PUBLIC SAFETY ELEMENT

INTRODUCTION

The Public Safety Element contains goals, policies, and implementation measures related to public safety in the city of Live Oak. The Public Safety Element directs the City to evaluate potential hazards, develop policies and procedures to avoid hazards, and create adequate emergency responses. The State General Plan Guidelines require the Public Safety Element to contain analysis of the following issues:

- ✓ seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure;
- ✓ subsidence, liquefaction, and other seismic hazards identified on seismic hazard maps;
- ✓ slope instability leading to mudslides and landslides;
- ✓ other known geologic hazards;
- ✓ flooding; and,
- ✓ wildland and urban fires.

In addition to the required topics, the Public Safety Element will also address the handling and transport of hazardous materials, the control of West Nile virus, crime prevention, and existing evacuation routes. This Element contains maps of evacuation routes and known seismic or geologic hazards as required by Government Code Section 65302 (g). Information related to urban fire hazards, including a discussion of peakload water supply requirements, can be found in the Public Utilities Element. Descriptions of fire hazard information related to minimum road widths and turnouts requirements are addressed in the Circulation Element.

Live Oak was a participant in the development of the Sutter County Multi-Hazard Mitigation Plan and adopted this plan in 2007. This plan is hereby incorporated by reference. The Sutter County Local Hazard Mitigation Plan was updated in August 2013.

KEY ISSUES

The City has identified a variety of potential natural and human-caused safety issues. The discussion focuses on hazardous waste materials and geologic, flood, and fire hazards within the City Planning Area that have the potential to affect residents of, and property in Live Oak. Some of the more prevalent issues facing the City include the following:

- ✓ Areas are susceptible to localized flooding from the Live Oak Slough.

- ✓ An identified seepage/boil area on a County-operated levee poses a flood hazard south of the Live Oak Planning Area.
- ✓ The Lake Oroville and Lake Shasta dams pose flood hazards.
- ✓ Older buildings in the city have inadequate fire detection and abatement systems.
- ✓ Potential water flow pressure issues may inhibit fire incidence response in older sections of the City.
- ✓ Hazardous waste sites are located within the City planning boundaries.

BACKGROUND AND CONTEXT

SEISMIC HAZARDS

Seismic hazards are geological hazards caused by earthquake activity. The State of California has identified five major areas of critical seismic concern including:

1. surface ruptures;
2. ground shaking;
3. ground failure;
4. tsunamis; and,
5. seiches.

Earthquakes are the primary cause of all seismic hazards. Earthquakes occur on fault lines in the earth's crust and vary in intensity, location, magnitude, and duration. An earthquake is the result of a sudden rupture of built-up energy in the earth's crust. This rupture or breakage releases energy, moving outward from the epicenter, in the form of seismic waves. The seismic energy of an earthquake is greatest at the epicenter of earthquake. The ability of the seismic energy to travel depends on the underlying geology of an area. Solid or dense materials, such as granite bedrock, do not conduct seismic waves as well as loose geologic material, such as alluvium.

Live Oak's geologic context and geographic location increase the risk of certain seismic hazards and reduce the risk of others. Earthquakes can result in direct hazards or in indirect hazards. Direct hazards include surface ruptures, fault displacement, and ground shaking. The nearest active fault to the Live Oak Planning Area is the Cleveland Hills Fault, located at Lake Oroville more than 15 miles away. The lack of active faults in the Planning Area means that the community faces little to no threat of surface rupture and fault displacement. On the other hand, the alluvium soils found within the Sacramento Valley and Planning Area are capable of effectively conducting seismic waves. Ground shaking can occur at some distance from the epicenter of an earthquake and has historically been the dominant form of seismic activity affecting the Planning Area.

Geologists use the Modified Mercalli Scale to measure the intensity of ground motion during a seismic event. The Live Oak vicinity has not experienced ground shaking at a Modified Mercalli Scale level of VII

or above, the level at which damage to unreinforced masonry buildings would be expected, during the period of 1800 through 1996.[1]

Indirect seismic hazards include ground failure, tsunamis, seiches, and dam failure. Ground failure occurs when the stresses in the ground exceed the resistance of earth materials to deformation or rupture. Instability comes about when stresses are increased by natural or human-made causes, such as by earthquakes, fills, and ground water withdrawal. Various types of ground failure can occur including liquefaction, lateral spreading, landslides, differential settlement, subsidence, and erosion. The liquefaction potential of soils in the Live Oak area is generally moderate, though areas of higher potential exist in areas parallel to the Feather River. Landslide risks are low because of the low level of topographical relief in the area. Other hazards related to ground failure, such as differential settlement, subsidence, and erosion, can be addressed through appropriate soil investigation before construction, as specified in the City's goals and policies.

Live Oak is not at risk for tsunamis or seiches based on its inland location and the absence of nearby large bodies of water. Risks associated with dam failure are addressed in the flood hazards section below.

FLOOD HAZARDS

The Live Oak Planning Area is vulnerable to four types of floods:

- ✓ localized flooding;
- ✓ riverine flooding;
- ✓ levee failure/overtopping; and,
- ✓ dam failure.

High-intensity rainfall is the primary cause of localized flooding. Flooding from weather events frequently occurs in developed or urbanized areas with large amounts of impervious surfaces or in areas that have inadequate storm drainage systems. Riverine flooding occurs during or after prolonged periods of rainfall, or if rain events and snowmelt are combined. The Feather River, which forms the eastern border of the General Plan Study Area, consists of a large watershed that stretches to the Sierra Crest. The city's location in the lower portions of the watershed exposes the community to substantial risk from riverine flooding. Additionally riverine flooding can overwhelm the integrity of the local or regional levee system. Levee failure can result if water overtops a levee, if high river levels saturate the levee banks, or if the levee itself is structurally defective. Levee failure can occur very rapidly with little warning. Once a levee is breached, floodwaters can inundate large low-lying areas. Levee overtopping or failure could cause catastrophic flooding in the Planning Area.

Dam failure occurs when a dam is not structurally sound or is unable to withstand damages resulting from seismic activity. The degree and speed of dam failure depends on the dam's structural characteristics. The Planning Area is susceptible to a variety of dam failure hazards. Sutter County has identified that a catastrophic failure of the Shasta, Oroville, Bullards Bar, and Camp Far West dams

[1] California Division of Mines and Geology. 1996. *Probabilistic Seismic Hazard Assessment for the State of California*. California Department of Conservation, Sacramento, CA. In cooperation with the U.S. Geological Survey, Washington, D.C.

would have a significant impact on Sutter County. Failures of the Oroville and Shasta dams would be expected to have the most severe consequences on Live Oak.

FLOODPLAIN

The Live Oak General Plan encompasses a relatively flat area. The drainage pattern of the city is split into two drainage sheds. The majority of the land west of the Southern Pacific Railroad drains south to Reclamation District (RD) No. 777 drainage canal Lateral No. 1. The land east of the railroad drains south and is collected in Live Oak Slough, which is the main canal for RD 777. Live Oak is susceptible to localized flooding by Live Oak Slough, which runs along the east side of the City. The potential for major flooding in Sutter County, including the Live Oak Planning Area, is primarily a function of the integrity of the reservoir, levee, and bypass systems that provide flood protection (Figure SAFETY-1).

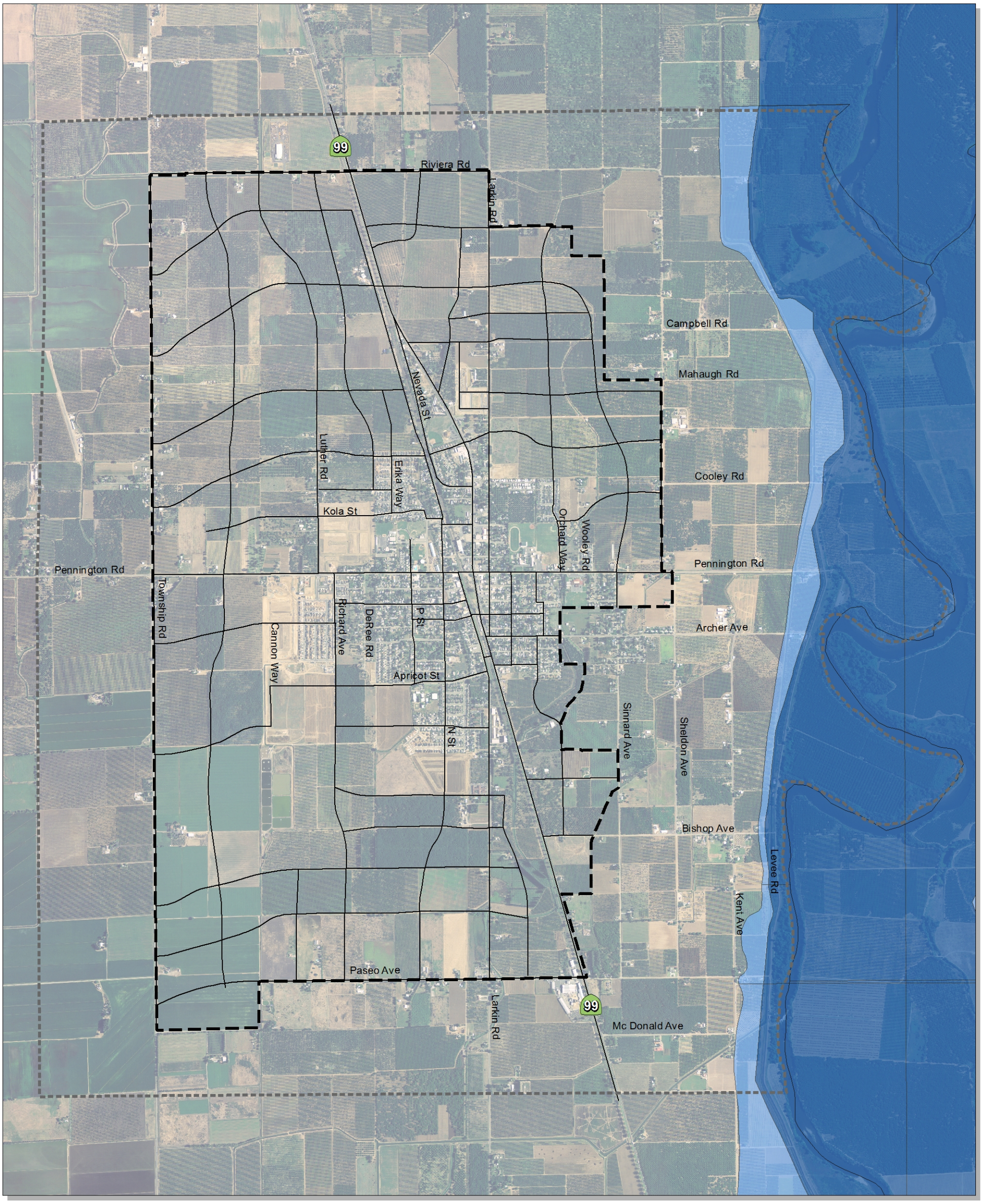
FLOODPLAIN ISSUES

The primary method of flood control in Sutter County is a system of levees along the Sacramento and Feather Rivers. There are approximately 280 miles of levees within the County. Both urban and agricultural areas are protected by these levees. However, recent studies found that some of these levees did not meet, or were not certified as meeting, the current levee design criteria for protection against the 200-year flood. As a result, much of the county was considered vulnerable to flooding from levee failure.

The Sutter County Pilot Feasibility Study (SCPFS), conducted by the Army Corps of Engineers, produced a plan to provide 200-year flood protection to the major urban areas within the county, pursuant to Senate Bill (SB) 5 requirements, and to obtain FEMA levee certification. For areas with an existing or projected (within next 10 years) population of 10,000 or greater, local governments cannot approve new developments unless the land under review has 200-year flood protection, or efforts are in place to provide that level of protection by 2025. The Feather River West Levee Project (FRWLP), began construction of the most critical sections of the existing levees, and is expected to be completed in 2017. Post-FRWLP mapping based on completion of these improvements shows that the City's Planning Area is outside the 200-year floodplain. A complete discussion is provided in Appendix C, "Background Information, SB 5 General Plan Amendment for 200-Year Flood Protection."

WILDLAND AND URBAN FIRE HAZARDS

According to the California Department of Forestry and Fire Protection, the City of Live Oak is located within an area of low wildland fire risk. Although isolated grass fires do occur within the Planning Area, the potential for large wildfires is constrained by the City's relatively flat topography and the lack of complex fuels. Therefore, wildfire and clearances around proposed structures for wildfire-prone areas is not relevant, and no addressed in this General Plan. Like other communities in the state, Live Oak manages urban fire risks by enforcing its development code and municipal ordinance and by contracting fire suppression services from the Sutter County Fire Department. The City does however contain some older buildings that present heightened levels of fire risk. These older buildings often have inadequate fire detection and abatement systems. Additionally, the water systems in the older section of the city may not provide recommended levels of water flow for fire incidents.



LEGEND

Boundaries

- Study Area
- Planning Area
- Roads
- 100-yr Floodplain (A)
- 500-yr Floodplain (X500)

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Source: Sutter County Assessor's Office, Live Oak GIS, Adapted by AECOM 2016, Butte County 2000, Yuba County 2007

Imagine the future...
City Of Live Oak
General Plan

Figure SAFETY-1
Floodplain Map

HAZARDOUS MATERIALS

Hazardous materials are substances that are dangerous to the public's health and safety if they are improperly used, stored, transported, or disposed. Hazardous materials include substances known to be toxic, flammable, explosive, corrosive, infectious, carcinogenic, or radioactive. The most significant concern regarding hazardous materials releases in Live Oak Planning Area is the presence of SR 99 and the Union Pacific Railroad in the city. Accidents or spills could release hazardous substances such as gasoline, diesel, or transported hazardous materials/hazardous wastes. Additionally, data from the Central Valley Regional Water Quality Control Board indicates that 10 sites are recorded as containing leaking underground storage tanks in the City. These sites involve gas, diesel, and waste oil contamination of soils and water aquifers.

The U.S. Environmental Protection Agency's (EPA's) environmental mapping database indicates that three hazardous waste sites are in Live Oak. Hazardous waste sites include facilities regulated by EPA that handle materials that can pose a substantial or potential hazard to human health or the environment when improperly managed. There are no known hazardous waste disposal sites located within Live Oak. Yuba-Sutter Disposal Inc. provides hazardous waste disposal programs for the city residents and businesses. [2]

An additional public health concern related to hazardous materials is the potential of agricultural pesticides to drift onto adjacent residential, civic, and commercial uses during application. This drift can occur during aerial spraying and applications of orchard fogging pesticides. Buffers, as described in the Conservation and Open Space Element, are intended to minimize potential conflicts (e.g., pesticide drift) between urban and agricultural uses.

CRIME PREVENTION

A critical component of public safety is the protection of residents and businesses from crime. Sadly, the City of Live Oak has experienced a substantial increase in the number of crimes over the last 5 years. In particular, the incidence of assault, burglary larceny, and vehicle theft has increased. Additionally, gang related activity has become more common in the community.

The City and the Sheriff's Office have recently engaged in a community policing strategy where officers use community interaction and support to help control crime. Community members help police by reporting crimes, identifying suspects, and keeping their eyes on activities in their neighborhoods. This change is thought to have led to the public's willingness to engage the help of law enforcement officers in conflicts and situations for which people would previously not have called law enforcement. Additional outreach programs and crime prevention techniques and strategies will be used in the community to ensure safety within the community.

[2] Please refer to the Safety Background Report and the Hazards and Hazardous Materials Section of the 2030 City of Live Oak General Plan EIR (under separate cover) for additional discussion of hazardous materials within the community.

WEST NILE VIRUS

A number of mosquito-borne diseases have occurred historically in Sutter County including malaria, western equine encephalomyelitis, St. Louis encephalitis, and West Nile virus. In recent years, West Nile virus has posed the most serious public health concern for the Planning Area. The disease can be potentially deadly to humans and livestock. Twenty-one cases of West Nile virus have occurred in Sutter County since its discovery in California in 2003 (Sutter County 2007). The regions' agricultural lands and numerous areas with standing water provide habitat for the mosquito species that carries the disease. The City and the Sutter-Yuba Mosquito and Vector Control District (SYMVCD) have attempted to control West Nile virus by reducing the mosquito population and educating residents on how to protect themselves. The SYMVCD uses physical, biological, and chemical methods to control mosquito populations. The SYMVCD also conducts a West Nile virus surveillance program and maintains records of all identified cases of the disease.

EVACUATION ROUTES

The potential for emergencies related to geologic hazards, flood, fire, and hazardous materials requires the City to have a planned evacuation route system (see Figure SAFETY-2 "Evacuation Route"). Evacuation routes will vary depending on the characteristics of the specific hazard event. The specific location and type of event will determine which evacuation plan will be implemented by the County. The County's multi-hazard plan designates planned evacuation routes. In general, SR 99 will be used as the primary evacuation route for hazard events affecting the Live Oak Planning Area.

GOALS, POLICIES, AND IMPLEMENTATION PROGRAMS

Following are Live Oak's goals and policies to address existing and future public safety issues.

Goal PS-1. **Design buildings to prevent property damage and injury from hazards.**

Policy PS-1.1 All new buildings in the City shall be built under the seismic requirements of the California Building Code.

Policy PS-1.2 The City will encourage the retrofitting of older buildings to current safety standards, as specified in locally applicable fire and building codes.

Policy PS-1.3 New development shall ensure adequate water flow for fire suppression as required by City Public Works Improvement Standards.

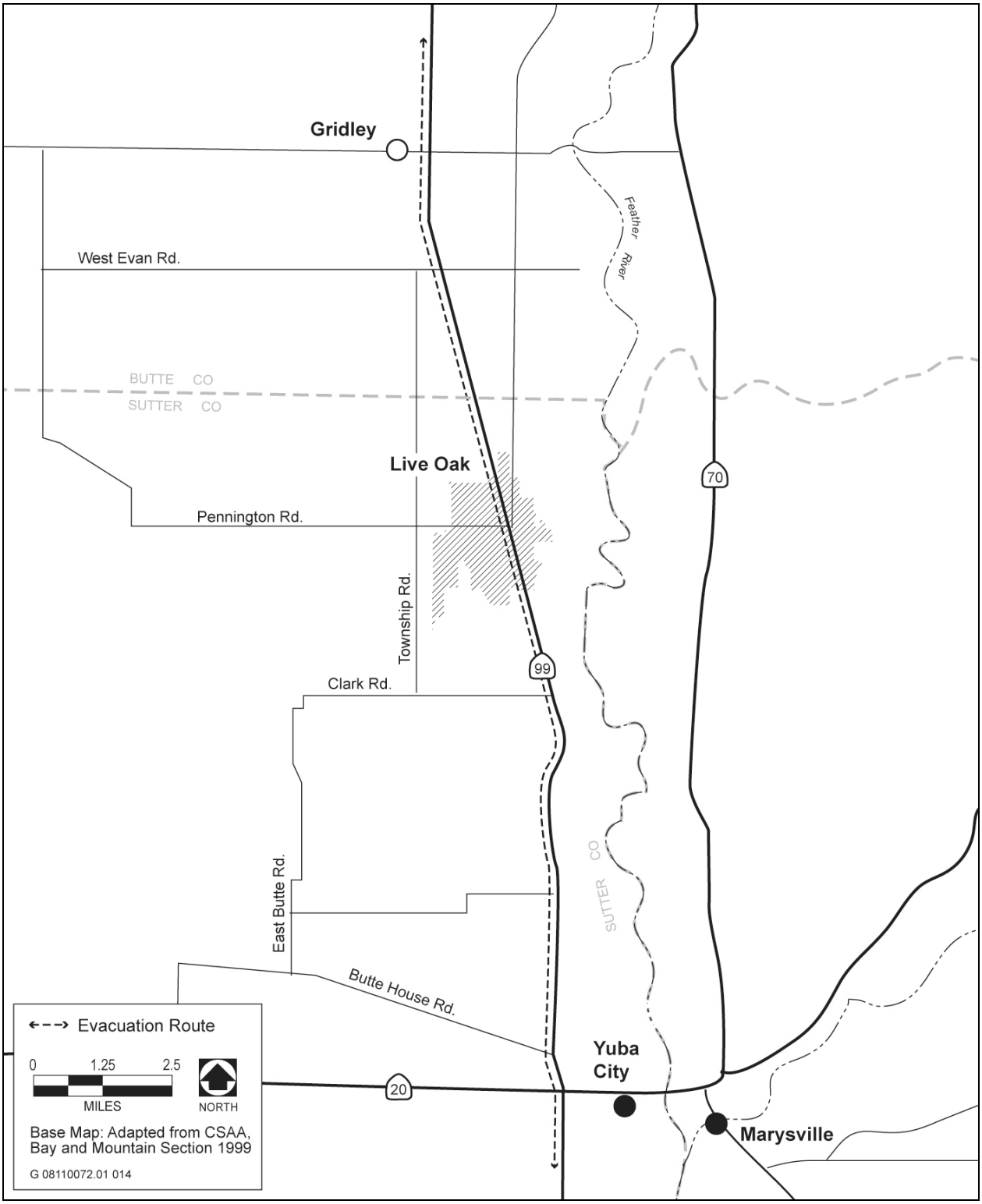

Figure SAFETY-2
Evacuation Route

Goal PS-2. **Minimize the loss of life and damage to property caused by flood events.**

Policy PS-2.1 The City will coordinate with the Sutter Butte Flood Control Agency to ensure that flood control facilities protecting Live Oak's Planning Area from flood risks to the City are well maintained and capable of protecting existing and proposed structures from flooding, in accordance with state law.

Policy PS-2.2 The City will regulate development within floodplains according to state and federal requirements to minimize human and environmental risks and maintain the City's eligibility under the National Flood Insurance Program.

Policy PS-2.3 The City will require evaluation of potential flood hazards before approving development projects.

Policy PS-2.4 The City will require applicants for development to submit drainage studies that adhere to City stormwater design requirements and incorporate measures from the City's master drainage plan to prevent on- or off-site flooding.

Policy PS-2.5 New development shall be required to be consistent with regional flood control improvement efforts. New development shall contribute on a fair-share basis to regional solutions to improve flood protection to meet state and federal standards.

Policy PS-2.6 The City will use the most current flood hazard and floodplain information from state and federal agencies (such as the State Department of Water Resources, the Federal Emergency Management Agency, and the Army Corps of Engineers) as a basis for project review and to guide development in accordance with federal and state regulations.

Policy PS-2.7 As feasible, new development should incorporate stormwater treatment practices that allow percolation to the underlying aquifer and minimize off-site surface runoff (and therefore flooding).

Policy PS-2.8 If any project, including the modification of an existing project, falls within the jurisdiction regulated by the Central Valley Flood Protection Board (CVFPB) (e.g., levees, regulated streams, and designated floodways), the City must apply for an encroachment permit from the CVFPB.

Goal PS-3. **Provide for adequate emergency response.**

Policy PS-3.1 The City shall maintain and update the City's emergency response plan, as needed, and ensure ongoing consistency with the General Plan.

Policy PS-3.2 The City will add a section to the emergency response plan on railroad safety to address potential releases related to accidents or spills of hazardous substances, such as gasoline, diesel, or transported hazardous materials/hazardous wastes.

Policy PS-3.3 The City will maintain mutual aid agreements with other agencies in Sutter County.

Policy PS-3.4 The City will coordinate with the County Office of Emergency Services to identify and establish evacuation routes and operational plans to be used in case of dam failure, flood disaster, and fire. The City will provide relevant outreach to residents and businesses regarding evacuation routes for each hazard type.

Policy PS-3.5 The City will require development and maintenance of a road system that provides adequate access for emergency equipment.

Policy PS-3.6 As feasible, locate new essential facilities outside of flood hazard zones, including hospitals and healthcare facilities, emergency shelters, fire stations, emergency response centers and emergency communication facilities.

Policy PS-3.7 Essential facilities that must be located within flood hazard zones should incorporate feasible site design or building construction features that will minimize flood damage and increase functionality during flooding events.

Goal PS-4. Protect the community from the harmful effects of hazardous materials.

Policy PS-4.1 The City, through its discretionary review authority, will assess potential risks associated with hazardous materials used, stored, transported, and disposed, and ensure they are handled in a safe manner and in compliance with local, state, and federal safety standards.

Policy PS-4.2 The City will require that dumpsites for hazardous materials are cleaned in conformance with applicable federal and state laws before new uses are established.

Policy PS-4.3 The City will coordinate with appropriate federal, state, and regional agencies to address local sources of groundwater and soil contamination, including underground storage tanks, septic tanks, agriculture, and industrial uses.

Policy PS-4.4 New development adjacent to areas of ongoing agricultural development outside the City's Sphere of Influence shall provide agricultural buffers that are adequate to protect future residents from harmful effects of agricultural chemical use (see Conservation and Open Space Element).

Policy PS-4.5 The City will support efforts to identify and remediate soils and groundwater contaminated with toxic materials, and to identify and eliminate sources contributing to such contamination.

Goal PS-5. Improve community safety and reduce opportunities for criminal activity.

Policy PS-5.1 New development shall be designed to maximize surveillance through physical design features, including, but not limited to, fronting buildings onto all parks

and other public spaces, visible entryways from surrounding structures and businesses; well-defined and visible walkways and gates; well-lighted driveways, walkways, and exteriors; and landscaping that preserves or enhances visibility.

Policy PS-5.2 The City will ensure that public areas and amenities such as transit stops, sidewalks, plazas, parks, trails, and pedestrian/bicycle paths are appropriately lighted, free of hiding places, and frequently patrolled.

Policy PS-5.3 The City will attempt to reduce criminal activity through educational efforts that focus on crime prevention by conducting community education programs.

Policy PS-5.4 The City will involve neighborhoods in crime prevention, disaster preparedness, citizen volunteer police services and shelter management through the establishment of neighborhood watch programs.

Implementation Program PS-1

The City will continue its participation with the regional flood protection joint powers authority addressing the assessment and improvement of levees on the west side of the Feather River to meet federal and state standards. The City will implement development impact fees to provide for necessary levee studies and improvement programs in coordination with the regional flood control joint powers authority. The City will proactively identify and take advantage of federal, state, and regional funding that may be available for use in flood protection improvements.

Implementation Program PS-3

Consistent with state law, the City will consult with the Central Valley Flood Protection Board and local flood protection agencies serving the Planning Area, to obtain updated floodway and floodplain maps, data, and policies. When this information is available, if necessary, the City will update the General Plan and revise all applicable development standards, including the zoning code. Subdivision approvals, development agreements, permits, and other City entitlements will incorporate these revised City policies and regulations.

Implementation Program PS-4

If necessary, the City will update the General Plan to incorporate 200-year floodplain mapping from the California Department of Water Resources and Central Valley Flood Protection Board, once available.

Implementation Program PS-5

In review of new development projects, require disclosure of risk where proposed development would occur in flood risk areas. This disclosure may include notifying new residents in these areas and encouraging purchase of appropriate insurance.

Implementation Program PS-6

The City will ensure proper training to emergency services staff, periodic equipment testing, and assessment of disaster preparedness. The City will provide opportunities for emergency preparedness training to interested members of the public and City personnel. The City will provide public access to emergency plans in areas such as City Hall, libraries, and schools.

Implementation Program PS-7

The City will adopt and implement a fire sprinkler ordinance to provide protection and to promote fire safety in older at-risk buildings.

Implementation Program PS-8

The City will establish a public education campaign that encourages owners of older buildings to retrofit these structures to current safety standards, as specified in the California Building Standards Commission uniform codes, such as the California Fire Code and California Building Code.