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2 **INTRODUCTION**

3  
4 Section 65302(g) of the California Government Code requires that the General Plan include a Safety  
5 Element for the protection of the community from any unreasonable risks associated with the effects  
6 of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam  
7 failure; slope instability leading to mudslides and landslides; subsidence and other geologic hazards  
8 known to the legislative body; flooding, and wildland and urban fire.

9  
10 The Safety Element establishes goals, policies and implementation measures intended to avoid or  
11 minimize human injury and protect property by reducing the exposure of the community to hazards. It  
12 is also intended that an undue financial burden not be placed on the community by allowing  
13 development which may have unusually high costs for public services and disaster relief due to the  
14 risk from hazards.

15  
16 The Alpine County Safety Element addresses the following hazards that are known to have potential  
17 for causing injury to people or damage to property in the County:

- 18  
19 A. Wildland Fire  
20 B. Geologic Hazards  
21 D. Flood  
22 E. Noise  
23 F. Hazardous Materials  
24  
25

26 **RELATIONSHIP TO OTHER PLANS**

27  
28 Natural Hazard Mitigation Plan: The Federal Emergency Management Agency (FEMA) now requires  
29 local agencies to adopt a Local Hazard Mitigation Plan (LHMP) in order to be eligible for pre-disaster  
30 mitigation funds. The Alpine County Multi-Jurisdictional Hazard Mitigation Plan was adopted by the  
31 Board of Supervisors on August 4, 2018 (Board of Supervisors Resolution No. R2018-24).  
32

33 SB 2140 (Gov. Code § 65302.6), authorizes local governments to adopt their local hazard mitigation  
34 plan with the safety elements of their general plans. The Hazard Mitigation Plan includes  
35 characterization and evaluation of the potential natural hazards that are included in the Safety  
36 Element: Wildland Fire, Geologic Hazards and Flood. **Accordingly, the Alpine County Multi-  
37 Jurisdictional Hazard Mitigation Plan (“Hazard Mitigation Plan”) in its current form and as may  
38 be revised or updated in the future is hereby incorporated into the Safety Element of the  
39 Alpine County General Plan.**  
40

41 Carson River Watershed Floodplain Management Plan: The purpose of this plan is to create a long-  
42 term vision and develop strategies which utilize a “Living River Approach” for meeting floodplain  
43 management objectives to reduce flood damage impacts in the Carson River Watershed. The plan  
44 reviews regional flood risks and suggests watershed-wide strategies and actions to mitigate and  
45 reduce these hazards and risks while maintaining objectives. It also documents regional and local  
46 progress on meeting plan objectives  
47

48 Alpine County Community Wildfire Protection Plan: The Community Wildfire Protection Plan (CWPP)  
49 provides a roadmap for the community to mitigate the hazards of wildfire. It outlines the risks and

1 hazards and provides specific recommendations for projects to address those risks. It includes  
2 recommended projects to reduce the risk of wildland fire to people and property. It includes the  
3 recommendations from the Calaveras County Community Wildfire Protection Plan that are specific to  
4 the Bear Valley region of Alpine County.

5  
6 Alpine County Emergency Operations Plan: The County of Alpine Emergency Operations Plan  
7 establishes an Emergency Management Organization and assigns functions and tasks consistent  
8 with California's Standardized Emergency Management System and the National Incident  
9 Management System. It provides for the integration and coordination of planning efforts of multiple  
10 jurisdictions within Alpine County.

11  
12 CALFIRE Amador-Eldorado Unit Strategic Fire Plan: The CALFIRE Amador Eldorado Unit  
13 encompasses all of Amador, Alpine and El Dorado counties; and portions of Sacramento and San  
14 Joaquin counties. The goal of the Amador-El Dorado unit is to reduce the loss of life, property,  
15 watershed values and other assets at risk from wildfire through a focused pre-fire management  
16 program and increased initial attack success. The Strategic Fire Plan provides direction to CALFIRE  
17 staff and communities within the Amador-El Dorado unit to direct resources and commitments toward  
18 implementation of the Strategic Fire Plan. It should be noted that although the Amador-Eldorado Unit  
19 has administrative responsibility for the entire county, the Tuolumne-Calaveras Unit provides  
20 response and program support to the southwest portion of the County which includes Bear Valley and  
21 surrounding areas.

22  
23 Markleeville Structure Defense and Pre-Attack Plan: This plan was created by the CALFIRE Amador  
24 Eldorado Unit. It addresses the area from Markleeville west to Grover Hot Springs, including  
25 residential areas in the Hot Springs Road corridor area. Calfire staff has indicated a desire to update  
26 this plan and to create these plans for the Woodfords and Mesa Vista areas.

## 27 28 29 **WILDLAND FIRE**

30  
31 The wildland fire section is organized into the following sections:

- 32
- 33 • Goal 20
- 34 • General Background & History
- 35 • Categories
  - 36 ○ Planning and Capacity Building
  - 37 ○ Land Use
  - 38 ○ Fuel Modification
  - 39 ○ Access
  - 40 ○ Water Supply
- 41
- 42

43 **GOAL 20: PROTECT THE COMMUNITY FROM UNREASONABLE RISKS ASSOCIATED WITH**  
44 **WILDLAND AND STRUCTURAL FIRES WITHIN THE WILDLAND URBAN INTERFACE IN THE**  
45 **COUNTY.**

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47

1 **WILDLAND FIRE - GENERAL BACKGROUND & HISTORY**

2  
3 Response and Mutual Aid: Primary responsibility for wildland fire protection (prevention and  
4 suppression) in the County is divided in to State Responsibility Area (SRA) and Federal  
5 Responsibility Area (FRA). The SRA encompasses all of the private and state-owned land within the  
6 County and the FRA encompasses all of the federal land. Calfire has primary responsibility for  
7 wildland fire protection within the SRA and the federal land management agencies (U.S. Forest  
8 Service and Bureau of Land Management) have primary responsibility for wildland fire protection  
9 within the FRA.

10  
11 Through the CALIFORNIA MASTER COOPERATIVE WILDLAND FIRE MANAGEMENT AND  
12 STAFFORD ACT RESPONSE AGREEMENT, federal and state agencies improve efficiency by  
13 facilitating the coordination and exchange of personnel, equipment, supplies, services, information  
14 and funds for wildland fire protection. All of Alpine County is within the federal Direct Protection Area  
15 (DPA). Consequently, the USFS and BLM have assumed operational responsibility for response to  
16 wildland fire within SRA lands in Alpine County. Through this agreement and other mutual aid  
17 agreements with fire departments adjoining Alpine County, there is a cooperative multi-jurisdictional  
18 response to wildland fire located anywhere in Alpine County.

19  
20 In many cases the local fire departments are first on the scene and may make an initial attack on a  
21 wildland fire. There are three local fire departments in Alpine County. The Bear Valley Public Safety  
22 Department covers Bear Valley and the surrounding areas on the west side of Ebbetts Pass. The  
23 Eastern Alpine Fire and Rescue covers the portion of Alpine County that is east of the Sierra crest,  
24 including the communities of Hung-A-Lel-Ti, Markleeville and Woodfords. The Kirkwood Volunteer  
25 Fire Department covers Kirkwood and the surrounding areas west of Carson Pass.

26  
27 Response to structural fires and other non-wildland fires (vehicle fires, etc.) is the primary  
28 responsibility of local fire departments. All the departments rely heavily on volunteer fire fighters.  
29 Additionally, response may also be provided through mutual aid by fire departments in adjoining  
30 communities outside of Alpine County. These include the East Fork Fire Protection District located in  
31 Douglas County Nevada, the Lake Valley Fire Protection District located in the Meyers area in El  
32 Dorado County and the Ebbetts Pass Fire Protection District located west of Bear Valley in Calaveras  
33 County.

34  
35 Fire History & Risk Characterization: Wildland fires within the wildland urban interface (“WUI”) where  
36 development is interspersed with wild lands pose the greatest threat to lives and property in the  
37 County. Sources of data for wildland fire history include the CALFIRE Fire Perimeters Map for 1950-  
38 2018 and the USFS Fire Occurrence Location data base and mapping. These two sources were  
39 reviewed in preparation of this revision to the Safety Element.

40  
41 Fire behavior east of the Sierra crest in Alpine County is largely affected by wind patterns and high  
42 wind events. The largest and most destructive fires in this part of the County have run from the  
43 southwest to the northeast, following the prevailing winds. Two of the largest fires in this area –  
44 Acorn (6500 acres in 1987) and Washington (17,000 acres in 2015) followed this pattern. Both of  
45 these fires grew quickly due to extremely high winds. West of the Sierra crest slopes and fuel type  
46 are more controlling factors for wildland fire in comparison to the east side of the County. Most of the  
47 Sierra crest in Alpine County is characterized by relatively sparse vegetation interspersed with  
48 extensive areas of exposed granite. Consequently, there is low likelihood of fires crossing the crest.  
49 The characterization of wildland fire hazard and the associated risks in Alpine County are more  
50 thoroughly described in Section 5.2.10 of the County’s Hazard Mitigation Plan.

1  
2 Recent fires in Alpine County including the Washington Fire in 2015 south of Markleeville and the  
3 Donnell Fire in 2017 south and west of Bear Valley have served to remind the community about the  
4 danger of wildland fire. Other large fires in the surrounding region and throughout California  
5 demonstrate the catastrophic results that can occur when wildland fire burns a community.  
6

7 All of Alpine County is located within the wildland urban interface or WUI. With the exception of the  
8 Kirkwood area, almost all of the private land in Alpine County with existing development or potential  
9 for future development is located in high or very high fire hazard severity zones. The Hazard  
10 Mitigation Plan estimated the risk exposure of existing development within the high and very high  
11 wildland fire hazard areas in the County. Eleven hundred residential units are within this area,  
12 representing approximately 60% of the housing stock in the County. The situation is similar for non-  
13 residential structures, roads, utilities, and essential public facilities. The estimated value in 2016 of all  
14 structures within the high and very hazard areas is \$295 million.  
15

16 SB 1241 mandates that Safety Elements, upon the next revision of the Housing Element on or after  
17 January 1, 2014, be reviewed as necessary to address the risk of fire for State Responsibility Areas  
18 (SRAs) and very high fire hazard severity zones including review of fire hazard severity zone maps  
19 (Government Code § 65302(g)(3)(A)). The most recent revision of the Housing Element was  
20 completed in March 2017. The Hazard Mitigation Plan includes a review of the risks with the SRA  
21 and the fire hazard severity zones. By incorporation of the Hazard Mitigation Plan into this Safety  
22 Element, the requirements of SB1241 (Government Code § 65302(g)(3)(A)) with regard to wildland  
23 fire are satisfied.  
24

25 Fire Insurance: The Insurance Services Office of California provides ratings of the capabilities of  
26 local fire departments to respond and fight fires. These "ISO" ratings are reviewed periodically. The  
27 ratings are used by insurance companies to help determine rates for the fire protection component of  
28 homeowner's insurance premiums. A lower ISO rating means a greater capability and thus,  
29 potentially lower insurance premiums. The rating scale is 1-10 and may vary within a fire  
30 department's response area. Areas within Alpine County have ratings between 4 and 9. Lower rated  
31 areas have good resources including a readily available water supply and relatively short response  
32 times.  
33

34 In recent years a number of homeowners in the county have reported cancellation of homeowner's  
35 insurance due to fire risk, and increased premiums to retain their insurance. Options for obtaining  
36 homeowner insurance may be limited or expensive.  
37  
38

## 39 **WILDLAND FIRE - PLANNING AND CAPACITY BUILDING**

### 40 **20A Policy**

41  
42  
43 Commit adequate resources to continued planning, capacity building and collaboration with other  
44 agencies in order to reduce the risks associated with wildland fire and obtain the best possible level of  
45 fire protection and emergency response services for all communities in Alpine County.  
46

### 47 **20A Implementation Measures**

48  
49 20A-1: Essential Public Facilities. Locate new essential public facilities outside of high and very high  
50 fire hazard severity zones if feasible. This includes, but is not limited to, schools, fire stations, health

1 services, emergency shelters, emergency operations centers and emergency communications  
2 facilities. If essential public facilities must be located in high or very high fire hazard severity zones,  
3 incorporate design, construction or other measures to maximize protection and minimize damage in  
4 the event of a wildland fire.

5  
6 20A-2: Funding. The Board of Supervisors should continue to insure stable funding at levels  
7 sufficient to provide for adequate fire protection and emergency services to all communities in the  
8 County.

9  
10 20A-3: Insurance ratings. The county shall support efforts by each fire department within the county  
11 to obtain lower ISO ratings for structure fires within all fire protection areas.

12  
13 20A-4: Support aerial attack facilities. The County shall support efforts by wildland fire fighting  
14 agencies to utilize the Alpine County airport as a base of operations for aerial attack and associated  
15 fire suppression equipment.

16  
17 20A-5: Service district requirement. The Board of Supervisors should consider an ordinance to  
18 require all new development of a certain size (number of residential units, sq. ft. non-residential) or  
19 more to establish a new or participate in an existing community service district, county service area,  
20 benefit assessment district or other similar organization or entity that will finance, provide, and  
21 maintain adequate fire protection and emergency services in the area where the new development is  
22 proposed.

23  
24 20A-6: Maintain Plans. The County shall support efforts to maintain and periodically revise key  
25 public safety planning documents including, but not limited to, emergency operations plans,  
26 community wildfire protection plans and natural hazard mitigation plans.

27  
28 20A-7: Codes and Standards. The County shall maintain codes and standards that require new  
29 development to meet or exceed the State of California Fire Safe Regulations; and make periodic  
30 updates to the applicable building and fire codes which address fire safety and reflect accepted fire  
31 safe practices

32  
33 20A-8: Fire Marshall. Board of Supervisors should evaluate available options and consider  
34 establishing the functions of a Fire Marshall within all areas of Alpine County.

35  
36 20A-9: Hazard Mitigation Plan Action Items. Support Goal 20 of the Hazard Mitigation Plan to  
37 reduce the possibility of damage and losses due to wildland fire and its associated action items 10A-  
38 10W.

39  
40 20A-10: Education. Facilitate the education of landowners, residents, visitors and business owners  
41 about the risks of living in the wildland urban interface including applicable regulations, prevention  
42 measures and pre-planning activities. Provide informational materials in building permit packets,  
43 through the fire safe councils and through other venues including the County web site.

44  
45 20A-11: Burn Area Recovery Plans. Support the efforts of fire protection organizations and property  
46 owners to develop burn area recovery plans that include rapid post-fire assessment and  
47 implementation actions that encourage salvage of burned trees and reforestation activities, create  
48 resilient and sustainable landscapes and restore functioning ecosystems

1 20A-12: Community Recovery and Resilience Planning. The County should initiate a process to  
2 develop recovery plans to help the community recover from a wildland fire disaster. Recovery plans  
3 should address immediate clean up and recovery efforts, re-establishing essential operations across  
4 a broad range of community functions (government services, education, health services, business  
5 sector, other) and strengthening the long term health and resiliency of the community.  
6

7 20A-13: Future Facility and Service Needs. The County should project future growth and plan for  
8 facilities and emergency services needed for fire protection.  
9

10 20A-14 Fire Department Training Standards. Fire departments within the County shall be  
11 encouraged to utilize the California State Fire Training (SFT) certification program as a training guide  
12 for fire department personnel, including volunteer fire fighters.  
13

14 20A-15 Interagency Collaboration. Continue collaboration and coordination with regional agencies  
15 and surrounding fire protection districts on a unified regional response to risks that affect Alpine  
16 County and surrounding jurisdictions to include: Enhancing interjurisdictional communication  
17 systems; Sharing data and information on developing issues or potential risks; Participating in  
18 Operational Area trainings and share response procedures with other first responder entities; Where  
19 possible, consolidating grant applications with other area jurisdictions; and coordinating with other  
20 planning departments, first responder entities, and emergency services providers on standard  
21 operating procedures and protocols to enhance regional benefits  
22  
23

## 24 WILDLAND FIRE - LAND USE

25

26 Alpine County contains approximately 750 square miles situated astride the Pacific crest and is  
27 approximately 96 percent public land. The public lands include lands managed by the U.S. Forest  
28 Service, Bureau of Land Management, California Department of Parks and Recreation, California  
29 Department of Fish and Wildlife, California Department of Transportation (Caltrans) and Alpine  
30 County. Land use in the County is characterized by small communities surrounded by large  
31 expanses of agricultural lands, forested areas and brush covered lands. There are some areas of  
32 more dispersed and low density rural residential development, mostly located near Woodfords in the  
33 northeast part of the County. All of the communities and rural residential development are within the  
34 WUI.  
35

36 Alpine County is the least populated county in California with an estimated permanent population of  
37 1162 persons in 2019. Most of the population lives near or in the small communities of Hung-A-Lel-Ti,  
38 Markleeville, Woodfords, Bear Valley and Kirkwood. Kirkwood is in the moderate hazard zone. The  
39 other communities are in the high or very high hazard zones. There are approximately 1780  
40 residential units in Alpine County; over 1200 of these are located in high or very high wildfire hazard  
41 severity zones. Approximately 30% of the housing units in the County are occupied by permanent  
42 residents. The remaining 70% are composed of second homes used seasonally and vacation rental  
43 properties mostly located at two ski resorts in the County – Bear Valley and Kirkwood.  
44

45 Essential facilities including fire stations, schools, government offices and centralized infrastructure  
46 such as water and wastewater systems are located within or very close to the small communities  
47 where most of the county's population resides.  
48

49 Alpine County has adopted ordinances and development standards that meet or exceed the State of  
50 California Fire Safe Regulations. Section 15.10 of the Alpine County Code adopts Public Resource

1 Code Section 4290 Fire Safe Regulations for State Responsibility Areas, commencing with Section  
2 1270.00 through 1276.04, Article 5.5, Chapter 7, Division 1.5, Title 14 California Code of Regulation  
3 (CCR 14). Section 8.20 of the Alpine County Code adopts defensible space and fuels reduction  
4 standards for lots that meet or exceed California Public Resources Code Section 4291.

5  
6 Development in many areas of Alpine County was planned, approved and constructed prior to  
7 adoption of these ordinances and standards. Consequently, there are many areas that do not  
8 conform to the current standards.

9  
10 **20-B Policy**

11  
12 Reduce the exposure to risk from wildland fire to an acceptable level by only allowing development in  
13 high or very high fire hazard areas if it can be made safe by planning, construction, or other fire safety  
14 measures.

15  
16 **20B Implementation Measures**

17  
18 20B-1: Non-conforming Development. Identify areas of development that do not conform to current  
19 Fire Safe Regulations and consider programs and/or measures that would bring these areas closer to  
20 conformance.

21  
22 20B-2: Findings for New Subdivisions. In accordance with California Government Code Section  
23 66474.02, before approving a tentative map, or a parcel map for which a tentative map was not  
24 required, for an area located in a state responsibility area or a very high fire hazard severity zone, the  
25 approving authority (Community Development Director, Planning Commission or Board of  
26 Supervisors) shall make the following findings:

27  
28 (1) A finding supported by substantial evidence in the record that the subdivision is consistent with  
29 regulations adopted by the State Board of Forestry and Fire Protection pursuant to Sections 4290 and  
30 4291 of the Public Resources Code or consistent with local ordinances certified by the State Board of  
31 Forestry and Fire Protection as meeting or exceeding the state regulations.

32  
33 (2) A finding supported by substantial evidence in the record that structural fire protection and  
34 suppression services will be available for the subdivision through any of the following entities:

35  
36 (A) A county, city, special district, political subdivision of the state, or another entity organized  
37 solely to provide fire protection services that is monitored and funded by a county or other  
38 public entity.

39  
40 (B) The Department of Forestry and Fire Protection by contract entered into pursuant to  
41 Section 4133, 4142, or 4144 of the Public Resources Code.

42  
43 20B-3 Development in High and Very High Hazard Zones. Recognize that new development will be  
44 located in moderate, high and very high fire hazard zones. Accordingly, require that project design  
45 meets all applicable codes and standards, and includes design parameters, improvements and  
46 conditions of approval that reduces risk to acceptable level.

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49

1 **WILDLAND FIRE - FUEL MODIFICATION**

2  
3 CalFire has assessed the wildland fire hazard in different areas of the county based on a  
4 consideration of wildland fuels, terrain, weather, and other relevant factors. Wildland fuels or  
5 vegetation are the basic catalyst that supports the combustion process of wildfires. The various fuels  
6 have specific characteristics which allow fire behavior analysts to categorize them based on how they  
7 burn. The result is the Fire Hazard Severity Zone map for the State Responsibility Area. The maps  
8 for Alpine County can be viewed at [https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-  
9 engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/](https://osfm.fire.ca.gov/divisions/wildfire-prevention-planning-engineering/wildland-hazards-building-codes/fire-hazard-severity-zones-maps/) .

10  
11 CalFire’s mapping shows the lands in Alpine County with Moderate, High, and Very High Fire Hazard  
12 Severity Zones as described below. This mapping provides only a general picture of the actual fire  
13 hazard because there may be local variations in vegetation, slope, and other factors which influence  
14 fire. The term “fire behavior” is used to describe the magnitude, direction, and intensity of fire spread.

- 15  
16 • Moderate Fire Hazard Severity Zone includes: a) wildland areas of low fire frequency supporting  
17 modest fire behavior; and b) developed/urbanized areas with a very high density of non-burnable  
18 surfaces and low vegetation cover that is highly fragmented and low in flammability.
- 19  
20 • High Fire Hazard Severity Zone includes: a) wildland areas supporting medium to high fire behavior  
21 and roughly average burn probabilities; and b) developed/urbanized areas with more limited non-  
22 burnable surfaces and moderate vegetation cover.
- 23  
24 • Very High Fire Hazard Severity Zone includes: a) wildland areas supporting high to extreme fire  
25 behavior resulting from well-developed surface fuels and forests where fire in tree crowns (portions of  
26 trees above the trunks) is likely; and b) developed/urbanized areas with high vegetation density and  
27 fuel continuity, allowing flame to spread over much of the area with little impediment from non-  
28 burnable surfaces. Additional site elements include steep and mixed topography and seasonally  
29 extreme conditions of strong winds and dry fuel moistures. The highest fire hazard is found in  
30 mountainous areas with dry summers, plenty of fuel, and steep slopes

31  
32 The County and the community have taken a wide range of measures to reduce fuel loading in order  
33 to reduce the risk level of fire within the wildland urban interface. Examples include:

- 34  
35 • Maintaining a seasonal biomass collection site at Turtle Rock Park that provides a convenient  
36 location for community residents on the east side of the county to dispose of vegetation removed  
37 from their properties
- 38 • Curbside chipping programs in Bear Valley, Kirkwood and other east side communities
- 39 • Fuels reduction along county roads
- 40 • Encouraging CalFire to conduct defensible space inspections pursuant to Public Resources Code  
41 4291
- 42 • Adopting and implementing an adjacent lot fuels reduction ordinance to further mitigate fire hazard  
43 in the county
- 44 • Obtaining grant funds to plan for and accomplish fuels reduction on lands within and adjacent to  
45 existing communities

46  
47 The Alpine County Community Wildfire Protection Plan identifies priority fuel reduction projects and  
48 potential fire breaks in all communities in Alpine County.

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1 **20C. Policy**

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3 20C: Reduce fuel loading and encourage healthy forests to help in lowering the risk level for fire  
4 within the wildland urban interface.  
5

6  
7 **20C. Implementation Measures**

8  
9 20C-1: Defensible Space. The County shall work with Calfire to assertively implement the defensible  
10 space requirements of Public Resources Code 4291. This includes implementation of the  
11 requirements for individual lots and a periodic inspection program to monitor compliance and correct  
12 deficiencies.  
13

14 20C-2: Funding. The County, fire safe councils and other community organizations are encouraged to  
15 pursue public and private funding to facilitate fuels reduction including assisting private landowners in  
16 implementing fuels reduction and defensible space measures.  
17

18 20C-3: Vegetation Management Plans. The County shall require vegetation management plans for all  
19 new development that, at a minimum, include provisions for implementation and maintenance of fuels  
20 reduction and defensible space; and which meet the minimum clearance standards pursuant to Public  
21 Resources Code 4290 (14 CCR 1270). Consideration should be given to maintaining healthy  
22 vegetation, minimizing the potential spread of noxious weeds, habitat for wildlife and visual impacts in  
23 formulating these vegetation management plans. For purposes of this implementation measure, new  
24 development includes parcel maps and subdivisions that create new lots or building sites, planned  
25 developments, conditional use permits and other zoning actions that lead to the entitlement of new  
26 structures.  
27

28 20C-4: Maintenance of Fuel Reduction. The County shall encourage and, where possible, require a  
29 means for ongoing maintenance of fuels reduction in areas that have been treated. For areas that  
30 require a vegetation management plan pursuant to implementation measure 20B-3, this shall include  
31 a requirement for ongoing maintenance of vegetation management plans to be addressed in  
32 conditions of approval and/or CC&Rs for the development. A mechanism for enforcement of the  
33 maintenance requirements shall also be implemented.  
34

35 20C-5: Public Lands. The County shall work with public land management agencies to pursue  
36 reduced fuel loading to lower risks on public lands in areas both within and surrounding existing  
37 communities.  
38

39 20C-6: Road Side Fuels Reduction. The County shall make fuels reduction along County roads  
40 within existing rights of way a regular part of the ongoing County road maintenance operations. The  
41 County shall encourage owners of private roads and driveways to do the same.  
42

43 20C-7: Support CWPP Fuels Reduction. The County shall work with the fire safe councils and other  
44 agencies where applicable to support and help facilitate completion and maintenance of priority fuels  
45 reduction projects and fire breaks as identified in the Alpine County Community Wildfire Protection  
46 Plan.  
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1 **WILDLAND FIRE - ACCESS**

2  
3 Providing adequate and safe access to communities and developed areas is a key to reducing the  
4 risk of injury or loss of life, and to facilitating ingress and egress for fire suppression and evacuation.  
5 The Alpine County Development Standards were adopted in 2014. These standards set minimum  
6 requirements for access facilities including roads, lanes and driveways; and ensure compliance with  
7 the State of California Fire Safe Regulations (Title 14, California Code of Regulations, Division 1.5,  
8 Chapter 7, Subchapter 2, Articles 1-5).

9  
10 **20D Policy**

11  
12 All new development in Alpine County shall be provided with vehicular access meeting or exceeding  
13 the requirements of the Alpine County Development Standards

14  
15 **20D Implementation Measures**

16  
17 20D-1: Secondary Access. Any area of new development with potential for five or more residential  
18 units shall have a second means of vehicular ingress and egress constructed to the same standard  
19 as required for the primary access to the same area of new development. This requirement for  
20 second access shall override any lesser requirement that may exist in County development standards  
21 for access.

22  
23 20D-2: Update Development Standards. County Development Standards shall be updated to reflect  
24 the secondary access requirements as set forth in Implementation Measure 20D-1.

25  
26 20D-3: Evacuation Plans. The Alpine County Sheriff's Office should work with agencies responsible  
27 for wildland fire suppression to develop pre-plans for fire risk areas that address civilian evacuation  
28 and provide a means to effectively communicate those plans.

29  
30 20D-4: Inadequate Access and Evacuation Routes. The County shall identify residential areas of the  
31 County that have inadequate access and/or inadequate evacuation routes and develop plans to  
32 reduce or alleviate the associated risks within these areas.

33  
34 20D-5: Addressing: Consider a County ordinance to improve and standardize street addressing signs  
35 in order to reduce emergency service response times.

36  
37  
38 **WILDLAND FIRE - WATER SUPPLY**

39  
40 The availability of water supply for fire suppression varies among communities within Alpine County.  
41 Bear Valley, Hung-A-Lel-Ti, Kirkwood and Markleeville have developed water supply systems with  
42 multiple fire hydrants within their service areas. The Eastern Alpine Fire Services Station 91 in  
43 Woodfords is served by a small water system that includes 50,000 gallons of storage with the ability  
44 to fill water tenders. The South Tahoe Public Utility District C-Line which transports treated  
45 wastewater to Alpine County includes several fire hydrants in the Woodfords area. Water from these  
46 "purple hydrants" can be used for wildland fire suppression. There are restrictions on using this water  
47 for structure fires. Turtle Rock Park and the Alpine Village subdivision in Woodfords have small water  
48 systems. Outside of the areas served by water systems with fire hydrants, water for fire suppression  
49 is limited or may be non-existent. To help compensate, the local fire departments utilize a system of  
50 mobile water tenders and portable tanks to provide water at the site of a fire. Helicopters deployed

1 by federal or state agencies are often used to deliver water from area lakes and rivers to wildland  
2 fires.

3  
4 Fire suppression water supply requirements for new development in Alpine County are defined by the  
5 California Board of Forestry and Fire Protection SRA Fire Safe Regulations, National Fire Protection  
6 Association (NFPA) codes and standards, and the Alpine County Development Standards.  
7 Combined, these regulations, standards and codes set forth minimum requirements for fire flow,  
8 water storage, fire hydrants and other important components of the water system. Alpine County  
9 Code Chapter 13.04 defines minimum requirements for domestic and firefighting water supply and  
10 distribution systems in new subdivisions. The Alpine County General Plan Land Use Element defines  
11 minimum fire flow requirements and information required at each stage of the land use entitlement  
12 process (general plan change, zoning change, subdivision) to demonstrate that the minimum fire flow  
13 can be provided to new development. This includes information on the proposed method and  
14 location of improvements for meeting the fire flow requirement.

### 15 16 **20E Policy**

17  
18 Improve water supplies for fire protection in developed areas within the wildland urban interface.

### 19 20 **20E Implementation Measures**

21  
22 20E-1: Plan for water supplies. The county shall encourage long range planning for improved water  
23 supplies for fire protection throughout the county. This planning process should involve the fire safe  
24 councils, local area residents, existing water service providers, fire departments, CalFire and other  
25 agencies with responsibility for fire protection.

26  
27 20E-2: Funding. The county, existing water service providers and/or fire safe councils shall pursue  
28 public and private funding to improve water supply for fire protection throughout the county.

## 29 30 31 **GEOLOGIC HAZARDS**

32  
33 The geologic hazards of greatest potential in Alpine County include those associated with avalanche,  
34 earthquake/seismic shaking and landslide/slope failure. All of these are described in detail in the  
35 County's Hazard Mitigation Plan.

36  
37 **GOAL 21: PROTECT NEW AND EXISTING STRUCTURES AND LAND USES FROM GEOLOGIC**  
38 **HAZARDS IN ORDER TO AVOID OR MINIMIZE LOSS OF LIFE, INJURY, PROPERTY DAMAGE,**  
39 **AND ECONOMIC AND COMMUNITY DISRUPTION.**

### 40 41 **GEOLOGIC HAZARDS - AVALANCHE**

42  
43 Alpine County is located along the crest of the Sierra Nevada. The county's elevation ranges from a  
44 low of about 4800 feet to high elevations in excess of 11,000 feet. Steep slopes and heavy winter  
45 snowfall are common in the higher elevations. The combination of steep slopes and high snowfall  
46 creates a potential danger for snow avalanches throughout the winter months in Alpine County.

47  
48 Avalanche risk and actual avalanches frequently cause temporary closures of Highway 88 in the  
49 Carson Pass and Carson Spur areas. Avalanches can also occur in the Bear Valley and Kirkwood

1 areas, and in backcountry areas popular for outdoor winter recreation. A recent avalanche in 2017  
2 caused property damage to single family homes in the East Meadows area of Kirkwood. The  
3 characterization of avalanche hazard and the associated risks in Alpine County are more thoroughly  
4 described in Section 5.2.1 of the County's Hazard Mitigation Plan.

5  
6 **21A Policy**

7  
8 Locate and design all new development to prevent or minimize to the fullest extent possible the threat  
9 due to avalanche

10  
11 **21A Implementation Measures**

12  
13 21A-1 Assess Avalanche Hazard. All developments intended for human use or occupation shall  
14 assess avalanche hazards where there is a potential risk from avalanches. The following conditions  
15 are indicative of a potential risk: significant accumulation of snow; treeless or sparsely vegetated  
16 slopes exceeding 30% slope gradient; gullies, and bowls exceeding 30 percent slope gradient; and  
17 any locations with a history or evidence of avalanche occurrence within or immediately adjacent to  
18 the proposed development area.

19  
20  
21 **GEOLOGIC HAZARD - EARTHQUAKE/SEISMIC SHAKING**

22  
23 Alpine County's mountainous terrain lies within the area of the North American and Pacific tectonic  
24 plate activity. There have been earthquakes as a result of this activity in the past, and there will  
25 continue to be earthquakes in the future. The eastern side of the County is situated along the eastern  
26 slope of the Sierra Nevada and is more prone to earthquake and seismic shaking than other areas of  
27 the County. There is a moderate to high probability (highly likely as 80 – 100% chance of  
28 occurrence) of an earthquake in Alpine County, but a moderate to low risk associated with this natural  
29 hazard. The characterization of earthquake and seismic shaking hazard and the associated risks in  
30 Alpine County are more thoroughly described in Section 5.2.5 of the County's Hazard Mitigation Plan.

31  
32 **21B Policy**

33  
34 The potential risks associated with earthquake and seismic shaking shall be addressed in considering  
35 new development.

36  
37 **21B Implementation Measures**

38  
39 21B-1 Seismic Activity Notation. Any parcel map, or subdivision map, subdividing lands near the  
40 potentially active faults located along the eastern escarpment of the Sierra Nevada as shown on shall  
41 contain a notation warning that said area may be subject to seismic activity.

42  
43 21B-2 Geologic Report for Seismic Risk. All new development proposed within or adjacent to a  
44 Alquist Priolo "Special Study Zone" as identified on the Official Map prepared by the California  
45 Geologic Survey shall require a geologic report addressing potential risks of earthquakes and seismic  
46 shaking. Human occupied structures shall not be constructed across traces of active faults as  
47 identified in a required geologic report.

1 **GEOLOGIC HAZARD - LANDSLIDE/SLOPE FAILURE**  
2

3 Alpine County's terrain and climate combine to create conditions conducive to landslide. Landslides  
4 are categorized into groups using two variables; the type of movement and the type of material that is  
5 involved. Type of movement is categorized into three groups:

- 6 • falls  
7 • slides, and  
8 • flows  
9

10 The amount of water usually is the defining ingredient when classifying the movement. In falls, very  
11 little water is present, whereas in flows there is a lot of water involved.  
12

13 Landslides that occur within Alpine County are most often experienced as part of a larger, more  
14 widespread natural hazard event. Landslides can take place as a result of severe storms, floods, and  
15 earthquakes. They can also happen as an aftermath to wildland fires. The characterization of  
16 earthquake and seismic shaking hazard and the associated risks in Alpine County are more  
17 thoroughly described in Section 5.2.8 of the County's Hazard Mitigation Plan.  
18

19 **21C Policy**  
20

21 Locate and design all new development to prevent or minimize to the fullest extent possible the threat  
22 due to landslide and slope instability.  
23

24 **21C Implementation Measures**  
25

26 21C-1 Assess Landslide and Slope Instability. Require soils and geologic investigations that address  
27 potential landslide and slope instability as part of the review required for any parcel map, subdivision  
28 map or use permits that involve earth disturbance; and in or adjacent to any areas of known or  
29 potential slope instability.  
30  
31

32 **Flood Hazard**  
33

34 Alpine County is located almost entirely within the mountainous Sierra Nevada. Precipitation and  
35 snow melt from the Sierra Nevada runs off through high-relief, deeply-cut river canyons that are  
36 interspersed with meadows and flat areas. On the east side of the County, the West Fork of the  
37 Carson River flows into the Carson Valley where a more traditional floodplain exists. The  
38 characterization of flood hazard and the associated risks in Alpine County are more thoroughly  
39 described in Section 5.2.6 of the County's Hazard Mitigation Plan. Information on past flood events in  
40 the County can also be found in Section 5.2.6. The U.S. Geological Survey (USGS) also has  
41 information on flood history of the Carson River available at Flood Chronology of the Carson River  
42 Basin, California and Nevada Web Site: <https://nevada.usgs.gov/crfd/>.  
43

44 Two types of flood events are typical to Alpine County. Each type of flood event causes associated  
45 water, erosion, and sediment damage within the watersheds where the flood event transpires. The  
46 two types of flooding are:  
47

- 48 • Wet-mantle or rain-on-snow flood  
49 • Dry-mantle or flash flood

1  
2 Wet-mantle and rain-on-snow are typically winter or early spring occurrences and are generally  
3 widespread in nature. Characteristically, wet-mantle and rain-on-snow flooding develops when warm  
4 rains fall on already saturated ground. Particularly devastating are flood events where heavy snows  
5 precede warmer rain events, causing the mantle of snow to melt and run off in conjunction with the  
6 rain. Rain on snow flooding has resulted in property and infrastructure damage in Bear Valley and in  
7 the Markleeville/Woodfords areas of the County.

8  
9 Dry-mantle flood events are a result of intense summer thunderstorms and are much more localized  
10 in nature. Dry-mantle flooding is not widespread, as is the case of wet-mantle and rain-on-snow  
11 events. Severe flash floods are much more likely to occur over recent burn areas which exist in Alpine  
12 County. This thunderstorm related flooding can be a major concern as severe local rain and hail can  
13 create conditions for flash-flooding and considerable threat to life and property. No historical record is  
14 available for dry-mantle flood events.

15  
16 An additional source of potential flooding is dam failure. Most dams in Alpine County are remote from  
17 the populated area of the county. The remote location of dams shields residents from the potential  
18 hazards associated with dam failure and the resulting inundation. An exception is the Reba Dam in  
19 the community of Bear Valley. This dam creates Bear Lake. Dam failure and the resultant inundation  
20 of downstream areas is a hazard to the community. The characterization of dam failure hazard and  
21 the associated risks in Alpine County are more thoroughly described in Section 5.2.3 of the County's  
22 Hazard Mitigation Plan.

23  
24 Additional sources of information on flood hazards in Alpine County include the following:

25  
26 National Flood Insurance Rate Maps: All of Alpine County is currently designated as Zone D - an  
27 area of undetermined but possible flood hazards. More detailed mapping under the direction of the  
28 Federal Emergency Management Agency (FEMA) is in progress for the West Fork of the Carson  
29 River from Woodfords downstream to the California-Nevada state line; and for Bear Creek, Bloods  
30 Creek and other minor drainages in the Bear Valley area.

31  
32 DWR Awareness Floodplain Mapping Program: This program conducted by the California  
33 Department of Water Resources (DWR) identifies flood hazard areas that are not mapped by FEMA's  
34 National Flood Insurance Rate maps. Awareness floodplain maps are updated more frequently and  
35 can be targeted and prepared for a community. Information on flood risks for a specific location can  
36 be found at the California Office of Emergency Services (Cal OES) My Hazards web page:  
37 <http://myhazards.caloes.ca.gov/>

38  
39 DWR Dam Inundation Maps: The California Department of Water Resources (DWR) Division of  
40 Safety of Dams (DSOD) reviews and approves inundation maps prepared by licensed civil engineers  
41 and submitted by dam owners for extremely high, high, and significant hazard dams and their critical  
42 appurtenant structures. Inundation maps approved by DSOD are a tool used to develop emergency  
43 action plans, and the maps are intended to provide general information for emergency planning.  
44 Dam inundation maps are in place for the following lakes/reservoirs in Alpine County: Bear Lake,  
45 Lake Alpine, Upper Blue Lake, and Utica Reservoir. Dam inundation maps can be accessed for  
46 viewing through the following web site: <https://fmds.water.ca.gov/maps/damim/>. Additional dams in  
47 Alpine County without inundation maps are also shown.

48  
49 Agencies with a role and/or responsibility for flood management and/or flood emergency response in  
50 Alpine County include the California Department of Water Resources (DWR), California Office of

1 Emergency Services (Cal OES), Alpine County Sheriff's Office, Carson Water Sub-Conservancy  
2 District and the Federal Emergency Management Agency (FEMA).

### 4 **22A Policy**

6 Locate and design all new development to minimize risk from flood occurrence.

### 8 **22A Implementation Measures**

10 22A-1 Floodplain Development Regulations. Adopt and maintain updated floodplain development  
11 regulations in order to minimize public and private losses due to flood conditions in specific areas by  
12 legally enforceable regulations, methods, and provisions applied uniformly throughout the community  
13 to all publicly and privately-owned land within flood prone, mudslide [i.e. mudflow] or flood related  
14 erosion areas.

16 22A-2 Inundation From Dam Failure. No living quarters or areas for overnight accommodations shall  
17 be allowed at ground level within areas possibly subject to flood inundation due to possible dam  
18 failure.

20 22A-3 Dam Failure & Emergency Plans. Dam failure hazard assessments and emergency plans  
21 shall be prepared before any development is approved which may subject persons or property to  
22 hazards associated with dam failure.

24 22A-4 Flash Flood Notation. Any parcel map, or subdivision map subdividing lands near drainage  
25 courses in Alpine County shall contain a notation warning that said area is possibly subject to flash  
26 flood occurrence.

28 22A-5 Essential Public Facilities. Locate new essential public facilities outside flood hazard areas if  
29 feasible. This includes, but is not limited to, schools, fire stations, health services, emergency  
30 shelters, emergency operations centers and emergency communications facilities. If essential public  
31 facilities must be located in areas of flood hazard, incorporate design, construction or other measures  
32 to maximize protection and minimize damage from flooding.

## 35 **Noise**

37 Government Code 65302(f) sets forth requirements for a noise element to be included in the General  
38 Plan. A noise element shall identify and appraise noise problems in the community. The noise  
39 element shall analyze and quantify, to the extent practicable, as determined by the legislative body,  
40 current and projected noise levels for all of the following sources:

41 (A) Highways and freeways.

42 (B) Primary arterials and major local streets.

43 (C) Passenger and freight online railroad operations and ground rapid transit systems.

44 (D) Commercial, general aviation, heliport, helistop, and military airport operations, aircraft overflights,  
45 jet engine test stands, and all other ground facilities and maintenance functions related to airport  
46 operation.

47 (E) Local industrial plants, including, but not limited to, railroad classification yards.

48 (F) Other ground stationary noise sources, including, but not limited to, military installations, identified  
49 by local agencies as contributing to the community noise environment.

1  
2 Due to the lack of sizeable industrial operations, the County's small population and topography,  
3 existing noise emissions in Alpine County are generally limited to transportation facilities and  
4 corridors. Recreation and tourism in the County create higher levels of noise at these facilities and  
5 corridors than would otherwise exist. The County airport presently receives very limited use and is  
6 located three miles from the nearest developed area. It is therefore not included as a significant  
7 noise producing transportation facility.  
8

9 As part of an update to the Alpine County General Plan in 1993, noise contours for Alpine County  
10 were prepared by Brown-Buntin Associates. The noise contours shows existing and projected noise  
11 levels along County transportation corridors. The Federal Highway Administration (FHWA) Highway  
12 Traffic Noise Prediction Model (FHWA-RD-77-108) was used to develop the contours. Short-term  
13 traffic noise measurements were taken at various sites in the County and were used in verifying the  
14 noise contours developed using the FHWA model. More detailed information is contained in the Data  
15 Base created to support the 1993 General Plan update.  
16

17 Section 12.1, Noise, in the data base discusses the noise contours and provides a community noise  
18 exposure inventory which shows noise levels in the more populated areas in the County. Land use  
19 patterns and the extent of development in the County have not changed significantly since 1993.  
20 Accordingly, the information in the Data Base is still considered valid today.  
21

22 Alpine County Code Section 18.68.090 contains the County's noise ordinance. The ordinance  
23 establishes maximum noise level standards and addresses noise-sensitive developments. This code  
24 section was last updated in 2009.  
25

### 26 **23A Policy**

27  
28 Preserve the character of the county's quiet small rural communities by maintaining existing ambient  
29 noise levels and preventing new land uses that would result in significant adverse impact from noise  
30 to existing communities.  
31

### 32 **23A Implementation Measures**

33  
34 23A-1 Noise Ordinance. Maintain a noise ordinance with noise level standards that are consistent  
35 with the above stated policy.  
36

37 23A-2 Review Proposed Development. All land use and development proposals shall be reviewed for  
38 compliance with noise and land use compatibility standards. Design changes and/or mitigation  
39 measures shall be considered as needed to achieve compliance with the standards.  
40  
41

## 42 **Hazardous Materials**

43  
44 There are no large generators of hazardous waste in the County and no producers of hazardous  
45 materials. The majority of waste generated in the County is from households, small businesses, ski  
46 resorts, and vehicle maintenance facilities operated by Caltrans, U.S. Forest Service, Alpine Unified  
47 School District, ski resorts and the County. The characterization of hazardous materials and the  
48 associated risks in Alpine County are more thoroughly described in Section 5.2.7 of the County's  
49 Hazard Mitigation Plan.



1  
2 The Alpine County Hazardous Waste Management Plan adopted in 1988 identified four potential sites  
3 in the County for hazardous waste storage and transfer facilities, 1) the Mud Lake Road Area, 2) the  
4 County Maintenance Yard, 3) The County Airport, and 4) Harvey Reservoir and nearby private lands.  
5 No such facilities have been constructed in the County. The county-operated recycling drop off  
6 facility in Woodfords at the County Maintenance Yard does except small quantities of used motor oil.  
7

8 Locally, regulation of hazardous materials and hazardous waste is a shared responsibility of Alpine  
9 County and the California Environmental Protection Agency (CAL-EPA). The Alpine County Health  
10 Department is designated by CAL-EPA as a Certified Unified Program Agency (CUPA) with certain  
11 authorities delegated to it by CAL-EPA.  
12

13 There is one federal Superfund Site in Alpine County. The 250-acre Leviathan Mine is a former  
14 open-pit sulfur mine located on the east side of the County near Monitor Pass. Major environmental  
15 problems originated during open-pit sulfur mining that occurred from 1951 through 1962. During this  
16 period the mine provided a source of sulfur to dissolve copper from relatively low-grade ore at a mine  
17 near Yerington, Nevada. In 1962 large scale mining operations ceased. No significant mining  
18 activities have taken place since. The site's long-term cleanup is ongoing. Under the authority of the  
19 federal superfund law (Comprehensive Environmental Response, Compensation, and Liability Act or  
20 "CERCLA"), the U.S. Environmental Protection Agency closely coordinates cleanup plans and  
21 activities with all of the stakeholders, including local and state agencies from California and Nevada,  
22 the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the site's potentially responsible  
23 parties. In addition, the Washoe Tribe is strongly involved at the site to ensure that their unique  
24 traditional tribal uses of the area's resources are protected. The site is entirely surrounded by public  
25 lands and there are no permanent residents within several miles.  
26

## 27 **24A Policy**

28  
29 Protect citizens and property from damage by hazardous materials including but not limited to harmful  
30 chemicals, radiation levels, gases, explosives and hazardous waste.  
31

## 32 **24A Implementation Measures**

33  
34 24A-1 Proper Handling of Hazardous Waste. Ensure the hazardous waste materials used in  
35 business and industry are properly handled and that information on their handling and use is available  
36 to fire and police protection agencies.  
37

38 24A-2 Maintain CUPA Status. Continue to work cooperatively with the California Environmental  
39 Protection Agency on regulation of hazardous materials including maintaining the Certified Unified  
40 Program Agency (CUPA) status provided that there is sufficient funds available and technical  
41 capability to continue this program.  
42

43 24A-3 Transportation Routes. Oppose designation of any transportation routes through Alpine  
44 County for hazardous waste that could create responses to hazardous waste spills or related  
45 incidents that are beyond the resources of the local emergency response agencies