avoid, to the extent feasible, the alteration of creeks, wetlands, and riparian buffer areas.

Program S-3D: In designing flood control facilities, ensure the protection of special-status species and downstream ecosystems.

Program S-3E: Continue to participate in the National Flood Insurance Program (NFIP).

Program S-3F: Continue to enforce the City's Flood Damage Prevention Ordinance in FEMA-identified special flood hazard areas.

Program S-3G: Require new lots or subdivisions partially in, and any new development partially or entirely in 100-year flood zones to provide detailed floodplain mapping for 100-year storm events as part of the development approval process.

Program S-3H: Continue to improve and to apply for funding to improve the City's storm drain network.

Program S-3I: Ensure proposed developments will not create or result in unacceptable exposure to flood hazards.

Program S-3J: Encourage residents within the floodplain to take all practical steps to floodproof their dwellings, including the use of low interest loans and grants when available for this purpose.

GOAL S-4: A city that has minimized, to the extent feasible, potential impacts to life and property caused by geologic and seismic hazards.

Policy S-4.1: The City strives to ensure a high level of safety and minimize the loss of life injury, and property damage from earthquake, landslide, volcanic activity, erosion, and other geologic hazards.

Policy S-4.2: The City requires that new development be designed to minimize the risk of damage from seismically induced ground shaking, ground failure, slope instability, and other seismic hazards.

Program S-4A: Identify and prioritize seismic retrofits needed on existing public buildings.

Program S-4B: Encourage upgrading of privately-owned, unreinforced masonry buildings to prevent earthquake damage.

Program S-4C: In coordination with the County Building Department continue to enforce regulations and programs to reduce geologic and seismic hazard vulnerability.

Program S-4D: Areas known to be susceptible to landslides should be evaluated, protected, and stabilized as necessary, including through cooperation with regional stakeholders to ensure evacuation routes, such as State Route 3, remain open and safe for passage.

Program S-4E: Limit development in areas subject to landslides or other geologic threat and undertake efforts to limit erosion from new development.

Program S-4F: Coordinate with county, state and federal agencies monitoring volcanic activity and hazards.

GOAL S-5: A city that has minimized, to the extent feasible, risks to life and property resulting from hazardous materials spills.

Policy S-5.1: The City takes necessary steps to prevent and prepare for hazardous materials spills, as well as protect its residents should one occur.

Policy S-5.2: To diminish the likelihood of hazardous materials spills along State Route 3, the City advocates for its concerns regarding highway safety.

Program S-5A: Maintain an open dialogue with Caltrans and the California Highway Patrol to ensure those agencies are aware of and responsive to the City's concerns about vehicle safety and hazardous materials transport along State Route 3.

Program S-5B: Continue to enforce designated truck routes for the transportation of hazardous materials through the City and prohibit routes that pass through residential neighborhoods to the maximum extent feasible.

Program S-5C: Identify necessary steps to be taken to protect residents in the case of a hazardous materials spill and be prepared to quickly implement these measures in the event of an accident.

Program S-5D: Maintain an up-to-date list of emergency contacts that are to be notified in the event of a hazardous materials spill, make the list readily available to city staff and first responders to facilitate a rapid response, and work with the California Highway Patrol to ensure rapid notification of residents in the event of a spill on State Route 3.

Program S-5E: Continue to promote the training of, and the provision of appropriate protection equipment for, local "first responders" who would respond to hazardous material spills in the Etna area.

GOAL S-6: A city that has minimized the risks to life and property resulting from climate change.

Policy S-6.1: The City integrates regional collaboration as a key component of the City's climate adaptation planning strategy, recognizing the regional nature of climate impacts and climate adaptation strategies.

Policy S-6.2: The City incorporates climate change considerations into city processes and planning efforts, utilizing best available data to understand climate predictions and the potential impacts on community resources and facilities.

Program S-6A: Actively participate in regional discussions on infrastructure improvements and adaptation strategies related to climate resiliency and addressing potential community impacts.

Program S-6B: Continue to collaborate with Siskiyou County, other local communities, and community organizations to establish and maintain shelters in the City and Scott Valley to reduce public exposure to extreme heat, cold, and smoke.

Program S-6C: Assess existing public infrastructure systems vulnerable to changes in key climate variables and incorporate upgrades to critical infrastructure in the City's Capital Improvement Program planning process.

Program S-6D: When updating the Capital Improvement Program, engineering specifications and standards, and planning documents, incorporate climate projection data, risk modeling, and adaptive management, as appropriate, to account for future changes in key climate variables (e.g., changes in precipitation and flooding behavior, fire and smoke risk, maximum daily temperatures, etc.).

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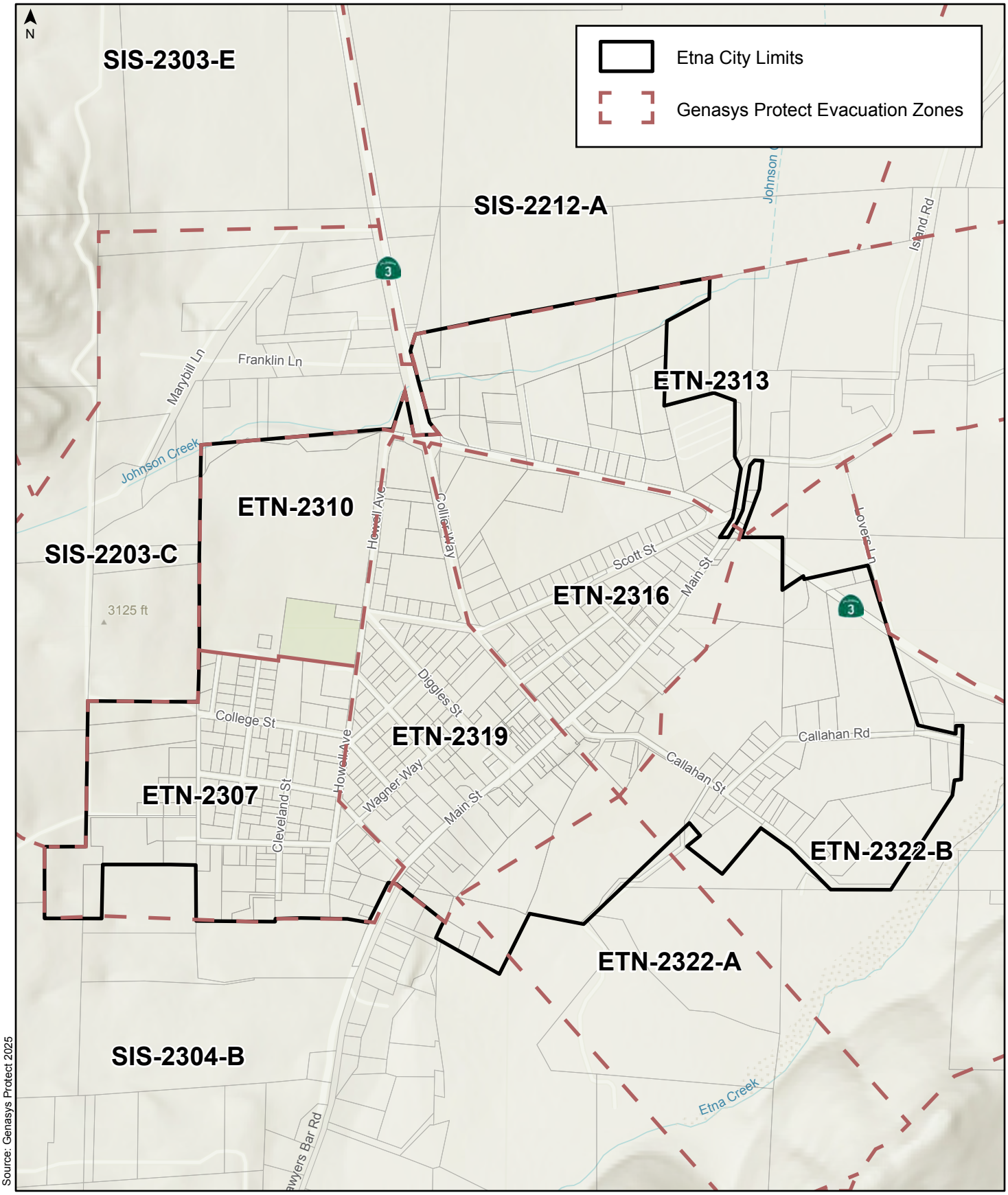


Figure 7-1, Evacuation Zones

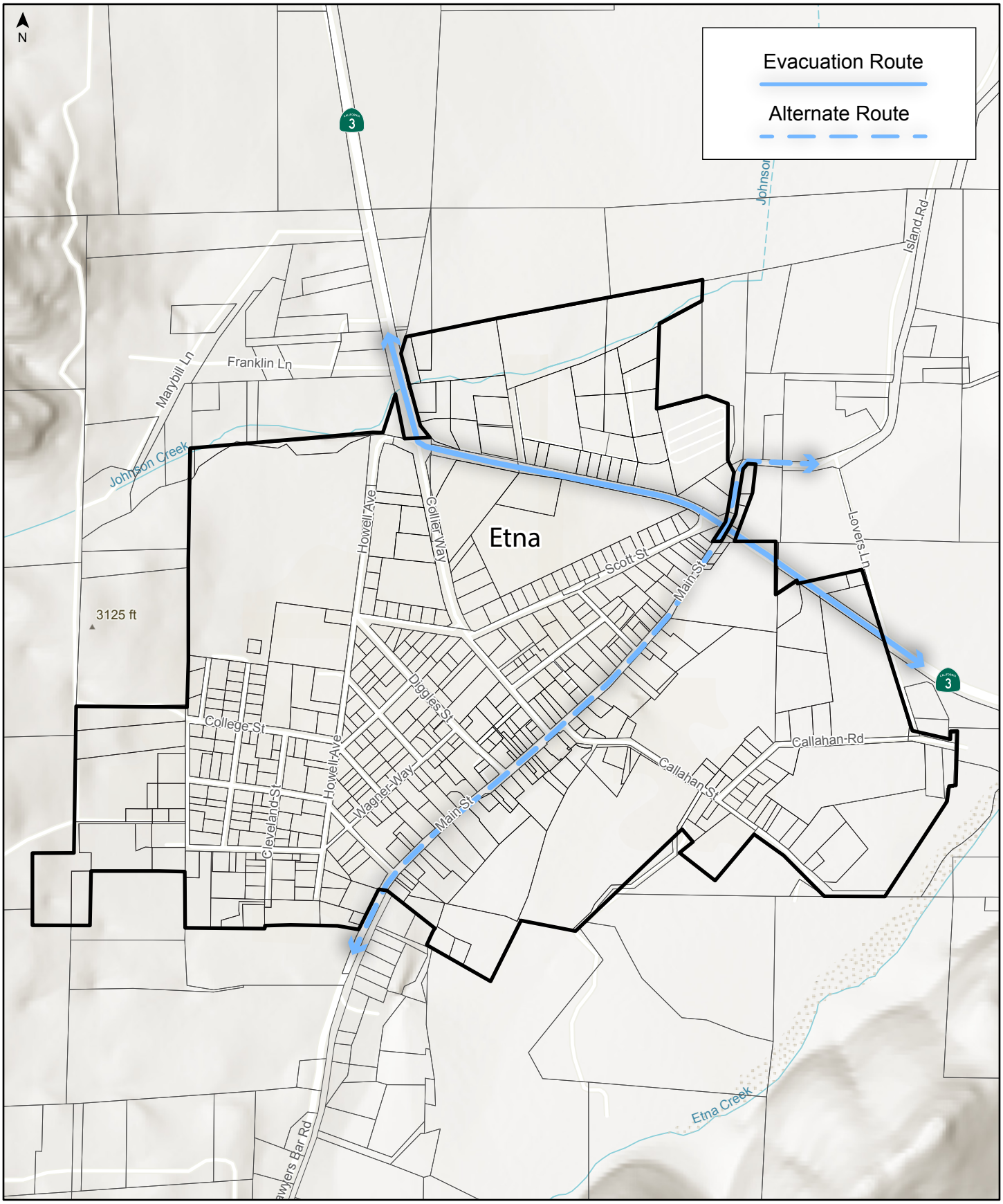


Figure 7-2, Evacuation Routes

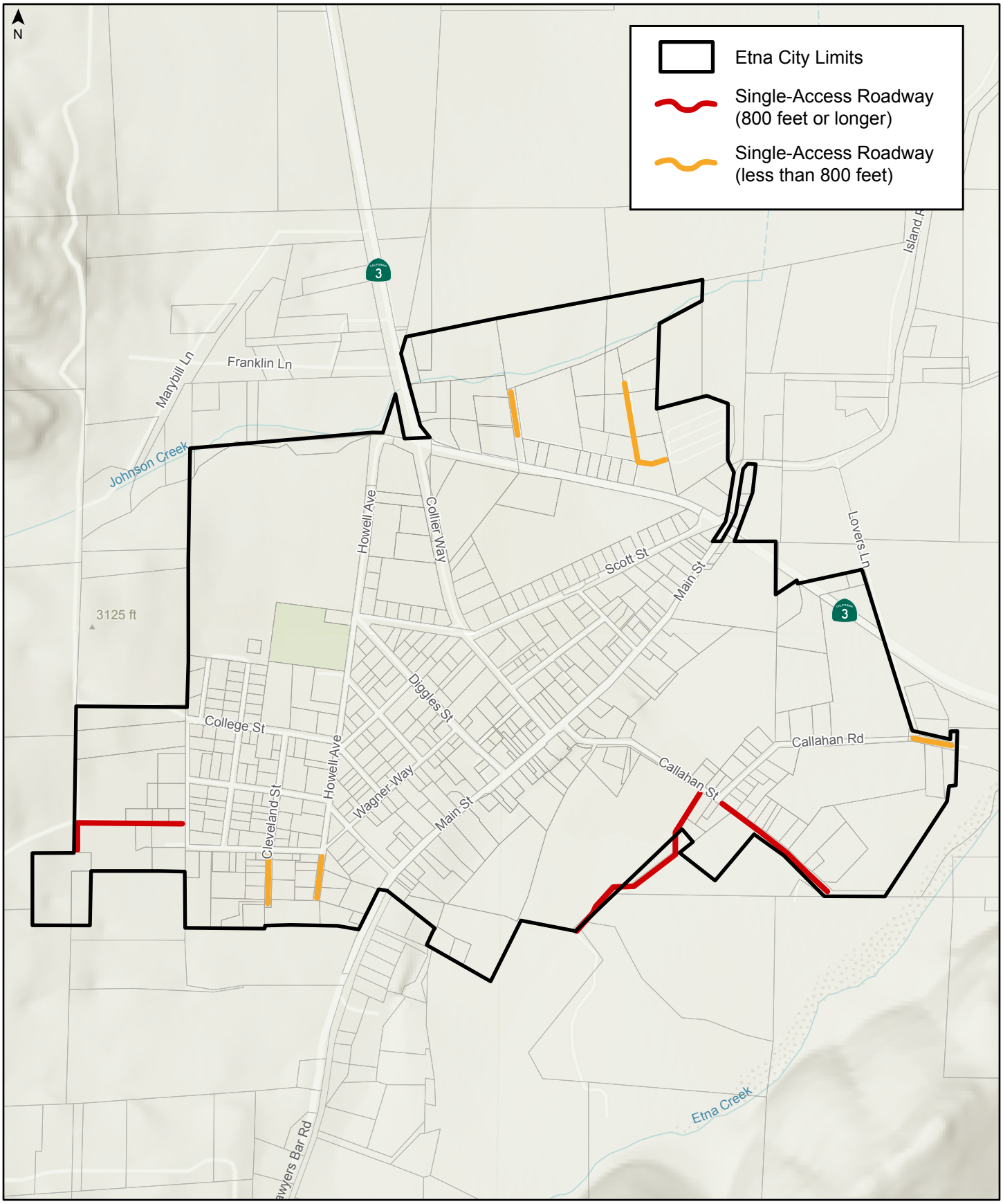
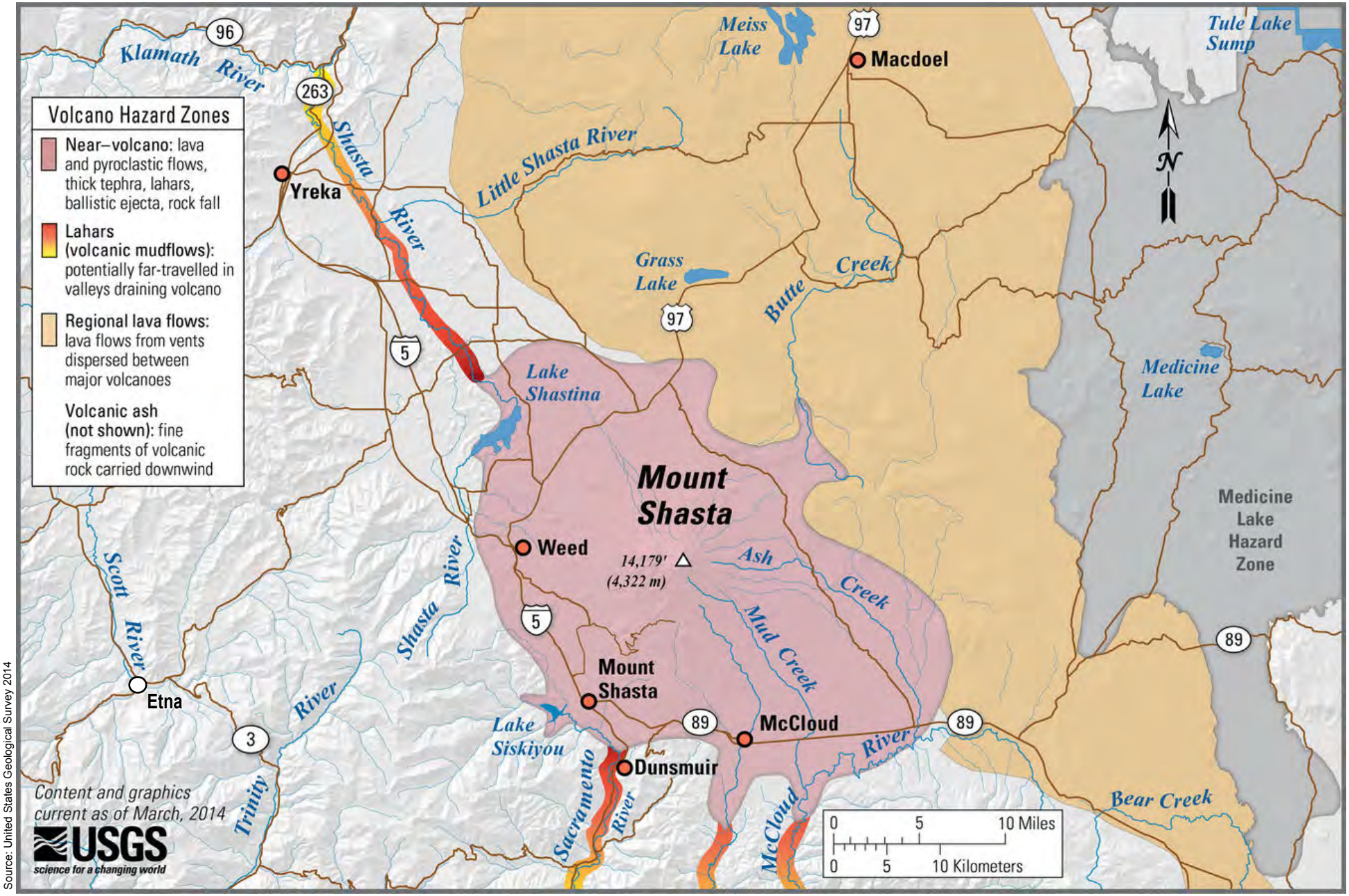
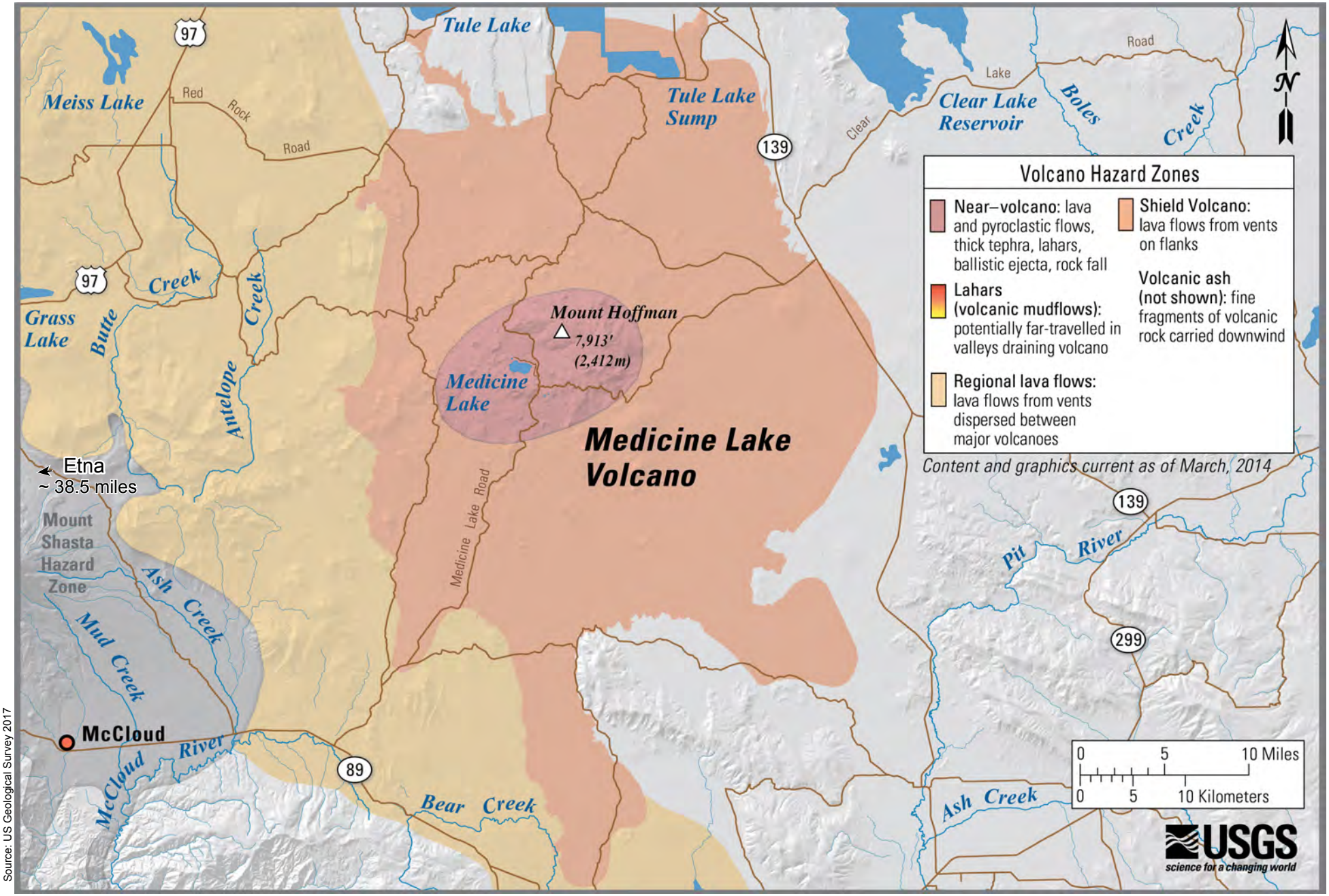


Figure 7-3, Single-Access Roadways



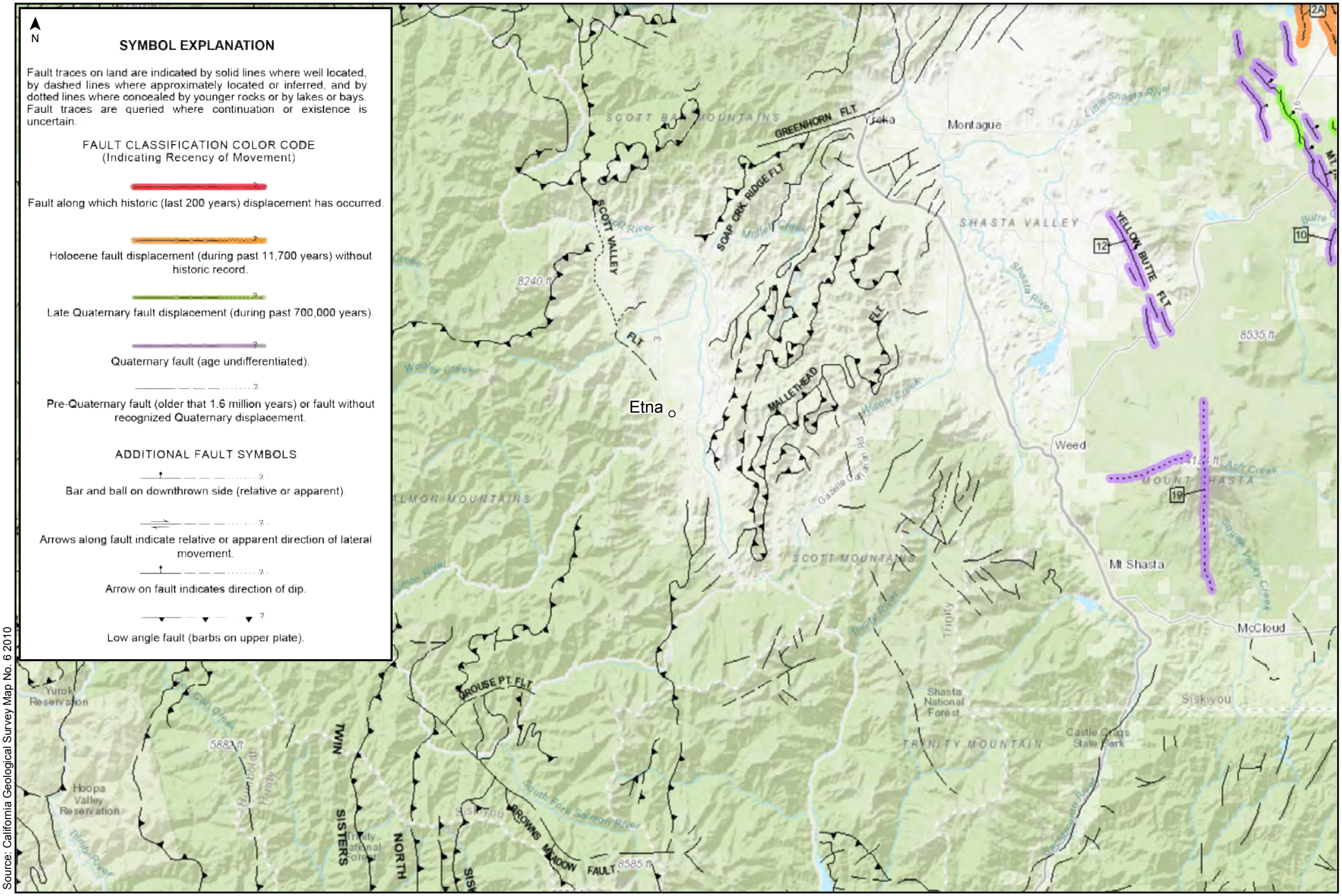
Source: United States Geological Survey 2014

Figure 7-4, Mount Shasta Volcanic Hazards



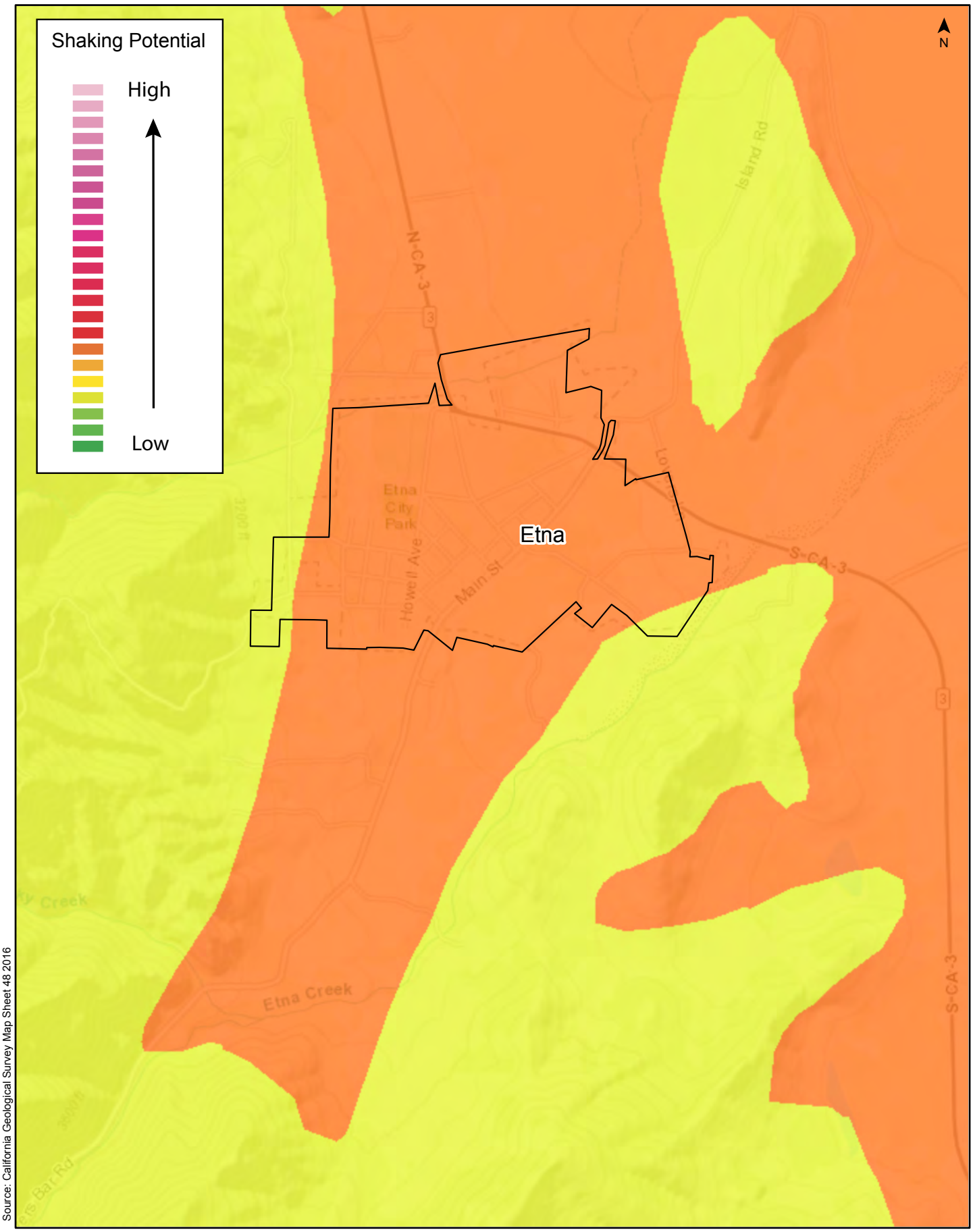
Source: US Geological Survey 2017

Figure 7-4, Medicine Lake Volcanic Hazards



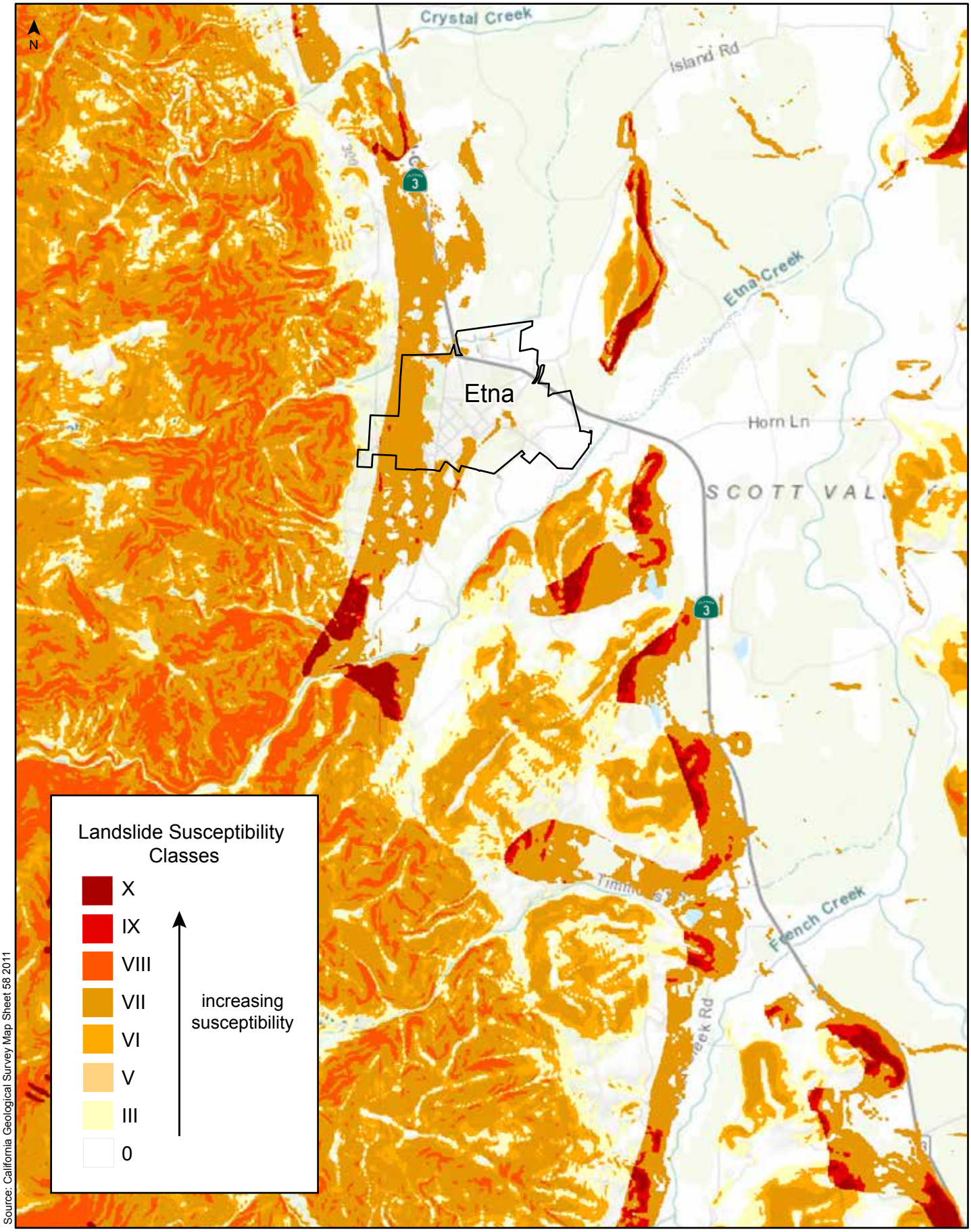
Source: California Geological Survey Map No. 6 2010

Figure 7-6, Fault Activity Map



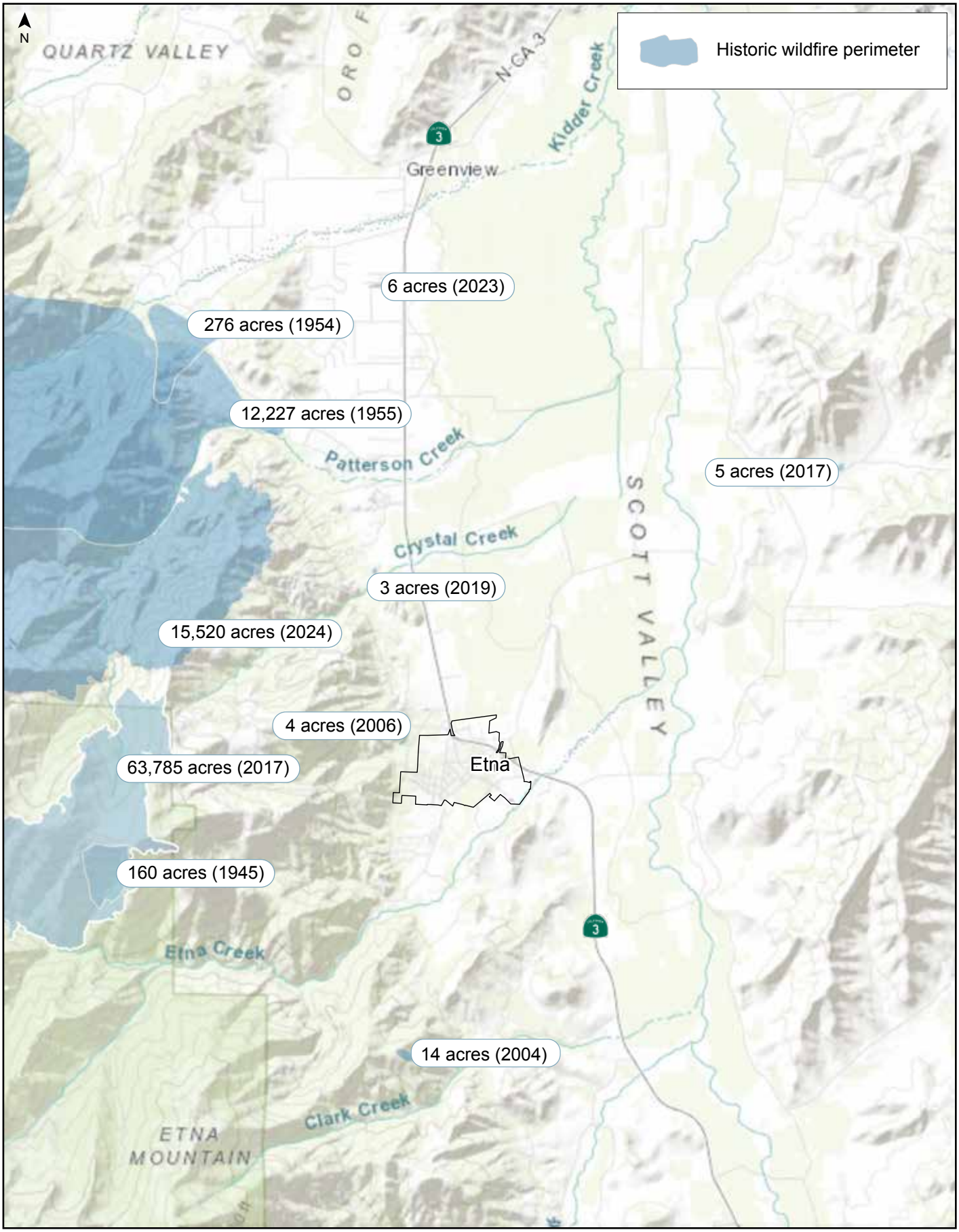
Source: California Geological Survey Map Sheet 48 2016

Figure 7-7, Earthquake Shaking Potential



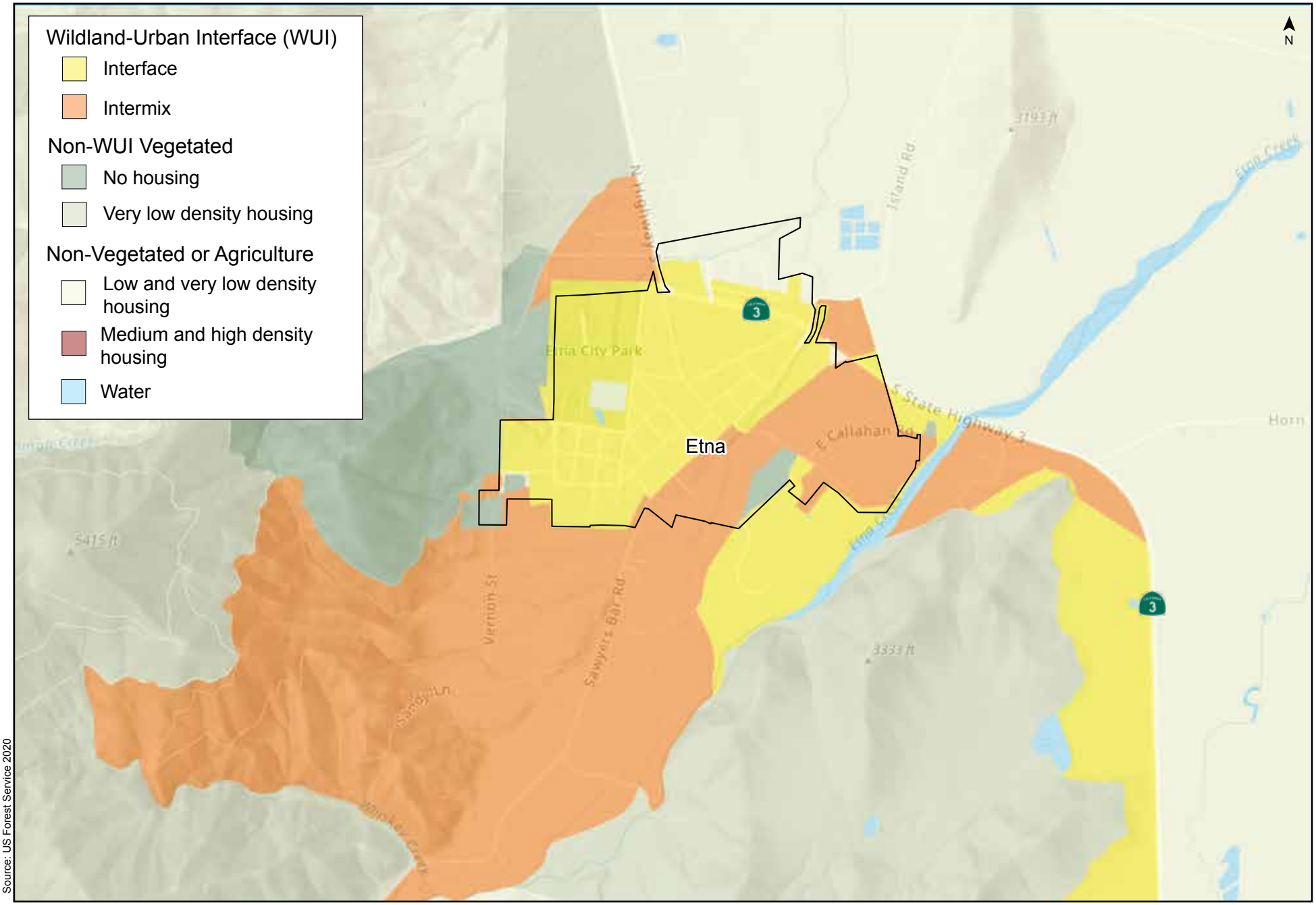
Source: California Geological Survey Map Sheet 58 2011

Figure 7-8, Deep-Seated Landslide Susceptibility



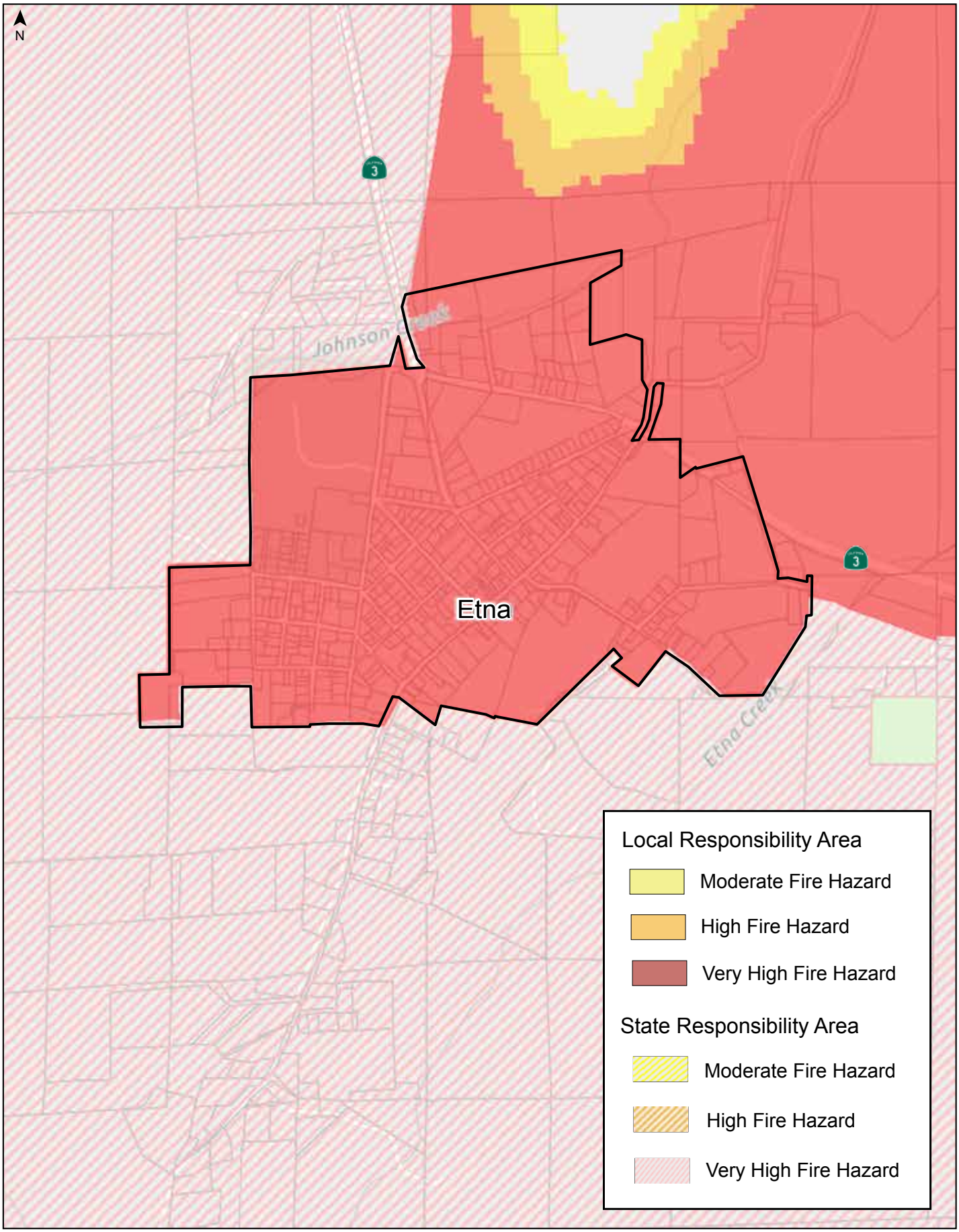
Source: CAL FIRE Historical Wildland Fire Perimeters 2025

Figure 7-9, Historic Widfire Perimeters



Source: US Forest Service 2020

Figure 7-10, Wildland Urban Interface



Source: CAL FIRE Fire Hazard Severity Zone Viewer 2025

Figure 7-11, Wildfire Hazard Severity Zones

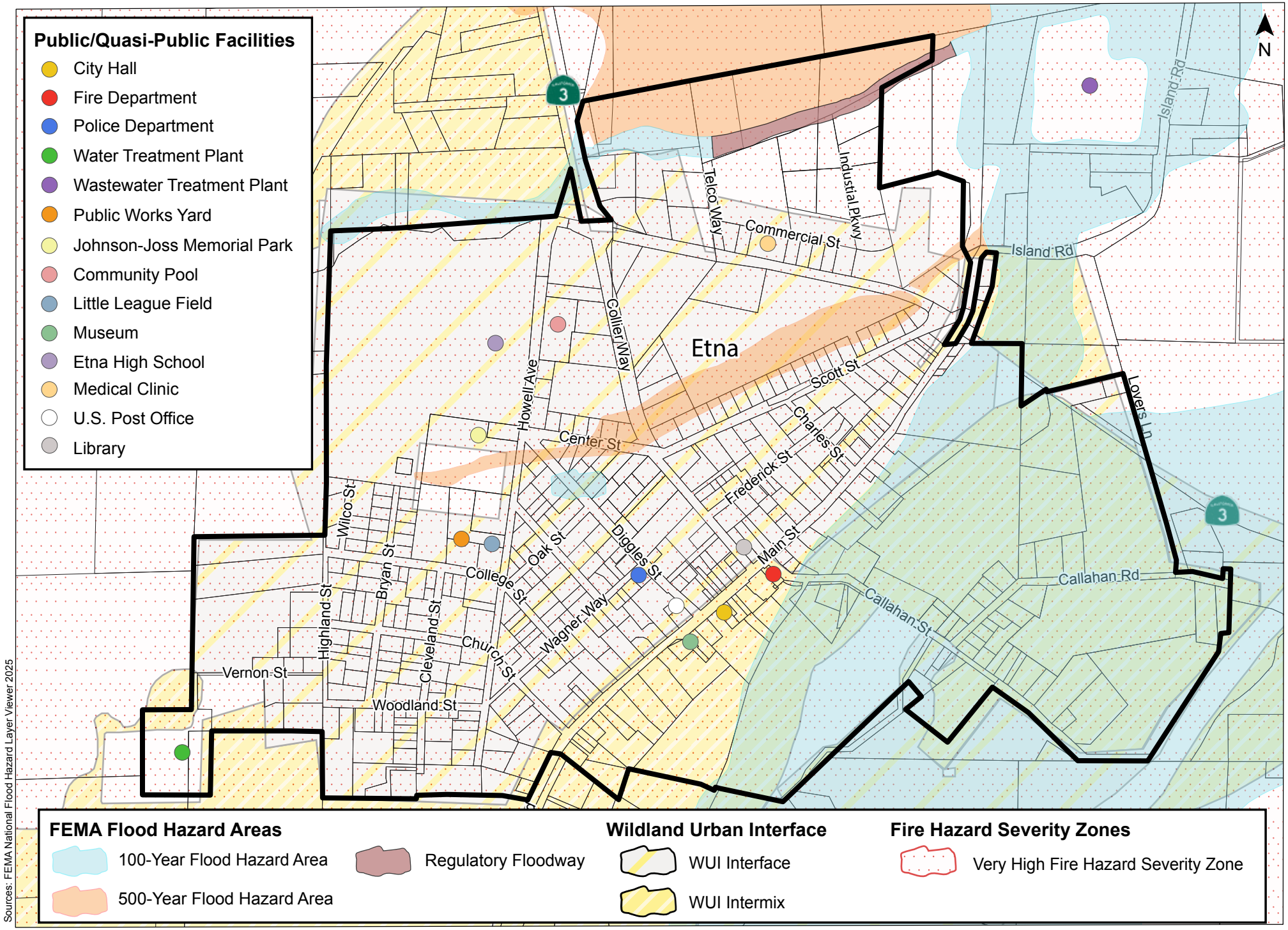
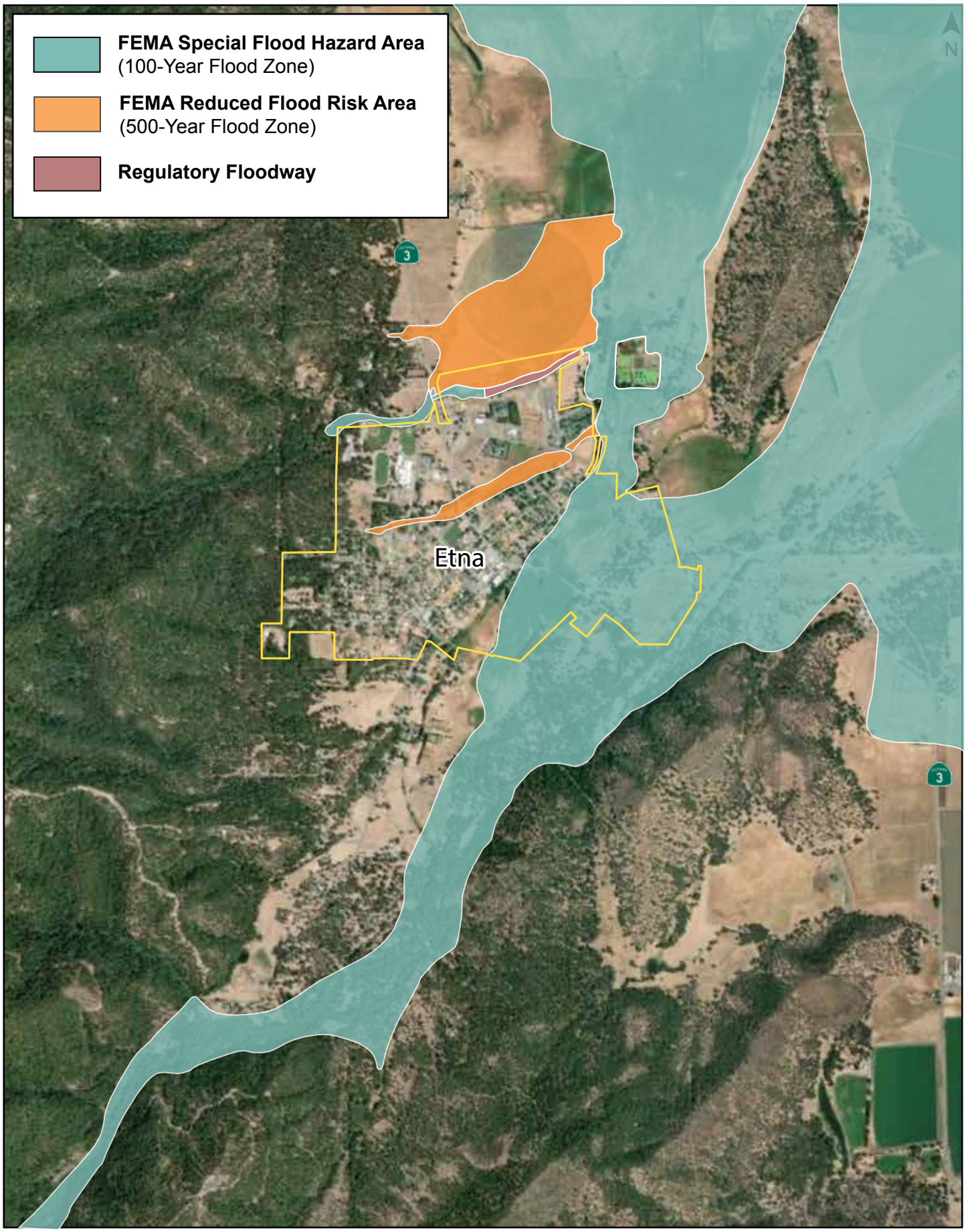


Figure 7-12, Public Facilities and Natural Hazards



Source: FEMA's National Flood Hazard Layer 2025

Figure 7-13, FEMA Flood Hazards

Figure 7-14, Hazardous Materials Cleanup Sites