

# Grass Valley

## General Plan Safety Element Assessment Version 2

August 13, 2014

Board of Forestry and Fire  
Protection



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**Purpose and Background:** The State Board of Forestry and Fire Protection (BOF/Board) is required to review and make recommendations for the fire safety element of general plan updates in accordance with Government Code (GC) §65302.5. The review and recommendations apply to those general plans with State Responsibility Area (SRA) (Public Resources Code 4125) or Very High Fire Hazard Severity Zones (VHFHSZ) (GC 51175).

The statutory requirements for the Board review and recommendations pursuant to GC 65302.5 (a)(1) and (2), and (b) are as follows:

- *“The draft elements...to the fire safety element of a county’s or a city’s general plan...shall be submitted to the Board at least 90 days prior to... the adoption or amendment to the safety element of its general plan [for each county or city with SRA or VHFHSZ].”*
- *“The Board shall... review the draft or an existing safety element and report its written recommendations to the planning agency within 60 days of its receipt of the draft or existing safety element....”*
- *“Prior to adoption of the draft element..., the Board of Supervisors... shall consider the recommendations made by the Board... If the Board of Supervisors...determines not to accept all or some of the recommendations..., the Board of Supervisors... shall communicate in writing to the Board its reasons for not accepting the recommendations.”*

**Methodology for Review and Recommendations:** The Board established a standardized method to review the safety element of general plans. The methodology includes 1) examining the general plan for inclusion of factors that are important for mitigation of fire hazard and risks, and 2) making recommendations related to these factors. The evaluation factors and recommendations were developed using CAL FIRE technical documents and input from local fire departments.

Enclosed are a set of recommendations directed at communities that include:

- Medium Very High Fire Hazard Severity Zone acreage and/or State Responsibility Area acreage, or abuts large amounts of VHFHSZ/SRA
- Some existing, stable financial and physical resources
- General community support
- Some previous wildfire protection planning efforts

The General Plan Safety Element of each jurisdiction that fits those criteria will be assessed based on the recommendations below.

## Review Process and Timeline

The county, local jurisdiction, and local fire unit will receive and review technical guidance documents, the BOF checklist, and other relevant information from the Governor's Office of Planning and Research and CAL FIRE.



The county or local jurisdiction will work closely with the local fire unit during the development of the general plan and the safety element in particular.



**90 days prior to the adoption or amendment of the General Plan:** The county or local jurisdiction will submit the safety element to the Board of Forestry for review.



**No more than 30 days later:** The Board will work with the unit to develop findings and recommendations.



**No more than 60 days later:** The Board will consider the fire unit's recommendations and will approve or approve with amendments the recommendations at the next Board meeting.

# Standard List of General Plan Safety Element Recommendations

Please click on the appropriate box to “check” whether the plan satisfies each point. Standard recommendations are included in the checklist but please highlight or add additional comments as necessary.

## 1.0 Inter-agency Wildfire Protection Planning

- 1.1 General Plan references and incorporates County or Unit Fire Plan: Yes Partial No

**Recommendation:** Identify, reference or create (if necessary) a fire plan for the geographic scope of the General Plan. The General Plan should incorporate the general concepts and standards from any county fire plan, fire protection agency (federal or state) fire plan, and local hazard mitigation plan. Identify or reference the local Unit Fire Plan and, if applicable, the Community Wildfire Prevention Plan.

**Priority:** High  Medium  Low N/A

**Recommendation:** Ensure fire plans incorporated by reference into the General Plan contain evaluations of fire hazards, assessment of assets at risk, prioritization of hazard mitigation actions, and implementation and monitoring components.

**Priority:** High  Medium  Low N/A

- 1.2 Map or describe existing emergency service facilities and areas lacking services, specifically noting any areas in SRA or VHFHSZs. Yes Partial No

**Recommendation:** Include descriptions of emergency services including available equipment, personnel, and maps of facility locations.

**Priority:** High  Medium  Low N/A

**Recommendation:** Initiate studies and analyses to identify appropriate staffing levels and equipment needs commensurate with the current and projected emergency response environment.

**Priority:** High  Medium  Low N/A

**Recommendation:** Establish goals and policies for emergency service training that meets or exceeds state or national standards.

**Priority:** High  Medium  Low N/A

- 1.3 Inter-fire service coordination preparedness/mutual aid and multi-jurisdictional fire service agreements. Yes Partial No

**Recommendation:** Adopt the Standardized Emergency Management Systems for responding to large scale disasters requiring a multi-agency response. Ensure and review mutual aid/automatic aid and other cooperative agreements with adjoining emergency service providers.

**Priority:**  High  Medium  Low  N/A

**Additional Wildfire Protection Planning Recommendations:** Include maps of fire severity areas in the planning area and indicate any areas lacking services, or areas where planned development may require changes to current service levels.

## 2.0 Land Use:

2.1 Disclose wildland urban interface hazards including Fire Hazard Severity Zones designations and other vulnerable areas as determined by CAL FIRE or fire prevention organizations. Describe or map any Firewise Communities or other firesafe communities as determined by the National Fire Protection Association, Fire Safe Council, or other organizations.

Yes  Partial  No

**Recommendation:** Specify whether the entity has a Very High Fire Hazard Severity Zones (VHFHSZ) designation pursuant GC 51175 and include a map of the zones that clearly indicates any area designated VHFHSZ.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Adopt CAL FIRE recommended Fire Hazard Severity Zones including model ordinances developed by the Office of the State Fire Marshal for establishing VHFHSZ areas.

**Priority:**  High  Medium  Low  N/A

2.2 Goals and policies include mitigation of fire hazard for future development.  Yes  Partial  No

**Recommendation:** Adopt fire safe development codes to be used as standards for fire protection for new development in Very High Fire Hazard Severity Zones (VHFHSZ) within the entity's jurisdiction that meet or exceed statewide standards in 14 California Code of Regulations Section 1270 et seq and have them certified by the Board of Forestry.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Establish goals and policies for specific ordinances, or specify the current existing ordinances, code sections, or regulations, that address evacuation and emergency vehicle access; water supplies and fire flow; fuel modification for defensible space; and home addressing and signing.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Consider mitigation of previously developed areas that do not meet Title 14 California Code of Regulations Section 1270 et seq. or equivalent local ordinance.

**Priority:**  High  Medium  Low  N/A

2.3 The design and location of new development provides for adequate infrastructure for the safe ingress of emergency response vehicles and simultaneously allows civilian egress during an emergency:  Yes  Partial  No

**Recommendation:** Develop pre-plans for fire prone areas that address civilian evacuations to temporary safety locations.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Develop a policy that approval of parcel maps and tentative maps is conditional based on meeting regulations adopted pursuant to §4290 and 4291 of the Public Resources Code, particularly those regarding road standards for ingress, egress, and fire equipment access.

**Priority:**  High  Medium  Low  N/A

2.4 Fire suppression defense zones.  Yes  Partial  No

**Recommendation:** Establish goals and policies that create wildfire defense zones for emergency services, including fuel breaks or other staging areas where WUI firefighting tactics could be most effectively deployed.

**Priority:**  High  Medium  Low  N/A

2.5 Prioritizing asset protection from fire when faced with a lack of suppression forces.

Yes  Partial  No

**Recommendation:** Identify and prioritize protection needs for assets at risk in the absence of response forces.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Establish fire defense strategies (such as fire ignition resistant areas) that provide adequate fire protection without dependency on fire resources (both air and ground) and could serve as safety zones for the public or emergency support personnel.

**Priority:**  High  Medium  Low  N/A

**Additional Land Use Planning Recommendations:** More specific discussion of development codes in high fire areas, especially codes relating to ingress and egress, any development approval conditions for plans in high fire zones, and any related local ordinance should be included.

### 3.0 Housing:

3.1 Incorporation of current fire safe building codes.  Yes  Partial  No

**Recommendation:** Adopt building codes for new development in State Responsibility Areas or incorporated areas with VHFHSZ that are based on those established by the Office of the State Fire Marshal in Title 19 and Title 24 CCR, referred to as the “Wildland Urban Interface Building Codes.”

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Ensure new development proposals contain specific fire protection plans, actions, and codes for fire engineering features for structures in VHFHSZ. Examples include codes requiring automatic sprinklers in VHFHSZ.

**Priority:**  High  Medium  Low  N/A

3.2 Consideration of diverse occupancies and their effects on wildfire protection.

Yes  Partial  No

**Recommendation:** Ensure risks to uniquely occupied structures, such as seasonally occupied homes, multiple dwelling structures, or other unique structures/owners, are considered for appropriate wildfire protection needs.

**Priority:**  High  Medium  Low  N/A

3.3 Fuel modification around homes.  Yes  Partial  No

**Recommendation:** Establish ordinances in SRA or VHFHSZ for vegetation fire hazard reduction around structures that meet or exceed the Board of Forestry and Fire Protection's Defensible Space Guidelines for SRA and the Very High Fire Hazard severity zones, including vacant lots.

See [http://www.bof.fire.ca.gov/pdfs/Copyof4291finalguidelines9\\_29\\_06.pdf](http://www.bof.fire.ca.gov/pdfs/Copyof4291finalguidelines9_29_06.pdf)

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Reduce fuel around communities and subdivisions, considering fuels, topography, weather (prevailing winds and wind event specific to the area), fire ignitions and fire history.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Include policies and recommendations that incorporate fire safe buffers and greenbelts as part of the development planning. Ensure that land uses designated near high or very fire hazard severity zones are compatible with wildland fire protection strategies/capabilities.

**Priority:**  High  Medium  Low  N/A

3.4 Identification and actions for substandard fire safe housing and neighborhoods relative to fire hazard area.  Yes  Partial  No

**Recommendation:** Identify and map existing housing structures that do not conform to contemporary fire standards in terms of building materials, perimeter access, and vegetative hazards in VHFHSZ or SRA by fire hazard zone designation.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Identify plans and actions to improve substandard housing structures and neighborhoods. Plans and actions should include structural rehabilitation, occupancy reduction, demolition, reconstruction, neighborhood-wide fuels hazard reduction projects, community education, and other community based solutions.

**Priority:**  High  Medium  Low  N/A

3.5 Assessment and projection of future emergency service needs. Yes Partial No

**Recommendation:** Ensure new development includes appropriate facilities, equipment, personnel and capacity to assist and support wildfire suppression emergency service needs. Future emergency service needs should be:

- Established consistent with state or national standards.
- Developed based on criteria for determining suppression resource allocation that includes elements such as identified values and assets at risk, ignition density, vegetation type and condition, as well as local weather and topography.
- Local Agency Formation municipal services reviews for evaluating level of service, response times, equipment condition levels and other relevant emergency service information.

**Priority:** High Medium Low N/A

**Additional Housing/Structures and Neighborhoods Recommendations:** Address any specific building or development codes relating to growth, including fuel modification requirements, in very high fire hazard severity zones. Ensure new development has appropriate response capabilities. Address any risks faced by uniquely occupied structures, such as seasonally occupied homes, or homes and developments not up to current standards.

#### 4.0 **Conservation and Open Space:**

4.1 Identification of critical natural resource values relative to fire hazard areas. Yes Partial No

**Recommendation:** Identify critical natural resources and other “open space” values within the geographic scope of the General Plan.

**Priority:** High Medium Low N/A

4.2 Inclusion of resource management activities to enhance protection of open space and natural resource values. Yes Partial No

**Recommendation:** Develop plans and action items for vegetation management that provides fire damage mitigation and protection of open space values.

**Priority:** High Medium Low N/A

**Recommendation:** Establish goals and policies for reducing the wildland fire hazards within the entity’s boundaries and, with the relevant partners, on adjacent private wildlands, federal lands, vacant residential lots, and greenbelts with fire hazards that threaten the entity’s jurisdiction.

**Priority:** High Medium Low N/A

4.3 Integration of open space into fire safety effectiveness. Yes Partial No

**Recommendation:** Establish goals and policies for incorporating systematic fire protection improvements for open space. Specifics policies should address fire mitigation planning with agencies/private landowners managing open space adjacent to the General Plan area, water sources for fire suppression, and other fire prevention and suppression needs.

**Priority:**  High  Medium  Low  N/A

**Additional Conservation and Open Space Recommendations:**

**5.0 Circulation:**

5.1 Adequate access to high hazard wildland/open space areas.  Yes  Partial  No

**Recommendation:** Establish goals and policies for adequate access in Very High Fire Hazard Severity Zones that meet or exceed standards in Title 14 CCR 1270 for lands with no structures, and maintain conditions of access in a suitable fashion for suppression access or public evacuation.

**Priority:**  High  Medium  Low  N/A

5.2 Incorporate a policy that provides for a fuel maintenance program along roadways in the agency having jurisdiction.  Yes  Partial  No

**Recommendation:** Develop an adaptive vegetation management plan that considers fuels, topography, weather (prevailing winds and wind event specific to the area), fire ignitions and fire history.

**Priority:**  High  Medium  Low  N/A

5.3 Emergency response barriers.  Yes  Partial  No

**Recommendation:** Identify goals and policies that address vital access routes that if removed would prevent fire fighter access (bridges, dams, etc.). Develop an alternative emergency access plan for these areas.

**Priority:**  High  Medium  Low  N/A

5.4 Adequacy of existing and future transportation system to incorporate fire infrastructure elements.  Yes  Partial  No

**Recommendation:** Establish goals and policies for proposed and existing transportation systems to facilitate fire infrastructure elements such as turnouts, helispots and safety zones.

**Priority:**  High  Medium  Low  N/A

**Additional Circulation and Access Recommendations:**

**6.0 Post Fire Safety, Recovery and Maintenance:**

The post fire recommendations address an opportunity for the community and landowners to re-evaluate land uses and practices that affect future wildfire hazards and risk. They also provide for immediate post-fire life and safety considerations to mitigate potential losses to life, human assets and critical natural resources.

6.1 Develop post-fire priorities and goals for the recovery of the built and natural environments.

Yes  Partial  No

**Recommendation:** Reevaluate hazardous conditions and provide for future fire safe conditions. Evaluate redevelopment in high or very high fire hazard severity zones.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Restore sustainable landscapes and restore functioning ecosystems. Incorporate wildlife habitat/endangered species considerations.

**Priority:**  High  Medium  Low  N/A

**Recommendation:** Provide polices and goals for maintenance of the post-fire-recovery projects, activities, or infrastructure.

**Priority:**  High  Medium  Low  N/A

6.2 Post fire life and safety assessments.  Yes  Partial  No

**Recommendation:** Develop frameworks for rapid post-fire assessment and project implementation to minimize flooding, protect water quality, limit sediment flows and reduce other risks on all land ownerships impacted by wildland fire.

**Priority:**  High  Medium  Low  N/A

**Additional Post Fire Safety, Recovery and Maintenance Recommendations:**

**Additional Recommendations:**



**CITY OF GRASS VALLEY**  
**Community Development Department**  
Thomas Last, Community Development Director

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Grass Valley, CA 95945

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**A CENTENNIAL CITY**

July 17, 2014

Edith Hannigan  
State Board of Forestry and Fire Protection  
P.O. Box 944246  
Sacramento, CA 94244-2460

RE: Request review of the City of Grass Valley's revision to its Safety Element of the General Plan

Dear Ms. Hannigan:

Pursuant to Government Code Section 65302.5, the City of Grass Valley is requesting review of the draft revisions to its Safety Element. The City is required to update this element as part of its update to the Housing Element. The attached draft includes an underline and strikeout version showing changes related to fire safety. I apologize in advance for the overall formatting, but the City is working from a base document with a very old format. Therefore, pagination, headers and footers are rough and we are missing some of the maps at this point. The City's existing Safety Element can be viewed on the City's website at [www.cityofgrassvalley.com](http://www.cityofgrassvalley.com). The City appreciates your prompt attention.

If you have any questions, please call me at (530) 274-4711.

Sincerely,

Thomas Last  
Community Development Director

Attachment: Draft Safety Element

cc: File

## CHAPTER SEVEN

### SAFETY

Section 65302(g) of the California Government Code requires that general plans adopted by planning agencies include "A safety element for the protection of the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence, liquefaction and other seismic hazards identified pursuant to Chapter 7.8 (commencing with Section 2690) of the Public Resources Code, and other geologic hazards known to the legislative body; flooding; and wild land and urban fires."

As required by Section 65302(g), the City of Grass Valley consulted with the Department of Conservation, Division of Mines and Geology (DMG) and the Governor's Office of Emergency Services (OES) prior to completing the Safety Element to obtain information known by and available to these agencies.

The Safety Element identifies and describes germane safety-related issues, establishes a goal and objectives related to identified hazards, and establishes policies and implementation measures designed to reduce, eliminate, or avoid risk to persons and property.

#### SAFETY GOAL AND OBJECTIVES

##### *Goal....*

- *Reduce the potential risk of death, injury, property damage, and economic and social dislocation resulting from hazards.*

1-SG Reduce the potential risk of death, injury, property damage, and economic and social dislocation resulting from hazards.

1-SO Assurance of a high level of protection from geologic and seismic hazards for all residents, structures and vital services.

2-SO Reduction of risk from exposure to hazards related to past and present mining, including shafts, tunnels, tailings and toxic materials.

3-SO Reduction of risk from exposure to flood hazards.

4-SO Reduction of risk from exposure to structural and wildlife fires.

5-SO Reduction of risk from exposure to hazardous materials, including contaminated sites.

## **SAFETY ISSUES**

### ***Seismicity***

Generally, the degree of earthquake hazard is based on the interrelationships between faults, weak geologic materials, and human activity. Faults within California are divided into three categories; prequaternary (older than two million years), quaternary (younger than two million years), and historic (less than 200 years). Faults in the County's western half are prequaternary. Quaternary and historic active faults are found in the eastern portion of the County near Truckee. The western half of the County, in which Grass Valley is located, is in the low intensity zone for earthquake severity.

Grass Valley is not within an Alquist-Priolo zone as defined in DMG Special Report 42. The closest active fault is the Cleveland Hill fault near Oroville. However, ground movement can be felt in Grass Valley from earthquakes at intermediate distances (i.e., the Truckee quake of 1968) and from distant earthquakes (i.e., the Winters-Vacaville 1892 event).

### ***Subsidence***

Subsidence consists of surface land sinking into subsurface holes or fissures. Subsidence may be caused by a variety of natural conditions, some in combination with human activity. The primary cause of actual and potential subsidence in the Grass Valley area is previous underground withdrawal of material from mining. Less hazardous and generally better controlled is improper burial of organic materials during land development.

Subsidence hazards in Grass Valley and vicinity are principally man-made, rather than natural geologic phenomena, and are addressed under Mine-Related Hazards.

### ***Mine-Related Hazards***

The collapse of the Old Brunswick shaft of the Idaho-Maryland Mine Complex near Grass Valley during the 1998 storm season dramatized the danger to persons and property presented by abandoned mines. In that May, 1998, incident, the sudden subsidence of land above a long-hidden mine entrance claimed property and undercut the foundation of a new home near Grass Valley.

Despite its colorful contribution to local history, mining had, and continues to have, a serious "downside" in terms of safety. Unfortunately, the magnitude of potential mine-related problems in the Sierra foothills is just starting to be recognized. That recognition includes an admission by State Mining and Geology experts that little is known about the locations of mine-related hazards, a factor inhibiting comprehensive solutions.

Mine-related hazards include the presence of open holes at ground surface; inadequately covered/shored up shafts and tunnels below ground level; tailings, and other abandoned mining features. Safety and hazard concerns resulting from old mine operations include the risk of falling into open shafts, surface collapse/subsidence into old shafts, and the presence of residual toxic materials generated in mining processes.

A substantial portion of the Planning Area is underlain by a deep, extensive labyrinth of abandoned mine tunnels. The Empire Mine tunnels alone extend some 365 miles beneath the City of Grass Valley. Literally dozens of mining claims were "worked" in the Grass Valley area during the heyday of gold mining. Some were large, mechanized operations. Most were small and more labor-intensive.

Hard-rock mining, as historically practiced in western Nevada County, was also characterized by 1) one or more angular shafts from surface to underground tunnels for transporting miners, equipment, and ore and 2) vertical air shafts from tunnels up to the surface, whose functions were to admit fresh air to the otherwise depleted atmosphere below. Tailings piles (ore storage) and tailings ponds (used in ore processing) were also typical surface features of deep mines. Figure 7-1 shows locations of mine tailings piles in the Planning Area (U.S. Geological Survey data). Figure 7-2 depicts old mining claims in the Grass Valley area. These maps are potential indicators of mine-related hazards, but are by no means definitive guides to where surface hazards do or do not exist.

Mines and mining, always dangerous while in operation, posed new dangers when abandoned. Air shafts were left exposed or covered by a few boards. They are typically holes of 4 to 10 feet in diameter on the surface, extending hundreds of feet down to the mine tunnels below. Access shafts were often covered hurriedly by closing off the mine mouth (entrance) with logs, then backfilling with rock and earth. In time, the forgotten-but-"reclaimed" site sprouted vegetation, hiding a large hole lurking perhaps as little as 8 to 10 feet below the surface.

The susceptibility of mine shafts to subsidence or cave-ins depends on a number of factors, particularly water content of the soil above and the depth and physical condition of the shaft. The Division of Mines and Geology believes that septic systems contribute to subsidence by keeping otherwise dry soil overburden wet and heavy, thus triggering collapses that might otherwise not occur.

The greatest problem regarding mine-related surface hazards is the absence of information about the locations and physical characteristics of abandoned tunnel entrances and shafts. Without such information, it is difficult to assess the magnitude of the problem or to devise remedial programs.

### ***Slope Instability***

Unstable soils and geologic conditions have historically resulted from vegetation removal associated with wildfires, timber harvesting, mining, and grading as part of road and building site development. Depending on local topographic, geologic and hydrogeologic conditions, significant precipitation can exacerbate unstable conditions, resulting in landslides and mudslides. Any area adjacent to a hydraulically mined area is subject to landslide activity due to the removal of supporting rock and soil. Under such conditions, earthquakes or heavy rains can initiate slide activity.

Landslides are events in which surface masses of slope-forming earth move outward and downward from their underlying and stable floors in response to the force of gravity. Unstable or potentially unstable slopes are susceptible to slide, falls, creeps, or mud flows. Although slope movements can occur in any type of rock material, certain bedrock formations exhibit a high susceptibility to such movement. This type is generally not found in the western portion of the County, but could occur on a local basis.

### ***Flooding***

As indicated by Federal Emergency Management Agency Flood Insurance Rate Maps (FIRM), the City of Grass Valley and the General Plan Planning Area are relatively well drained. The 100-year flood designations are generally confined to narrow bands along local drainages. Few transportation corridors are susceptible to flooding in a 100-year flood event. Idaho-Maryland Road east of SR 49/ [20. parts of Colfax Avenue](#) and South Auburn Street south of Whiting Street will be flooded during a 100-year flood. To the extent culverts and storm drains are not maintained, other localized flooding

could occur. Structures located in the flood hazard areas would be subject to flooding in a 100-year flood event unless special mitigation is employed.

The 1997 current FEMA flood map for Grass Valley and vicinity is shown in Figure 7-3. FEMA updated the Flood Insurance Rate Maps (FIRM) in 2010. The current FIRM maps are available for review at City Hall, Chapter 15.52 of the City Municipal Code. Flood Damage Prevention, implements FEMA and the General Plan flood protection policies and includes comprehensive polices and standards for new development in or near flood plains. Section 9 of the City Improvement Standards provides more specific design criteria to reduce the risk of flooding in a floodplain. All new development within the City must be designed to limit storm water runoff to pre-development conditions for the 10, 25, and 100-year storm events. The City's annual CIP identifies public works 5-year projects which include storm drainage improvements. Future development will inevitably result in increased runoff, thus increasing the potential for flooding in natural and man-made drainage ways.

#### ***Structural and Wildland Fire***

Fire protection agencies in the City of Grass Valley General Plan Planning Area include the City of Grass Valley Fire Department, which provides service within the City, the Nevada County Consolidated Fire District, which serves the area generally north, west and south of the City, and the Ophir Hill Fire District, which serves lands east of the City. The City maintains automatic aid agreements with CAL FIRE, Nevada County Consolidated Fire District, Nevada City Fire Department, and Penn Valley Fire Protection District. The City also participates in a Joint Operations Area agreement with Nevada City and Nevada County Consolidated Fire District. This JOA establishes dispatching by a Computer Aided Dispatch System, which allows the closest resources to respond to incidents regardless of agency jurisdictions. In 1998, an Automatic Aid agreement was reached among these agencies, which provides for a response by a minimum of two pieces of equipment anywhere in the City within four minutes, 24 hours/ day. Additionally, otherwise, mutual aid from agencies state-wide is provided pursuant to the California Fire Service and Rescue Emergency Mutual Aid System via its Mutual Aid Plan.

The City of Grass Valley maintains the following four fire-fighting facilities, strategically sited throughout the City. The City's current average response time is 4.0 minutes' with an ISO rating of 34. The City has two fire stations: five-year plan is to consolidate the four fire facilities to two locations: Fire Station No. 1 is located off Brighton Street and at its existing location to serve the west portion of the City; and Fire Station No. 2 is a new station located near the Sierra College Campus and to serve the east portion of the City. A third station is tentatively planned in the southern portion of the Planning Area near North Star Drive. A future station could be located within the Loma Rica Industrial Park if and when that area is annexed to the City.

The Grass Valley region has a generally high potential for wildland fires of devastating intensity. This is due to the presence, particularly in less urban settings, of heavier timber, woodland and brush, the occurrence of steep slopes, dry weather conditions, and human activity. Generally, vegetative areas of over 20% slope are considered as fire hazardous. The City limits have a distinct urban/wildland interface area. The greatest threat for wildfire hazards are from those that may originate outside the City. Historical data on wildfires in or near Grass Valley is kept on the Firehouse Reporting Data System. Because of the extended urban/wildand interface area, the City has participated in regional efforts to reduce wildfire risks to the City. These efforts include participation in Nevada County's Local Hazard Mitigation Plan and the Fire Safe Council of Nevada County Community Wildfire Protection Plan. Nevada County OES and the Fire Safe Council also maintain historical fire records.

The California Department of Forestry and Fire Protection (~~CAL FIRE~~) provides fire protection for wildland areas, and is legally responsible only for wildland fires, not structural fires, during the fire season. ~~The United States Forest Service also provides fire protection in the region.~~

Existing standards for development that are expected to provide adequate access, fire flows, and other facilities to maintain an appropriate level of fire protection. ~~These standards are enforced through - will continue to derive from~~ the California Building Standards Code, the California Fire Code, ~~and~~ the California Mechanical Code, ~~and the City's Development Code and Community Design Guidelines.~~

The City's municipal water system serves the majority of the City's incorporated boundaries, or approximately 1,357 acres and approximately 60% of the current incorporated area. A few properties outside the City are served, such as the Nevada County Fair Grounds.

Under a current agreement, the City purchases raw water from NID and then treats and distributes the water. Of the 250,000 acre feet of water available to NID, about 170,000 acre feet are currently used. The City's treatment facility has the capacity to treat five times the amount of water currently processed. Limitations exist on expansion of the City's water service due to topographical constraints and location of the treatment facility.

Due to the location of most reservoirs at 100-200 feet in elevation above the City, the City of Grass Valley water system provides excellent pressure and flows for firefighting purposes. There are isolated areas of inadequate piping and areas that have no hydrants. These areas are being upgraded as the City develops. As the City has expanded its geographic limits, areas served by NID have been incorporated.

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<sup>1</sup> Response time is defined as average response from notification to service provision at incident location.

### ***Emergency Access and Evacuation Routes***

The City currently maintains approximately 38 miles of roadways, excluding state highways.

As do most foothill towns, the City of Grass Valley has comparatively narrow streets in older developed areas. Improvements to roadways, intersections, and off-street parking facilities help alleviate congestion and improve fire access in these areas. Hilly roads slow response times, particularly in snow conditions, although the Grass Valley Fire Department is equipped to deal with these conditions. Nationally recognized standards are used by the Fire Department in planning for new development to prevent access constraints to fire equipment and improve emergency evacuation capabilities.

The Safety Element is required by California law to address the subject of evacuation routes, in the event of a catastrophe. Figure 7-4 shows evacuation routes out of Grass Valley and the Planning Area. Primary evacuation routes are the two freeways serving Grass Valley: Highway 49 (toward the north and toward the south) and Highway 20 (toward the west). Secondary evacuation routes are Highway 174 (toward the east), Brunswick Road (toward the east/southeast), McCourtney Road (toward the southwest), West Main/Rough and Ready Highway (toward the west from the northwest portion of the City), Idaho-Maryland Road (toward the east, until and unless the road is closed), Nevada City Highway (toward the north paralleling Highway 20/49 toward Nevada City), and LaBarr Meadows Road (toward the south, paralleling Highway 49 south toward Auburn). In the case of evacuation, officials will direct traffic to proper evacuation routes. Quite naturally, the selection of evacuation routes depends upon the magnitude, type, location, and direction of movement of the catastrophic event.

### ***Airports***

The Nevada County Airport~~ark~~ lies to the east of Grass Valley. The entire airport is within the City's sphere of influence and portions of the City limits are adjacent to the western end of the runway. The Federal Aviation Administration (FAA) defines the most critical areas as those immediately beyond the runway ends the initial climb out and final approach sectors. It is within these approach / departure sectors that the concentration of aircraft accidents occurs. In addition, there are studies indicating that about half of all air- port accidents occur on airport property and an additional 15% of accidents occur within one mile outside the airport property. This suggests that areas immediately off the ends of the runway and under the airport traffic pattern be carefully evaluated for developed land use.

The Nevada County Foothill Airport Land Use Commission (NCALUC) is responsible for adopting land use compatibility plans for designates airport local airports. In 2011, NCALUC adopted a new land use compatibility plan, which created new compatibility zones for the Nevada County Airport. Compatibility zones show areas that are subject to different levels of safety risks from airport operations and impose land use, building height, and density restrictions to each of the different zones. Map 2A of the Nevada County Airport Land Use Compatibility Plan (NCALUCP) illustrates the seven compatibility zones that affect Grass Valley. (safety areas. Safety areas for Nevada County Airpark are bordered, but not encroached upon, on the north and south sides by residential developments or industrial buildings. All other safety areas at the airport are surrounded by open space.

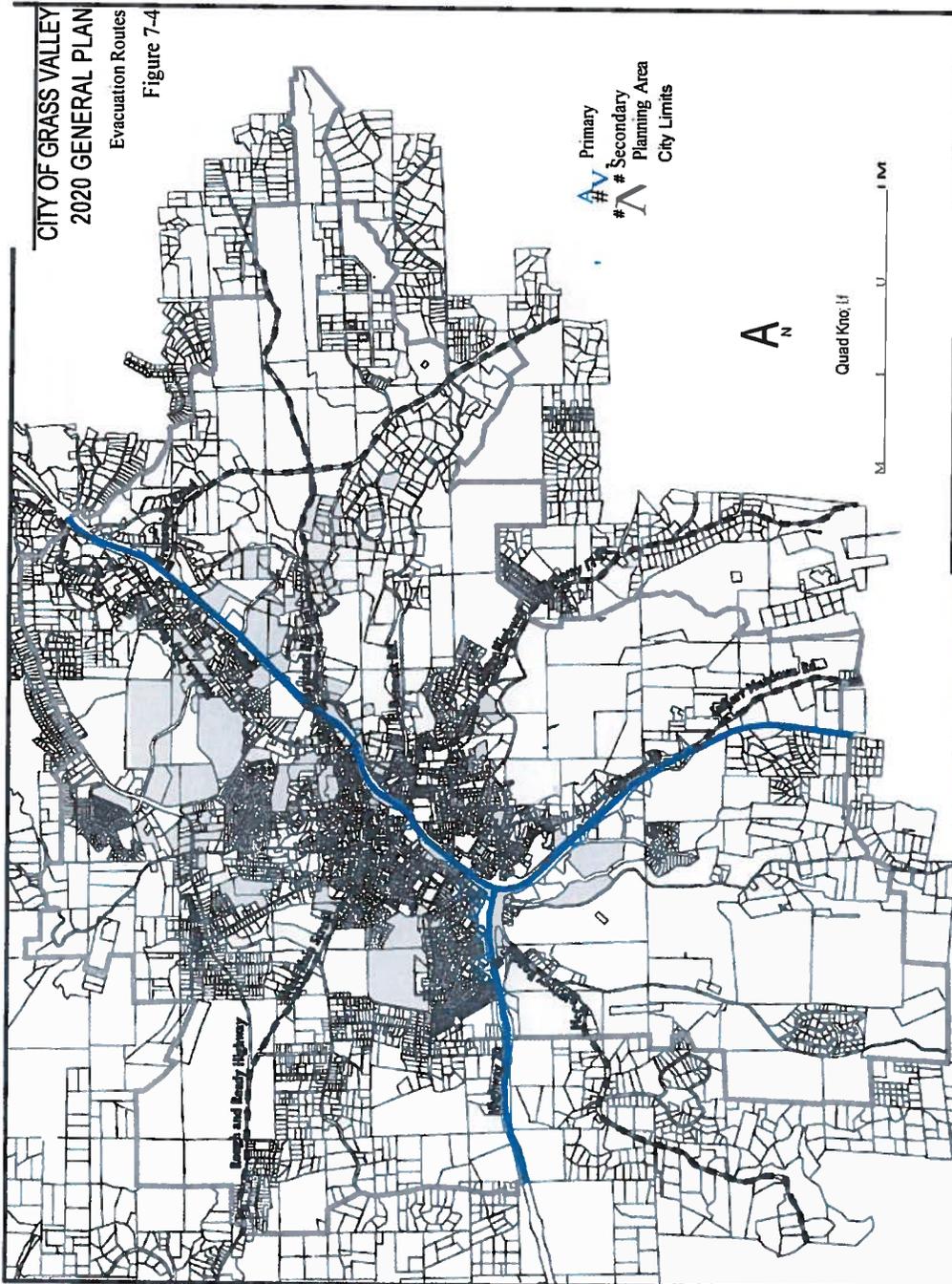
Figure 7-5, Airport Safety Areas, depicts Airport Safety Area 1 (clear zone), Airport Safety Areas 2, 3, and 4 located adjacent to and extending east and west of the Nevada County Airpark runway, and Airport Safety Area 5, a 5,000' radius from the runway surface. A- The NCALUCP includes policies and criteria that address safety and noise issues and tTable 2A of the plan entitled Land Use Compatibility Guidelines for Safety lists maximum residential densities, prohibited uses, and

~~other development conditions for each of the compatibility zones, compatible and incompatible land uses within the various Safety Areas. The Grass Valley City Council adopted the Nevada County Airpark Comprehensive Land Use Plan (CLUP) as City Resolution 89-153 on August 8, 1989. That resolution and CLUP provisions adopted by City Resolution 89-153 contain specific provisions regarding structure height, land use, noise, and safety in the Airpark vicinity.~~

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**CITY OF GRASS VALLEY  
2020 GENERAL PLAN  
Evacuation Routes  
Figure 7-4**



### ***Hazardous Materials***

The significance of environmental or human exposure to hazardous materials depends on the type, location, and quantity of the material released. In the Grass Valley area, hazardous materials may be transported via roadways and airways. Industrial facilities that use, store, or dispose of hazardous materials present the greatest potential to toxic exposure due to accidental release. However, most of the hazardous waste stream in Nevada County, including Grass Valley, is generated by "small quantity generators." Hazardous materials and wastes are regulated by federal and state laws and are required to be recycled or properly disposed. Transport of hazardous materials is also heavily regulated. However, illegal storage and disposal and unintentional releases of hazardous materials from leaks and accidents can still occur.

Where hazardous materials are found to be illegally stored or otherwise accidentally released, the initial response is provided by the local fire agencies. Site assessment and cleanup is conducted by the Marysville Fire Department, which is operated by CDF. When discovered, fuel storage tank leaks, are cleaned up under the jurisdiction of the California Regional Water Quality Control Board, Central Valley Region.

Ten sites are listed in the Solid Waste Facilities, Sites, and Operations Database for the Grass Valley area. These sites include closed, as well as operating solid waste landfills according to an inventory compiled by the California Integrated Waste Management Board. These waste sites are regulated by the State and Nevada County.

### ***Naturally Occurring Asbestos***

Asbestos is a term used for several types of naturally occurring fibrous minerals found in many parts of California. The most common type of asbestos is chrysotile, but other types are also found in the state. Serpentine rock, which has a grayish-green to bluish-black color and an often shiny appearance, often contains chrysotile asbestos and is abundant in the Sierra foothills.

Asbestos is not found in all serpentine rock, but when it does occur, it is typically present in amounts ranging from less than 1% up to about 25% or more. Asbestos is released from serpentine rock when it is broken or crushed. This can happen when cars drive over unpaved roads or driveways surfaced with serpentine rock, when land is graded for building purposes, or at quarrying operations. It is also released naturally through weathering and erosion. Once released from the rock, asbestos can become airborne and may stay in the air for long periods of time.

Given the proximity of Grass Valley to potential serpentine deposits, it is possible that construction activities and road surfacing could involve asbestos-containing serpentine rock or soils.

All types of asbestos are hazardous and may cause lung disease and cancer. The longer a person is exposed to asbestos and the greater the intensity of exposure, the greater the chances for a health problem. The Air Resources Board (ARB) adopted a statewide control measure which prohibits use

of serpentine rock for surfacing applications if it has more than 5% asbestos, and requires testing of serpentine material that is sold.

## SAFETY POLICIES

This section contains policies to meet the safety goals and objectives and to address safety issues.

1-SP Adopt current uniform codes for new construction.

2-SP Ensure seismic safety and structural integrity in housing and commercial/industrial facilities through code enforcement.

3-SP Develop and implement appropriate flood hazard regulations through the City's Flood Damage Prevention Ordinance and Improvement Standards.

4-SP Based on location or probable need, require development plans in mined areas to include in-depth assessments of potential safety, including mining-related excavations, and health hazards and accompanying mitigation measures.

5-SP Maintain or return to open space lands subject to flooding.

6-SP Incorporate fire hazard reduction considerations into land use plans/patterns, both public and private.

7-SP Identify, maintain, and mark evacuation routes for use in case of disasters or emergencies.

8-SP Assure public awareness of fire-safety measures, including those addressing property maintenance and evacuation.

9-SP Develop and implement fire-safe community design and landscaping standards, construction codes, and property maintenance regulations.

10-SP Adopt and implement appropriate standards for access roads, on-site driveway standards, fuel reduction and emergency water supply.

11-SP Maintain appropriate standards for water supply, pressure and distribution for fire suppression purposes.

12-SP Maintain a high level of inter-jurisdictional cooperation and coordination, including appropriate automatic aid agreements with fire protection / suppression agencies automatic aid agreements with fire protection/ suppression agencies in western Nevada County.

13-SP Continue to implement provisions of the Nevada County ~~Airportark Comprehensive~~ Land Use Compatibility Plan, and to coordinate as appropriate with Nevada County, ~~Airportark~~ management, and the Nevada County - Foothill Airport Land Use Commission regarding Airport land use compatibility ark plans and safety considerations.

## SAFETY IMPLEMENTATION ACTIONS AND STRATEGIES

This section contains implementation actions and strategies designed to carry out the safety goals, objectives, and policies.

- 1-SI Adhere to the Land Use Plan's compact overall development pattern, including infill (Land Use Element). A compact development pattern reduces total land area needed to accommodate projected development (thus reducing exposure to potential hazards); facilitates quick response to emergencies from established locations, such as fire stations; and allows cost-effective extension of safety-related infrastructure, such as streets, water and storm-water drainage systems.
- 2-SI Utilize open space/ conservation reserves and easements to restrict development in high-risk areas, such as flood-prone areas, airport safety zones, and areas identified as subject to geologic risk.
- 3-SI Amend land use regulations to allow clustering and density averaging in conjunction with restricted development of potentially hazardous areas.
- 4-SI Encourage continuity and linkages within the circulation system. Require future developments to provide multiple ingress/egress points, to facilitate emergency vehicle access and mobility, and to facilitate emergency evacuation movements.
- 5-SI Maintain high standards of fire preparedness, capacity, and response. Assure the City's capability to maintain such standards as areas are annexed.
- 6-SI Establish a mine-related hazards program, to include the following specific actions. Initiate and maintain a mine hazard data base, incorporating maps, technical studies, and other germane information. To the extent practical and possible, map and describe identified hazards. Coordinate with Nevada County and the State Division of Mines and Geology in mine hazard research and information collection and dissemination. Provide technical assistance and advice to property owners in identifying and mitigating mine-related hazards on their properties. Determine the appropriate extent of geo-technical field investigations and other research required to determine the presence or absence of potentially hazardous mine-related features. Require appropriate field investigations and other research as part of the approval process for new developments, including individual new structures.
- 7-SI Continue to regulate development within flood prone areas to reduce the risks of flood hazards to life and property. Avoid stream channel modifications.
- 8-SI ~~R~~Continue to require new developments to utilize on-site storm water detention techniques.
- 9-SI ~~Continue to utilize establish~~ site development standards designed to minimize the resulting area and percentage of impervious surface.
- 10-SI Revise flood hazard maps at appropriate intervals, to reflect the effects of land use changes subsequent to previous flood hazard studies.

- 11-SI Incorporate into City construction codes appropriate provisions and revisions of the Uniform Building Code regarding seismic safety.
- 12-SI Maintain an active code enforcement program to assure the safety of residential and commercial structures.
- 13-SI Require new developments located on officially identified hazardous waste sites to conduct appropriate investigations, submit results to the City, and prepare a mitigation plan as part of the project review process.
- 14-SI Enforce provisions of the ~~Nevada County Airport park Comprehensive Land Use Compatibility Plan and City Council Resolution 89-153 (General Plan Amendment GPA89-01)~~ regarding development in designated Airport ~~Compatibility Zones~~ ~~Safety Areas~~.
- 15-SI Mark evacuation routes with visible signage.
- 16-SI Establish and maintain public information and awareness programs regarding public safety and hazards, in cooperation with appropriate emergency agencies and organizations.
- 17-SI Consider the location and characteristics of documented hazardous waste sites as part of the environmental assessment process for proposed developments.
- 18-SI Continue to participate in regional efforts with local fire agencies and implement appropriate strategies to reduce the risk of wildfires.

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