



Annex G Alpine Springs County Water District

G.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Alpine Springs County Water District, a participating jurisdiction to the Placer County Local Hazard Mitigation Plan (LHMP) Update. This Annex is not intended to be a standalone document, but appends to and supplements the information contained in the base plan document. As such, all sections of the base plan, including the planning process and other procedural requirements apply to and were met by the District. This Annex provides additional information specific to the Alpine Springs County Water District, with a focus on providing additional details on the risk assessment and mitigation strategy for this special district.

G.2 Planning Process

As described above, the District followed the planning process detailed in Section 3 of the base plan. In addition to providing representation on the Placer County Hazard Mitigation Planning Committee (HMPC), the District formulated their own internal planning team to support the broader planning process requirements. Internal planning participants, their positions, and how they participated in the planning process are shown in Table G-1. Additional details on plan participation and District representatives are included in Appendix A.

Table G-1 District Planning Team

Name	Position/Title	How Participated
John Collins	District Manager	Attended meetings. Provided input on past hazards. Filled out hazard ID table. Provided information on capabilities. Provided information on past and future mitigation actions. Reviewed and provided information and edits to Annex.
Paul “Buz” Bancroft	Operations Supervisor	Provided input on past hazards, current field conditions and utility system operations, facilities and equipment available in an emergency.

Coordination with other community planning efforts is paramount to the successful implementation of this plan. This Section provides information on how the District integrated the previously-approved 2010 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2010 LHMP through other plans and programs shown in Table G-2.

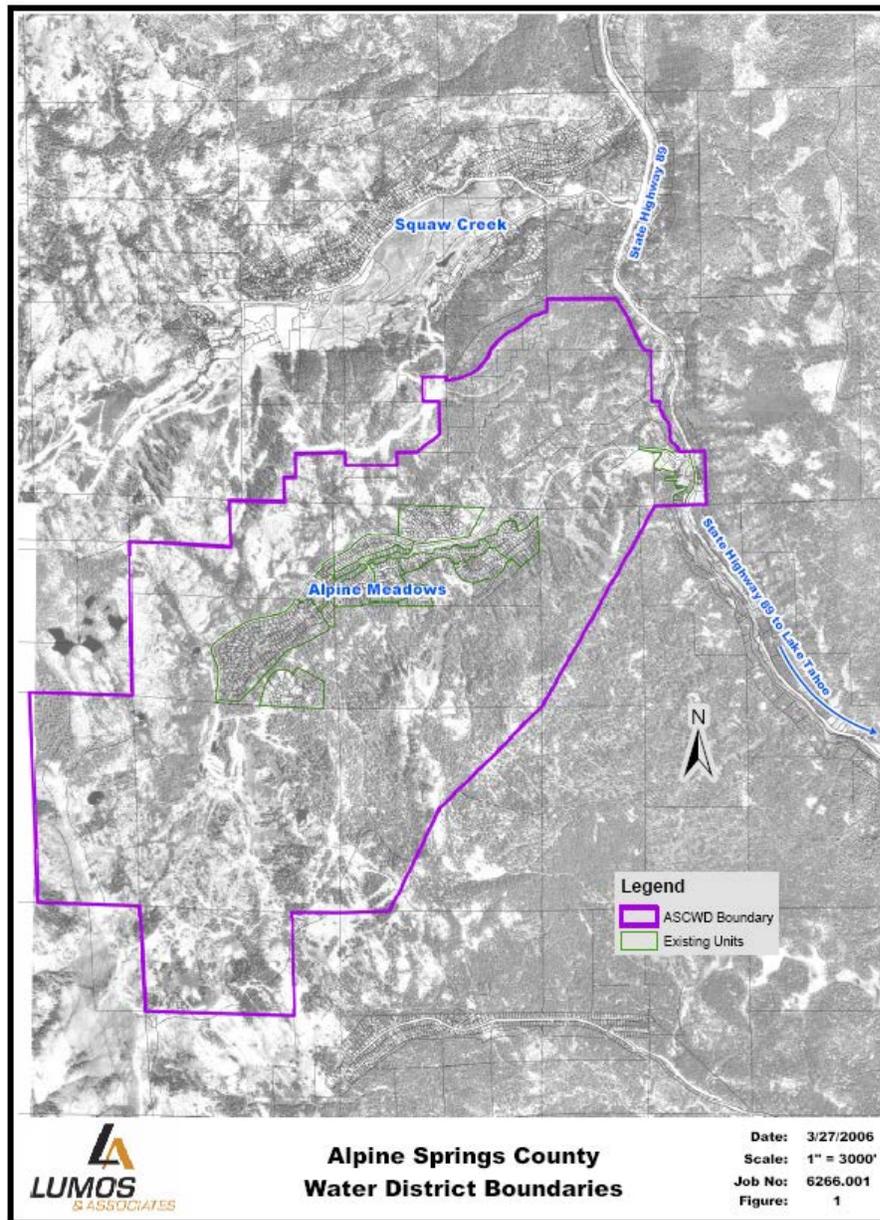
Table G-2 2010 LHMP Incorporation

Jurisdiction	Planning Mechanism 2010 LHMP Was Incorporated/Implemented In. Details?
Alpine Springs County Water District	Alpine Springs County Water District participated in the 2015 North Tahoe CWPP planning process. Relevant items from the last plan for the District were incorporated into the CWPP planning process and into the annual update of the Capital Improvement Plan of the District.

G.3 District Profile

The Alpine Springs Water District service area is illustrated in Figure G-1.

Figure G-1 Alpine Springs Water District's Service Area



Source: Alpine Springs County Water District

G.3.1. District Information and Background

Alpine Springs County Water District is located in Alpine Meadows just northwest of Lake Tahoe, along California State Highway 89, just outside of the Lake Tahoe Basin. The Alpine Meadows area encompasses approximately one square mile within Placer County and contains about 770 private parcels, interspersed among a few open space parcels. Bear Creek runs through the community, creating a riparian area near many of the homes. Most homes are situated along the creek or other riparian areas. The elevation of Alpine Meadows ranges from 6,185 feet at the mouth of the canyon to 6,835 feet at the ski area lodge and the top of the inhabited area. Mountain peaks above the community are at 8,637 feet. The private lands are

surrounded by United States Forest Service (USFS) owned lands. The Alpine Meadows Ski Area is on USFS lands and is operated under a seasonal use agreement.

The Alpine Springs County Water District provides water, sewer, fire protection, parks, and garbage service to the residents of Alpine Meadows. The mission of Alpine Springs County Water District is to serve the residents of Alpine Meadows with:

- Clean, safe, and dependable drinking water;
- Safe, efficient and non-hazardous collection of waste water;
- Protection of lives and property; and
- Protection, preservation and enhancement of the urban forest setting with consideration for the property owner's continued use and enjoyment.

G.4 Hazard Identification and Summary

The District's planning team identified the hazards that affect the District and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to the District (see Table G-3).

Table G-3 Alpine Springs Hazard Identification Table

Hazard	Geographic Extent	Probability of Future Occurrences	Magnitude/Severity	Significance
Agricultural Hazards	Limited	Unlikely	Negligible	Low
Avalanche	Significant	Likely	Limited	High
Dam Failure	Limited	Unlikely	Negligible	Low
Drought and Water Shortage	Extensive	Likely	Limited	Medium
Earthquake	Extensive	Likely	Catastrophic	High
Flood: 100/500 year	Limited	Occasional	Limited	Medium
Flood: Localized Stormwater Flooding	Limited	Occasional	Limited	Medium
Landslides and Debris Flows	Limited	Occasional	Limited	Medium
Levee Failure	Limited	Unlikely	Negligible	Low
Seiche (Lake Tsunami)	Limited	Unlikely	Negligible	Low
Severe Weather: Extreme Heat	Limited	Unlikely	Negligible	Low
Severe Weather: Freeze and Snow	Extensive	Likely	Limited	Medium
Severe Weather: Fog and Freezing Fog	Extensive	Occasional	Catastrophic	High
Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)	Extensive	Occasional	Catastrophic	High
Soil Bank Erosion	Limited	Likely	Limited	Medium
Subsidence	Limited	Occasional	Negligible	Low
Wildfire	Extensive	Occasional	Catastrophic	High
Hazardous Materials Transport	Limited	Occasional	Negligible	Low
Geographic Extent Limited: Less than 10% of planning area Significant: 10-50% of planning area Extensive: 50-100% of planning area		Magnitude/Severity Catastrophic—More than 50 percent of property severely damaged; shutdown of facilities for more than 30 days; and/or multiple deaths Critical—25-50 percent of property severely damaged; shutdown of facilities for at least two weeks; and/or injuries and/or illnesses result in permanent disability Limited—10-25 percent of property severely damaged; shutdown of facilities for more than a week; and/or injuries/illnesses treatable do not result in permanent disability Negligible—Less than 10 percent of property severely damaged, shutdown of facilities and services for less than 24 hours; and/or injuries/illnesses treatable with first aid		
Probability of Future Occurrences Highly Likely: Near 100% chance of occurrence in next year, or happens every year. Likely: Between 10 and 100% chance of occurrence in next year, or has a recurrence interval of 10 years or less. Occasional: Between 1 and 10% chance of occurrence in the next year, or has a recurrence interval of 11 to 100 years. Unlikely: Less than 1% chance of occurrence in next 100 years, or has a recurrence interval of greater than every 100 years.		Significance Low: minimal potential impact Medium: moderate potential impact High: widespread potential impact		

G.5 Vulnerability Assessment

The intent of this section is to assess the District’s vulnerability separate from that of the planning area as a whole, which has already been assessed in Section 4.3 Vulnerability Assessment in the main plan. This

vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the main plan.

G.5.1. Assets at Risk

This section considers the District’s assets at risk, specifically critical facilities and infrastructure, natural resources, and growth and development trends. Table G-4 lists particular critical facilities and other community assets identified by the District’s planning team as important to protect in the event of a disaster. The District’s physical assets, valued at over \$6.5 million, consist of the flood control and local drainage structures and real property, the operations center, and equipment.

Table G-4 Alpine Springs Water District’s Critical Facilities, Infrastructure, and Other District Assets

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Horizontal Well 1	Water Supply	No address	\$100,000	wildfire, earthquake, landslide
Horizontal Well 2	Water Supply	No address. Off of ski run “Hot Wheels”	\$150,000	wildfire, earthquake, landslide
Horizontal Well 3	Water Supply	No address	\$150,000	earthquake, landslide wildfire
Horizontal Well 4	Water Supply	No address. Off of ski run “Hot Wheels	\$150,000	wildfire
Vertical Well R-1	Water Supply	270 Alpine Meadows Road	\$550,000	earthquake, wildfire
Vertical Well R-2	Water Supply	270 Alpine Meadows Road	\$550,000	earthquake, wildfire
AME Well	Water Supply	0 Beaver Dam Trail	\$755,850	wildfire
Storage Tank 1	Water Storage Tank	Off Chalet Road	\$175,000	wildfire, earthquake
Storage Tank 2	Water Storage Tank	2040 Chalet Road	\$175,000	wildfire, earthquake
Storage Tank 3	Water Storage Tank	1691 Upper Beach Road	\$175,000	wildfire, earthquake
Storage Tank 5	Water Storage Tank	Behind Alpine Meadows Apartments	\$175,000	wildfire, earthquake
Storage Tank 4	Water Storage Tank	2600 Alpine Meadows Road	\$175,000	wildfire, earthquake
Storage Tank 4 A	Water Storage Tank	2600 Alpine Meadows Road	\$1,000,000	wildfire, earthquake
Office Building	Administrative Office	270 Alpine Meadows Road	\$500,000	wildfire, earthquake
Shop & Vehicle Storage Building	Utility, Shop & Vehicle Storage Building	270 Alpine Meadows Road	\$870,000	wildfire, earthquake

Name of Asset	Facility Type	Address	Replacement Value	Hazard Info
Fire House	Fire Station	270 Alpine Meadows Road	\$825,000	wildfire, earthquake
Standby Generator	Standby Generator	270 Alpine Meadows Road	\$55,000	wildfire, earthquake

Source: Alpine Springs County Water District

Natural Resources

In 2006, a wildlife and habitat analysis was done within the District boundaries to evaluate the potential for sensitive animal and plant species to be present. The results of the assessment indicate that areas within the District boundaries have the potential for the following:

- The mountain yellow-legged frog (*Rana muscosa*, which is federally listed as endangered);
- The willow flycatcher (*Empidonax traillii*, which is State listed as endangered);
- The northern goshawk (*Accipiter gentilis*, which is not listed);
- The Sierra Nevada mountain beaver (*Aplodontia rufa californica*, which is not listed);
- The Sierra marten (*Martes Americana sierrae*, which is not listed); and
- The western white-tailed jackrabbit (*Lepus townsendii*, which is not listed).

Growth and Development Trends

Alpine Meadows is a popular ski resort and summer recreational area that also holds over 650 private residences, another 100 private parcels, and a few open space parcels. Most existing homes are situated along Bear Creek or other riparian areas. Multiple organizations own these private lands and are responsible for future development. The private lands are surrounded by United States Forest Service (USFS) owned lands. As such, additional growth is limited to the private lands within the District boundaries.

Development Since 2010

It is estimated that 8 to 10 new residential homes have been built in the District borders since 2010. None are in the floodplain, but all are in wildfire risk areas. There has also been one recent (single home) development allowed through a zoning change in the Alpine Meadows area in an avalanche area. With increased development and more people living in the wildfire risk areas, the wildfire vulnerability of the District continues to increase. Adherence to and enforcement of building codes and construction standards will help to mitigate the risk and vulnerability of new development and the people who live here. Also, any development in Avalanche areas increase the risk and vulnerability to the property and people living there. However, Placer County will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

G.5.2. Estimating Potential Losses

This section provides the vulnerability assessment, including any quantifiable loss estimates, for those hazards identified above in Table G-3 as high or medium significance hazards. Impacts of past events and vulnerability of the District to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on the Placer County

planning area). Methodologies for calculating loss estimates are the same as those described in Section 4.3 of the base plan. In general, the most vulnerable structures are those located within the floodplain, in the wildland urban interface, within other priority hazard areas, unreinforced masonry buildings, and buildings built prior to the introduction of modern building codes.

An estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections that follow. Vulnerability is measured in general, qualitative terms and is a summary of the potential impact based on past occurrences, spatial extent, and damage and casualty potential. It is categorized into the following classifications:

- **Extremely Low**—The occurrence and potential cost of damage to life and property is very minimal to nonexistent.
- **Low**—Minimal potential impact. The occurrence and potential cost of damage to life and property is minimal.
- **Medium**—Moderate potential impact. This ranking carries a moderate threat level to the general population and/or built environment. Here the potential damage is more isolated and less costly than a more widespread disaster.
- **High**—Widespread potential impact. This ranking carries a high threat to the general population and/or built environment. The potential for damage is widespread. Hazards in this category may have occurred in the past.
- **Extremely High**—Very widespread with catastrophic impact.

Avalanche

Likelihood of Future Occurrence—Likely

Vulnerability—High

The District services Alpine Meadows, a large ski resort located on both private and USFS lands. According to the 2004 Placer Operational Area, Emergency Operations Plan, areas of particular concern include the Alpine Meadows and Bear Creek area. As previously described in the main plan, in 1982, a 30 foot wall of snow plowed through the Alpine Meadows ski lodge and other ancillary buildings at 80 mph, killing seven people.

Given the known potential for avalanches in the area, avalanche areas have been well defined and avalanche control work is conducted as needed on a regular basis. Additional mitigation measures are in place through county ordinances and the building permit process.

Drought and Water Shortage

Likelihood of Future Occurrence—Likely

Vulnerability—High

A major portion of the Districts' water supply is produced from horizontal wells located at an elevation above the Districts' service area. The source of water supply for these horizontal is water store in the mountains above the wells. The wells have not shown any major reduction in production (about 6 to 8%) during the recent drought. If the horizontal wells were to lose production the other source of supply would be from deep vertical well located at the bottom, or lowest elevation in the service area. These wells are not

equipped to pump water to any of the three higher water service zones within the District. Any loss of production in the higher elevation horizontal wells would leave approximately 75% of the Districts' water customer out of water.

Earthquake

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

The seismic hazard within the ASCWD service area is relatively low compared to many other parts of California. However, the area is considered to have a higher risk of an earthquake occurring due to the presence of several faults systems located in the area. As indicted on the Earthquake Shaking Map in Section 4.2.10 of the main plan, the shaking potential is greatest in the eastern portion of the County, including the ASCWD service area. There may be a lack of un-reinforced masonry buildings, compared to a more urban setting, however the ASCWD service area water storage tanks are circular prestressed concrete. In a report prepared for the ASCWD in 2013 by DN Tanks, the tanks do not meet design criteria, especially seismic criteria. The impact of an earthquake upon these water storage tanks would be very vulnerability to damage from severe ground shaking.

Flood: 100/500 year

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

Bear Creek is the main drainage channel which runs the length of Alpine Meadows. The channel is fairly well defined and would be subject to flooding in selected area during a 100 or 500 year event. The creek does have several crossings of local streets which are privately maintained. Based upon observations of these crossing it would appear that one or more of these creek crossing would be subject to wash out during a 100 and or 500 flood event. The District is not aware of any specific studies which would confirm that flooding would or would not occur.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

Heavy rains occur on an annual basis in the District service area. Often during these events, the local stormwater drainage system can be impacted. However, the District did not identify any past events resulting in significant damage.

Bear Creek is the main drainage channel which runs the length of Alpine Meadows, the District's service area. The Bear Creek channel crosses several different local street and roadways. Several of the crossings are within areas where the streets are privately maintained. During past events the streets have not been subject to over topping. Based upon visual observations of these crossing it would appear that one or more of these creek crossing would be subject to wash out during a major rain event. The District is not aware of any specific studies which would confirm that flooding would or would not occur.

Landslides and Debris Flows

Likelihood of Future Occurrence–Occasional

Vulnerability–Medium

There have been three landslides and debris flow events in the Alpine Meadows area. All events occurred in 1997. There was a landslide and debris flow out of East Gully which flow out of the gully and across Alpine Meadows Road. There was a landslide and debris flow event down an unnamed creek at the ski resort. The flow came down slope adjacent to the Kangaroo Lift. The flow entered the electric room and pump room of the ski resort. The third event was on the west side of Scott Peek. The event ran out without causing any damage.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely

Vulnerability–Medium

Winter storms in the form of freezing temperatures and snow also occur on an annual basis in the District. The potential magnitude of these storms can be significant, with snowfall exceeding 168 inches in one storm. However, because this area is home to a premier ski area, not only is an abundance of snow good for the economy, but the area has historically been developed to accommodate big snow seasons.

The District reported a recent incident related to the winter snow season. In February of 2007, water service lines from the distribution main to service boxes froze, causing water service to be interrupted to five homes. The homeowners purchased bottled water for drinking and cooking and hauled water for toilet flushing. No other damages were reported. Incidents of this type will likely occur again during extreme periods of frigid temperatures during the winter season.

Severe Weather: Fog and Freezing Fog

Likelihood of Future Occurrence–Occasional

Vulnerability–High

The Alpine Meadows, the Districts' service area, experiences fog and freezing fog any number of times each winter. The freezing fog turns the trees within the Meadows into a white wonder land while the roads get coated with deadly ice.

Severe Weather: Heavy Rains and Storms (Thunderstorms/Hail, Lightning/Wind/Tornadoes)

Likelihood of Future Occurrence–Occasional

Vulnerability–High

Heavy rain, thunderstorm activity, and hail usually occur on an annual basis in the District service area. Often during these events, the local stormwater drainage system can be impacted. However, the District did not identify any past events resulting in significant damage.

Soil Bank Erosion

Likelihood of Future Occurrence–Likely

Vulnerability–High

Soil bank erosion is occurring along Bear Creek in the vicinity of 1432 and 1440 Mineral Springs Trail. During the 1997 and 2006 flooding events Bear Creek eroded and undercut the 40 to 50 foot high bank approximately 30 feet. Continued erosion and undercutting of 20 to 30 feet by Bear Creek will result in the loss of Mineral Springs Trail and the water and sewer utilities located within the street right of way.

Wildfire

Likelihood of Future Occurrence–Likely

Vulnerability–High

Wildfire is a significant concern for the communities within District boundaries. The Alpine Meadows area contains about 770 private parcels, interspersed among a few open space parcels and surrounded by USFS owned lands. The risk and vulnerability of this area to a catastrophic wildfire is continually increasing due to the buildup of forest fuel loads at dangerous levels. Like many Sierra alpine communities, the fir trees in Alpine Meadows have a fairly high mortality rate, primarily due to drought and disease, leaving a large number of dead and dying fir trees contributing to the wildfire fuel loads. Wildfire loadings within the Alpine Meadows communities contain a significant amount of dead material, ladder fuels, and brush. Fire behavior in these fuel types can be difficult to control. The difficult terrain in Alpine Meadows further contributes to the difficulties in controlling and suppressing fires.

Because of the lack of natural fires and proper forest management, the forests of the Lake Tahoe area have more trees, surface fuels, and overall greater biomass than ever before. Recent fires in the Tahoe area, such as the Angora fire, highlight the potential for these catastrophic wildfires.

According to the Community Wildfire Protection Plan (CWPP) for the Alpine Meadows area, lightning is the most common ignition source. However, most lightning strikes are accompanied by rain so ignitions do not usually expand to wildfires. Human ignitions are the greatest concern. They often occur during the worst fire weather conditions and near populated areas creating the potential for damaging fires. Vehicle and home fires that spread to the wildland pose the greatest ignition risk in Alpine Meadows.

Once an ignition expands into a wildfire, weather and topography usually dictate how devastating the fire will be. According to the CWPP, the high elevation of Alpine Meadows allow for lower temperatures and better moisture recovery during the night. Southwest winds do blow down the canyon but are not very dry. Further, the topography of the canyon is open enough that there would not be a significant chimney effect during a fire. Therefore the CWPP concludes that the fire weather and topography risk in Alpine Meadows is low as evidenced by the fire history data for this area. While there have been a number of ignitions, none of the ignitions have resulted in large fires in recorded time.

The CWPP concludes that the overall fire threat around the Alpine Meadow neighborhoods is low to moderate. The areas of highest threat are on the south facing slopes above the Juniper Mountain neighborhood. The overall risk of a catastrophic fire moving through the community is considered low,

with the greatest risk to homes in the area from a structural fire spreading to one or more neighboring homes.

G.6 Capability Assessment

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into four sections: regulatory mitigation capabilities; administrative and technical mitigation capabilities; fiscal mitigation capabilities; and mitigation education, outreach, and partnerships.

G.6.1. Regulatory Mitigation Capabilities

Table G-5 lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in the District.

Table G-5 Alpine Springs Water District’s Regulatory Mitigation Capabilities

Plans	Y/N Year	Does the plan/program address hazards? Does the plan identify projects to include in the mitigation strategy? Can the plan be used to implement mitigation actions?
Comprehensive/Master Plan	No	Placer County
Capital Improvements Plan	Yes	Update each budget cycle.
Economic Development Plan	No	Placer County
Local Emergency Operations Plan	Yes	
Continuity of Operations Plan	Yes	
Transportation Plan	No	Placer County
Stormwater Management Plan/Program	No	Placer County
Engineering Studies for Streams	No	Placer County
Community Wildfire Protection Plan	Yes 2015	
Other special plans (e.g., brownfields redevelopment, disaster recovery, coastal zone management, climate change adaptation)	No	
Building Code, Permitting, and Inspections	Y/N	Are codes adequately enforced?
Building Code	No	Version/Year:
Building Code Effectiveness Grading Schedule (BCEGS) Score	No	Score:
Fire department ISO rating:	Yes	Rating: 4
Site plan review requirements	Yes	

Land Use Planning and Ordinances	Y/N	Is the ordinance an effective measure for reducing hazard impacts? Is the ordinance adequately administered and enforced?
Zoning ordinance	No	Placer County
Subdivision ordinance	No	Placer County
Floodplain ordinance	No	Placer County
Natural hazard specific ordinance (stormwater, steep slope, wildfire)	No	Placer County
Flood insurance rate maps	No	Placer County
Elevation Certificates	No	Placer County
Acquisition of land for open space and public recreation uses	No	Placer County
Erosion or sediment control program		
Other		
How can these capabilities be expanded and improved to reduce risk?		

As indicated above, the District in conjunction with Placer County has several programs, plans, policies, and codes and ordinances that guide hazard mitigation. Some of these are described in more detail below.

Voluntary Water Conservation Program

The objectives of the voluntary water conservation program are to:

1. increase the awareness of valley residents as to the need to conserve water;
2. educate valley residents as to how they can conserve water; and
3. decrease household and commercial use of water, including water used for irrigation, during the months of June through October.

Other Programs

Other programs within the District include the following:

- Wildfire Prevention Program
 - ✓ Community Chipper program
 - ✓ Defensible space reviews for homeowners
 - ✓ Building material reviews for homeowners

Water Conservation Plan

The District has a limited supply of water, and sometimes the demand for water exceeds the supply. To maintain reserve water supply capacity for the health and safety responsibilities of the District, the District has implemented a Water Conservation Plan.

Emergency Response Plan

The District has developed a policy to establish parameters by which the District shall plan for and respond to District-related emergency situations that include:

- Acts of God
 - ✓ Earthquake
 - ✓ Flood
 - ✓ Earth Slide
 - ✓ Avalanche
- Extended power outage
- Computer system failure, including SCADA
- Communication system failure
- Catastrophic infrastructure failure
- Loss of vehicle access to the valley
- Fire
- Pervasive water supply contamination

Community Wildfire Protection Plan, 2015

The CWPP was updated in 2015 as part of the Lake Tahoe Basin Community Wildfire Protection Plan. The Alpine Meadows area is included under the North Tahoe Fire Protection District (NTFPD). Alpine Springs County Water District is responsible for fire protection and Emergency Medical Transport (EMT) services. The District contracts with NTFPD for these services. The CWPP summarizes wildfire dangers and issues within the community, catalogs community wildfire protection needs, and identifies corrective action and community projects that will mitigate some of the problems.

Water Resource Policy

The District has developed a water resource policy to establish parameters by which the District will manage its water resources. This policy includes parameters for the protection of water sources, water quality, water quantity, and environmental considerations.

Watershed Management Policy

Water in the Bear Creek Valley is a precious and limited resource. It is therefore necessary for the protection of all life in the Valley – human and native flora and fauna – to establish parameters under which the District will protect and preserve the natural resources of the Bear Creek watershed.

Codes and Ordinances

Avalanche

Placer County's avalanche management program defines Potential Avalanche Hazard Areas (PAHAs) where the minimum probability of avalanche occurrence is 1 in 100 per year or where avalanche damage has already occurred. According to the Placer County Avalanche Ordinance the following information must be disclosed in PAHAs:

- Identification that a structure is within a PAHA;
- A warning that avalanche control work is conducted in the area and avalanche warnings will be provided as feasible; and
- Identification of sources that provide weather information and general information on avalanches.

In addition, the County limits construction as necessary in PAHAs and will not issue a building permit for construction in a PAHA without certifying that the structure will be safe under the anticipated snow loads and conditions of an avalanche.

Wildfire

The District and Placer County have a number of standards and ordinances, based on California Public Resources Code 4290, in place to address community design issues regarding wildfire hazard preparedness. Ordinances specify details such as:

- Road, driveway and turnaround dimensions to provide safe ingress and egress for the public and fire suppression resources during a fire event;
- Emergency water supply for sustained firefighting operations; and
- Use of flame-resistant building materials in home construction, specifically in roofing and siding materials.
- The banning of open burning, including campfires during high fire hazard periods.

In addition to the codes and ordinances for community design, the District has adopted Planned Community Development Guidelines and Conditions for subdivisions based on the codes and ordinances. The document provides developers guidelines on mitigation measures and community design guidelines for subdivision construction in the District, streamlining the approval process by illustrating approved community design elements in the District.

G.6.2. Administrative/Technical Mitigation Capabilities

The District operates under the supervision of an elected five member Board of Directors. Board members are elected by the residents of Alpine Meadows for a term of four years. Table G-6 identifies the personnel responsible for activities related to mitigation and loss prevention in the District.

Table G-6 Alpine Springs Water District’s Administrative and Technical Mitigation Capabilities

Administration	Y/N	Describe capability Is coordination effective?
Planning Commission	No	Placer County
Mitigation Planning Committee	No	Placer County
Maintenance programs to reduce risk (e.g., tree trimming, clearing drainage systems)	Yes	Tree removal as part of annual budget
Mutual aid agreements	Yes	
Other		

Staff	Y/N FT/PT	Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?
Chief Building Official	No	
Floodplain Administrator	No	
Emergency Manager	No	
Community Planner	No	
Civil Engineer	No	
GIS Coordinator	No	
Other		
Technical	Y/N	Describe capability Has capability been used to assess/mitigate risk in the past?
Warning systems/services (Reverse 911, outdoor warning signals)	No	
Hazard data and information	No	
Grant writing	No	
Hazus analysis	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		

G.6.3. Fiscal Mitigation Capabilities

Table G-7 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table G-7 Alpine Springs Water District's Fiscal Mitigation Capabilities

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Capital improvements project funding	Yes	
Authority to levy taxes for specific purposes	No	
Fees for water, sewer, gas, or electric services	Yes	
Impact fees for new development	Yes	
Storm water utility fee	No	
Incur debt through general obligation bonds and/or special tax bonds	No	
Incur debt through private activities	No	

Funding Resource	Access/ Eligibility (Y/N)	Has the funding resource been used in past and for what type of activities? Could the resource be used to fund future mitigation actions?
Community Development Block Grant	No	
Other federal funding programs	No	
State funding programs	No	
Other	Yes	Sierra Nevada Conservation District
How can these capabilities be expanded and improved to reduce risk?		

G.6.4. Mitigation Outreach and Partnerships

Table G-8 identifies education and outreach programs and methods already in place that could be/or are used to implement mitigation activities and communicate hazard-related information. More information can be found below the table.

Table G-8 Alpine Springs Water District's Mitigation Education, Outreach, and Partnerships

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.		
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)		
Natural disaster or safety related school programs		
StormReady certification		
Firewise Communities certification	Yes	Holds an annual clean up day.
Public-private partnership initiatives addressing disaster-related issues		
Other		
How can these capabilities be expanded and improved to reduce risk?		

The District has contracted with the North Tahoe Fire Protection District (NTFPD) to provide fire suppression and emergency medical services within the Alpine Meadows community. The Squaw Valley

Fire Department (part of the Squaw Valley Public Service District) also provides automatic aid services to Alpine Meadows through agreement with the NTFPD.

The entire water district is classified by the State of California as State Responsibility Area (SRA). The means the responsibility for prevention and suppression of wildland fires is the responsibility of CAL FIRE. The USFS, Tahoe National Forest, and Truckee Ranger District provide these direct protection responsibilities on behalf of the State of California through an exchange of acres agreement.

Wildfire protection services are provided at the local level by the NTFPD. Through the NTFPD, Alpine Meadows is also covered by the Lake Tahoe Regional Chiefs Association mutual aid agreement, providing simplified access to Lake Tahoe Basin fire departments upon request. The NTFPD is also a signatory to the California Master Mutual Aid System. As a system participant, NTFPD has access to free firefighting resources throughout the State of California.

G.6.5. Other Mitigation Efforts

The District currently has other ongoing and proposed mitigation efforts as described in this section.

Alpine Meadows Consolidated Defensible Space Project

The project being proposed by ASCWD is to reduce dangerous forest fuel loading on 50 acres in the Alpine Meadows area (This project was completed in August 2012). The District has offered free residential chipping services and defensible space inspections to approximately 200 private properties over the last two (2) years. The project consisted of two elements. The first element was the reduction of overgrown forest fuels on common properties owned by three homeowners associations and the water district that intertwine between private homes along the valley. The second element is funding a community chipper program to the residents of the district for many years.

G.7 Mitigation Strategy

G.7.1. Mitigation Goals and Objectives

The District adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

G.7.2. Mitigation Actions

The planning team for the District identified and prioritized the following mitigation action based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are included.

Action 1. Emergency Electrical Generator Replacement Project

Hazards Addressed: Earthquake and Wildfire

Issue/Background: This project would replace the District’s single, fifty plus year old emergency diesel electrical generator. The District has a single emergency electrical generator. The generator was placed in service in 1961 and has reached the end of its useful life. The current generator serves only the office building, which is the designated Emergency Operation Center for the Valley. The new generator will be sized to supply emergency power to the office, fire station and vehicle storage building. It will also be equipped with an automatic transfer switch.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: ASCWD Long Range Capital Improvement Program

Responsible Office/Partners: Alpine Springs County Water District

Project Priority: High

Cost Estimate: \$55,000

Benefits (Losses Avoided): Protection of property and life safety.

Potential Funding: ASCWD Long Range Capital Improvement Program

Timeline: 2017 to 2021

Action 2. Water Storage Tank Replacement Project

Hazards Addressed: Earthquake and Wildfire

Issue/Background: This project would replace the District’s four circular prestressed concrete and one redwood water storage tanks. A recent inspection of the tanks found that “they clearly would not meet current design criteria, especially seismic criteria” and based up the tanks dimensions the tanks are subject to overturning in an earthquake. The District has four (4) 100,000 gallon prestressed concrete tanks and one (1) 500,000 gallon redwood tank. This project would replace one (1) 100,000 gallon concrete tank and the one (1) 500,000 gallon redwood tank with a single 600,000 gallon buried reinforce concrete water storage tank. Each of the three remaining 100,000 gallon tanks would be replaced by buried reinforced concrete water storage tanks. This project would provide the District with water storage facilities protected from earthquake and fire hazards.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: ASCWD Long Range Capital Improvement Program

Responsible Office/Partners: Alpine Springs County Water District

Project Priority: High

Cost Estimate:

- Water Storage Tanks 1, 2, 3, 4, and 5 100,000 gallons each at \$175,000 each.
- Water Storage Tank 4A 500,000 gallons \$1,000,000.

Benefits (Losses Avoided): Protection of property and life safety.

Potential Funding: ASCWD Long Range Capital Improvement Program

Timeline: 2017 to 2021

Action 3. *Mineral Springs Soil Bank Stabilization Project*

Hazards Addressed: Flood Hazard

Issue/Background: A section of the 10" sewer main that serves the Alpine Meadows community is located adjacent to and between Mineral Springs Trail and Bear Creek. Recent flooding (2006 and 1997) along with annual erosion by Bear Creek have eroded and undercut the 40 to 50 foot high bank approximately 30 feet. Continued erosion and undercutting by Bear Creek will result in the loss of this 10" sewer main. The failure of this 10" sewer main would result in approximately two thirds of the 650 sewer customers' sewage discharging into Bear Creek. Bear Creek discharges into the Truckee River. Discharge of sewage would pose a potential risk to human health and the environment.

This proposed project would complete evaluation of current site conditions, develop recommended slope stabilization (most likely large boulders 2 – 3 tons along with gabions), and install the recommended slope stabilization.

Other Alternatives: Replace approximately 150 feet of 10" sewer main with a pump station and force main. The pump station would require stand-by power because of the inability to provide on-site storage. The site is constrained. A second alternative would be to rent and have available during each major storm or flood event pump around equipment and facilities.

Existing Planning Mechanism(s) through which Action Will Be Implemented:

Responsible Office/Partners: Alpine Springs County Water District in conjunction with Placer County Public Works Department.

Project Priority: High

Cost Estimate: \$550,000

Benefits (Losses Avoided): Potential fines for sewage overflows are estimated at \$10 per gallon. Depending on the time it would take to get pumping equipment into place, the fines range from a low of \$576,000 to \$1,483,200 (412 customers with average daily flow of between 140 gallons per day to 360 gallons per day). In addition to the fines, additional resources would be needed for spill response and clean up, pump around equipment rental and set up, and the construction of replacement facilities. Project would protect natural resources by reducing the potential for spills of untreated wastewater into waterways.

Potential Funding: Grant funding, budget funding, Placer County, ASCWD

Timeline: 2017 to 2019

Action 4. *Alpine Meadows Consolidated Defensible Space Continuation Project*

Hazards Addressed: Wildfire

Issue/Background: This project would continue fuels reduction on an additional 50 acres of commonly held properties within the Bear Creek watershed, or the Alpine Meadows community. This project will also provide curbside chipping services and defensible space inspections for 200 homes. This project aims to build on the community awareness and educational efforts underway in the area in order to reduce fuel loadings on common properties and to inspire and educate private property owners to complete defensible space treatments on their property. Finally, this project will serve as a model project by applying mitigation and monitoring techniques for prescribed burning of piles in a riparian area where no other means of slash disposal exists.

Other Alternatives: No other action.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Lake Tahoe Basin community Wildfire Protection Plan – August 2015

Responsible Office/Partners: Alpine Springs County Water District in conjunction with the North Tahoe Fire Protection District

Project Priority: High

Cost Estimate: \$ 200,000

Benefits (Losses Avoided): Protection of property and life safety

Potential Funding: Grant funding, Budget funding, North Tahoe Fire Protection District, ASCWD

Timeline: 2016 to 2019