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 (ASCWD or District), a previously participating jurisdiction to the 2016 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 District.

G.2 Planning Process

As described above, the District followed the planning process detailed in Chapter 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 Alpine Springs County Water District – Planning Team

Name	Position/Title	How Participated
Joe Mueller	District Manager	Reviewed and provided information and edits to Annex.
Miguel Ramirez	Operations Supervisor	Provided input on past hazards, current field conditions and utility system operations, facilities, and equipment available for emergency use.

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP Update. This section provides information on how the District integrated the previously approved 2016 Plan into existing planning mechanisms and programs. Specifically, the District incorporated into or implemented the 2016 LHMP through other plans and programs shown in Table G-2.

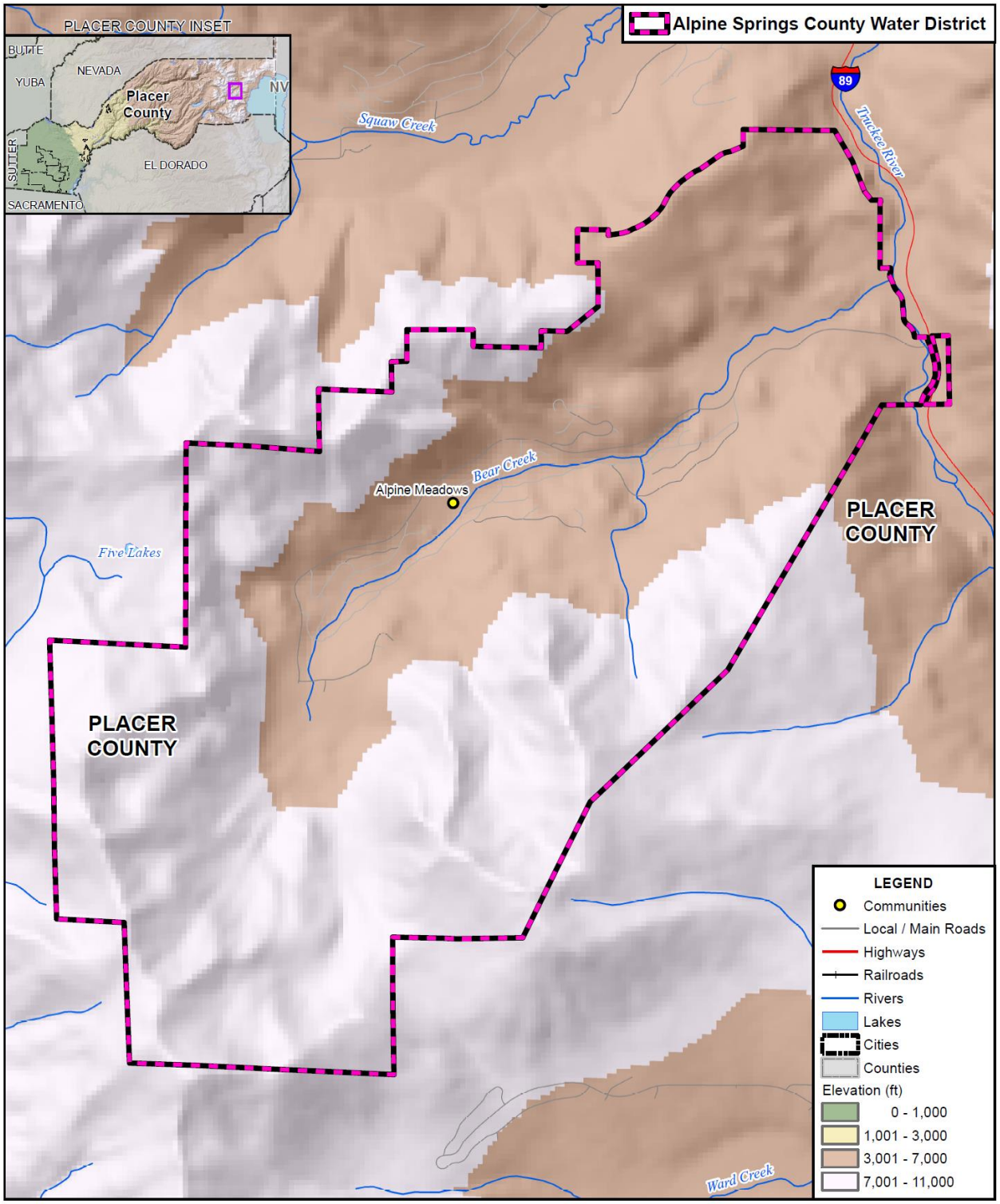
Table G-2 2016 LHMP Incorporation

Planning Mechanism 2016 LHMP Was Incorporated/Implemented In.	Details: How was it incorporated?
N/A	No Hazard or mitigation related planning mechanisms have been completed since 2016

G.3 District Profile

The District profile for the Alpine Springs County Water District is detailed in the following sections. Figure G-1 displays a map and the location of the District within Placer County.

Figure G-1 Alpine Springs County Water District



FOSTER MORRISON CONSULTING

COUNTY OF Placer

Data Source: Placer County GIS, Cal-Atlas, NVBLM; Map Date: 2021.

G.3.1. Overview and Background

The 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:

- Adequate, safe, dependable drinking water and fire flow to meet community needs;
- Safe, efficient and non-hazardous collection of wastewater and refuse;
- Adequate and dependable fire protection services;
- Protection, preservation and enhancement of the urban forest setting with consideration for the property owner's continued use and enjoyment; and
- Offer recreation services and facilities serving all age groups.

G.4 Hazard Identification

The Alpine Springs County Water District identified the hazards that affect the District and summarized their location, extent, frequency of occurrence, potential magnitude, and significance specific to District (see Table G-3).

Table G-3 Alpine Springs County Water District—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Agriculture Pests and Diseases	Limited	Unlikely	Negligible	Low	Medium
Avalanche	Significant	Likely	Limited	High	Medium
Climate Change	Extensive	Likely	Limited	Medium	Medium
Dam Failure	Limited	Unlikely	Negligible	Low	Medium
Drought & Water Shortage	Extensive	Likely	Limited	Medium	High
Earthquake	Extensive	Likely	Catastrophic	High	Low
Floods: 1%/0.2% annual chance	Limited	Occasional	Limited	Medium	Medium
Floods: Localized Stormwater	Limited	Occasional	Limited	Medium	Medium
Landslides, Mudslides, and Debris Flows	Limited	Occasional	Limited	Medium	Medium
Levee Failure	Limited	Unlikely	Negligible	Low	Medium
Pandemic	Limited	Occasional	Negligible	High	Medium
Seiche	Limited	Unlikely	Negligible	Low	Medium
Severe Weather: Extreme Heat	Limited	Unlikely	Negligible	Low	High
Severe Weather: Freeze and Snow	Extensive	Likely	Limited	Medium	Medium
Severe Weather: Heavy Rains and Storms	Extensive	Occasional	Catastrophic	High	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Likely	Limited	Medium	Low
Tree Mortality	Significant	Likely	Negligible	Medium	High
Wildfire	Extensive	Occasional	Catastrophic	High	High

Geographic Extent
Limited: Less than 10% of planning area
Significant: 10-50% of planning area
Extensive: 50-100% of planning area

Likelihood 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.

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

Significance
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

Climate Change Influence
Low: minimal potential impact
Medium: moderate potential impact
High: widespread potential impact

G.5 Hazard Profile and Vulnerability Assessment

The intent of this section is to profile the District's hazards and assess the District's vulnerability separate from that of the Placer County Planning Area as a whole, which has already been assessed in Section 4.3 Hazard Profiles and Vulnerability Assessment in the Base Plan. The hazard profiles in the Base Plan discuss overall impacts to the Placer County Planning Area and describes the hazard problem description, hazard location and extent, magnitude/severity, previous occurrences of hazard events and the likelihood of future occurrences. Hazard profile information specific to the District is included in this Annex. This vulnerability assessment analyzes the property and other assets at risk to hazards ranked of medium or high significance specific to the District. For more information about how hazards affect the County as a whole, see Chapter 4 Risk Assessment in the Base Plan.

G.5.1. Hazard Profiles

Each hazard vulnerability assessment in Section 0, includes a hazard profile/problem description as to how each medium or high significant hazard (as shown in Table G-3) affects the District and includes information on past hazard occurrences and the likelihood of future hazard occurrence. The intent of this section is to provide jurisdictional specific information on hazards and further describes how the hazards and risks differ across the Placer County Planning Area.

G.5.2. Vulnerability Assessment and Assets at Risk

This section identifies the District's total assets at risk, including values at risk, populations at risk, critical facilities and infrastructure, natural resources, and historic and cultural resources. Growth and development trends are also presented for the District. This data is not hazard specific, but is representative of total assets at risk within the District.

Assets at Risk and Critical Facilities

This section considers the Alpine Springs County Water District's assets at risk, with a focus on key District assets such as critical facilities, infrastructure, and other District assets and their values. With respect to District assets, the majority of these assets are considered critical facilities as defined for this Plan. Critical facilities are defined for this Plan as:

> ***Any facility, including without limitation, a structure, infrastructure, property, equipment or service, that if adversely affected during a hazard event may result in severe consequences to public health and safety or interrupt essential services and operations for the community at any time before, during and after the hazard event.***

This definition is further refined by separating out three classes of critical facilities:

> ***Class 1 facilities include those facilities that contribute to command, control, communications and computer capabilities associated with managing an incident from initial response through recovery.***

Class 2 facilities include those facilities that house Emergency Services capabilities.

Class 3 facilities are those facilities that enable key utilities and can be used as evacuation centers/shelters/mass prophylaxis sites, etc.

Additional information on the three classes of critical facilities is described further in Section 4.3.1 of the Base Plan.

Table G-4 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. Alpine Springs County Water District's physical assets, valued at over $7.1 million, consist of the buildings and infrastructure to support the District's operations.

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

Name of Asset	Facility Type	Replacement Value	Which Hazards Pose Risk
Horizontal Well 1	Water Supply	$100,000	wildfire, earthquake, landslide
Horizontal Well 2	Water Supply	$150,000	wildfire, earthquake, landslide
Horizontal Well 3	Water Supply	$150,000	earthquake, landslide wildfire
Horizontal Well 4	Water Supply	$150,000	wildfire
Vertical Well R-1	Water Supply	$550,000	earthquake, wildfire
Vertical Well R-2	Water Supply	$550,000	earthquake, wildfire
AME Well	Water Supply	$755,850	wildfire
Storage Tank 1	Water Storage Tank	$175,000	wildfire, earthquake
Storage Tank 2	Water Storage Tank	$175,000	wildfire, earthquake
Storage Tank 3	Water Storage Tank	$175,000	wildfire, earthquake
Storage Tank 5	Water Storage Tank	$175,000	wildfire, earthquake
Storage Tank 4 A	Water Storage Tank	$1,800,000	wildfire, earthquake
Office Building	Administrative Office	$500,000	wildfire, earthquake
Shop & Vehicle Storage Building	Utility, Shop & Vehicle Storage Building	$870,000	wildfire, earthquake
Fire House	Fire Station	$825,000	wildfire, earthquake
Standby Generator	Standby Generator	$55,000	wildfire, earthquake
Total		**$7,155,850**	

Source: Alpine Springs County Water District

Populations Served

Also potentially at risk should the District be affected by natural hazard events are the populations served by the District. ASCWD provides services to an estimated permanent population of approximately 500

residents. This includes four commercial centers, a 30-unit apartment complex, 462 single-family homes, and 130 condominiums. In addition to permanent residents, ASCWD serves a substantial number of seasonal and part-time residents, short-term rentals, and day visitors.

Natural Resources

Alpine Springs County Water District has a variety of natural resources of value to the District. These natural resources parallel that of Placer County as a whole. Information can be found in Section 4.3.1 of the Base Plan.

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 (Rama 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 (Aplidontia 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).

Historic and Cultural Resources

Alpine Springs County Water District has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallel that of Placer County as a whole. Information can be found in Section 4.3.1 of the Base Plan.

Growth and Development Trends

General growth in the District parallels that of the Placer County Planning Area as a whole. Information can be found in Section 4.3.1 of the Base Plan.

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 USFS owned lands. As such, additional growth is limited to the private lands within the District boundaries.

Development since 2016

In 2018 water storage tank 4 and tank 4A was replaced with a new 870,000 gallon tank 4. The District continues to have preventative and corrective maintenance on all facilities.

Future Development

The District has no control over future development in areas the District services. Future development in these areas parallels that of the Placer County Planning Area. Numerous developers are currently in the

planning process for multi single family home developments within ASCWD service area. More general information on growth and development in Placer County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Placer County Vulnerability and Assets at Risk of the Base Plan.

G.5.3. Vulnerability to Specific Hazards

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 in the Base Plan for more detailed information about these hazards and their impacts on the Placer County Planning Area). Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.3 of the Base Plan.

An estimate of the vulnerability of the District to each identified priority hazard, in addition to the estimate of likelihood 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.

Depending on the hazard and availability of data for analysis, this hazard specific vulnerability assessment also includes information on values at risk, critical facilities and infrastructure, populations at risk, and future development.

Avalanche

Likelihood of Future Occurrence–Likely
Vulnerability–High

Hazard Profile and Problem Description

According to the Sierra Avalanche Center, avalanches occur when loading of new snow increases stress at a rate faster than strength develops, and the slope fails. Avalanches are a rapid down-slope movement of snow, ice and debris triggered by ground shaking, sound, or human or animal movement. Avalanches consist of a starting zone where the ice or snow breaks loose, a track which is the grade or channel the debris slides down and a run-out zone where the snow is deposited.

Critical stresses develop more quickly on steeper slopes and where deposition of wind-transported snow is common. The vast majority of avalanches occur during and shortly after storms. This hazard generally affects a small number of people, such as snowboarders, skiers, and hikers who venture into backcountry areas during or after winter storms. Roads and highway closures, damaged structures, and destruction of forests are also a direct result of avalanches.

Location and Extent

The two primary factors impacting avalanche activity are weather and terrain. Large, frequent storms deposit snow on steep slopes to create avalanche hazards. Additional factors that contribute to slope stability are the amount of snow, rate of accumulation, moisture content, wind speed and direction and type of snow crystals. Topography also plays a vital role in avalanche dynamics. Slope angles between 30 to 45 degrees are optimal for avalanches. The risk of avalanches decreases on slope angles below 30 degrees. At 50 or more degrees they tend to produce sluff or loose snow avalanches that account for only a small percentage of avalanche deaths and property damage annually.

Areas prone to avalanche hazards include hard to access areas deep in the backcountry and those in the more developed higher elevations of the County in the Tahoe basin. Avalanche hazards exist in eastern Placer County where combinations of the above criteria occur. The District services Alpine Meadows, a large ski resort located on both private and USFS lands. According to the Placer County Emergency Operations Plan, areas of particular concern include the Alpine Meadows and Bear Creek area.

Past Occurrences

There have been no state or federal disasters in the County related to avalanche. However, the District has experienced notable avalanches.

- 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.
- On January 18, 2020, one man was killed and another man was seriously injured by an avalanche near the Subway ski run at Alpine Meadows.

Vulnerability to and Impacts from Avalanche

Avalanches occur when the weight of new snow increases stress faster than strength of the snowpack develops, causing the slope to fail. Avalanche conditions develop more quickly on steeper slopes (located in the eastern portions of the County) and where wind-blown snow is common. Avalanche impacts vary, but include risk to property, injury, or death. Avalanches generally affect a few snowboarders, skiers, and hikers who venture into backcountry areas during or after winter storms. Avalanches cause road closures, and can damage structures and forests.

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.

Assets at Risk

Facilities from Table G-4 at risk from this hazard, Horizontal Wells 1 through 4, and Storage tanks 1 through 5.

Climate Change

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Climate change adaptation is a key priority of the State of California. The 2018 State of California Multi-Hazard Mitigation Plan stated that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the state's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

Location and Extent

Climate change is a global phenomenon. It is expected to affect the whole of the District, Placer County, and State of California. There is no scale to measure the extent of climate change. Climate change exacerbates other hazards, such as drought, extreme heat, flooding, wildfire, and others. The speed of onset of climate change is very slow. The duration of climate change is not yet known, but is feared to be tens to hundreds of years.

Past Occurrences

Climate change has never been directly linked to any declared disasters. While the District noted that climate change is of concern, no specific impacts of climate change could be recalled. The District and HMPC members did, however, note that in Placer County, the strength of storms does seem to be increasing and the temperatures seem to be getting hotter.

Vulnerability to and Impacts from Climate Change

The California Adaptation Planning Guide (APG) prepared by California OES and CNRA was developed to provide guidance and support for local governments and regional collaboratives to address the unavoidable consequences of climate change. California's APG: Understanding Regional Characteristics has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. Placer County falls within the North Sierra Region characterized as a sparsely settled mountainous region where the region's economy is primarily tourism-based. The region is rich in natural resources, biodiversity, and is the source for the

majority of water used by the state. This information can be used to guide climate adaptation planning in the District and Placer County Planning Area.

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Sierra region in which the Placer County Planning Area is part of:

- Temperature increases
- Decreased precipitation
- Reduced snowpack
- Reduced tourism
- Ecosystem change
- Sensitive species stress
- Increased wildfire

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from climate change.

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

Drought is a complex issue involving many factors—it occurs when a normal amount of precipitation and snow is not available to satisfy an area's usual water-consuming activities. Drought can often be defined regionally based on its effects. Drought is different than many of the other natural hazards in that it is not a distinct event and usually has a slow onset. Drought can severely impact a region both physically and economically. Drought affects different sectors in different ways and with varying intensities. Adequate water is the most critical issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. As the population in the area continues to grow, so will the demand for water.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the County, as well as the whole of the District, is at risk. The US Drought Monitor categorizes drought conditions with the following scale:

- None
- D0 – Abnormally dry
- D1 – Moderate Drought
- D2 – Severe Drought
- D3 – Extreme drought
- D4 – Exceptional drought

Drought has a slow speed of onset and a variable duration. Drought can last for a short period of time, which does not usually affect water shortages and for longer periods. Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the District and the County are shown in Section 4.3.10 of the Base Plan.

Past Occurrences

There has been one state and one federal disaster declaration due to drought since 1950. This can be seen in Table G-5.

Table G-5 Placer County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	1	2014	1	1977

Source: Cal OES, FEMA

Since drought is a regional phenomenon, past occurrences of drought for the District are the same as those for the County and includes 5 multi-year droughts over an 85-year period. Details on past drought occurrences can be found in Section 4.3.10 of the Base Plan.

Vulnerability to and Impacts from Drought and Water Shortage

Based on historical information, the occurrence of drought in California, including the District, is cyclical, driven by weather patterns. Drought has occurred in the past and will occur in the future. Periods of actual drought with adverse impacts can vary in duration, and the period between droughts can be extended. Although an area may be under an extended dry period, determining when it becomes a drought is based on impacts to individual water users. Drought impacts are wide-reaching and may be economic, environmental, and/or societal. Tracking drought impacts can be difficult.

The most significant qualitative impacts associated with drought in the Placer County Planning Area are those related to water intensive activities such as agriculture, wildfire protection, municipal usage, commerce, tourism, recreation, and wildlife preservation. Mandatory conservation measures are typically implemented during extended droughts. Drought conditions can also cause soil to compact and not absorb water well, potentially making an area more susceptible to flooding. With a reduction in water, water supply issues based on water rights becomes more evident. Climate change may create additional impacts to drought and water shortage in the County and the District.

During periods of drought, vegetation can dry out which increases fire risk. Drought that occurs during periods of extreme heat and high winds can cause Public Safety Power Shutoff (PSPS) events to be declared in the County. More information on power shortage and failure can be found in the Severe Weather: Extreme Heat Section below, as well as in Section 4.3.2 of the Base Plan.

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 wells 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.

Assets at Risk

No District assets (from Table G-4) are at risk from this hazard.

Earthquake

Likelihood of Future Occurrence–Likely
Vulnerability–High

Hazard Profile and Problem Description

An earthquake is caused by a sudden slip on a fault. Stresses in the earth's outer layer push the sides of the fault together. Stress builds up, and the rocks slip suddenly, releasing energy in waves that travel through the earth's crust and cause the shaking that is felt during an earthquake. Earthquakes can cause structural damage, injury, and loss of life, as well as damage to infrastructure networks, such as water, power, gas, communication, and transportation. Earthquakes may also cause collateral emergencies including dam and levee failures, seiches, hazmat incidents, fires, avalanches, and landslides. The degree of damage depends on many interrelated factors. Among these are: the magnitude, focal depth, distance from the causative fault, source mechanism, duration of shaking, high rock accelerations, type of surface deposits or bedrock, degree of consolidation of surface deposits, presence of high groundwater, topography, and the design, type, and quality of building construction.

Location and Extent

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.3.11 of the Base Plan. Placer County itself is traversed by a series of northwest-trending faults, called the Foothill Fault Zone, that are related to the Sierra Nevada uplift. This was the source of Oroville's 1975 earthquake (and an earlier event in the 1940s). Earthquakes on nearby fault segments in the Foothill Fault Zone could be the source of ground shaking in the Placer County Planning Area. Although portions of western and eastern Placer County are located in a seismically active region, no known faults actually go through any of the cities or towns.

Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. Seismic shaking is typically the greatest cause of losses to structures during earthquakes. 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. The shaking potential is greatest in the eastern portion of the County, including the ASCWD service area.

Past Occurrences

There have be no past federal or state disaster declarations in Placer County from this hazard. The District noted no past occurrences of earthquakes or that affected the District in any meaningful way.

Vulnerability to and Impacts from Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquake as a result of the periodic release of tectonic stresses. Placer County lies in the center of the North American and Pacific tectonic plate activity. There have been earthquakes as a result of this activity in the historic past, and there will continue to be earthquakes in the future of the California north coastal mountain region.

Fault ruptures itself contributes very little to damage unless the structure or system element crosses the active fault; however, liquefaction can occur further from the source of the earthquake. In general, newer construction is more earthquake resistant than older construction due to enforcement of improved building codes. Manufactured buildings can be very susceptible to damage because their foundation systems are rarely braced for earthquake motions. Locally generated earthquake motions and associated liquefaction, even from very moderate events, tend to be more damaging to smaller buildings, especially those constructed of unreinforced masonry (URM) and soft story buildings. The District noted that there are no URM or soft story buildings in the District.

The Uniform Building Code (UBC) identifies four seismic zones in the United States. The zones are numbered one through four, with Zone 4 representing the highest level of seismic hazard. The UBC establishes more stringent construction standards for areas within Zones 3 and 4. All of California lies within either Zone 3 or Zone 4. The Alpine Springs County Water District is within the less hazardous Zone 3.

Impacts from earthquake in the District will vary depending on the fault that the earthquake occurs on, the depth of the earthquake strike, and the intensity of shaking. Large events could cause damages to infrastructure, critical facilities, residential and commercial properties, and possible injuries or loss of life. 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 vulnerable to damage from severe ground shaking.

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from earthquake.

Flood: 1%/0.2% Annual Chance

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

This hazard analyzes the FEMA DFIRM 1% and 0.2% annual chance floods. These tend to be the larger floods that can occur in the County or in the District, and have caused damages in the past. Flooding is a significant problem in Placer County and the District. Historically, the District has been at risk to flooding primarily during the winter and spring months when river systems in the County swell with heavy rainfall and snowmelt runoff. Normally, storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage.

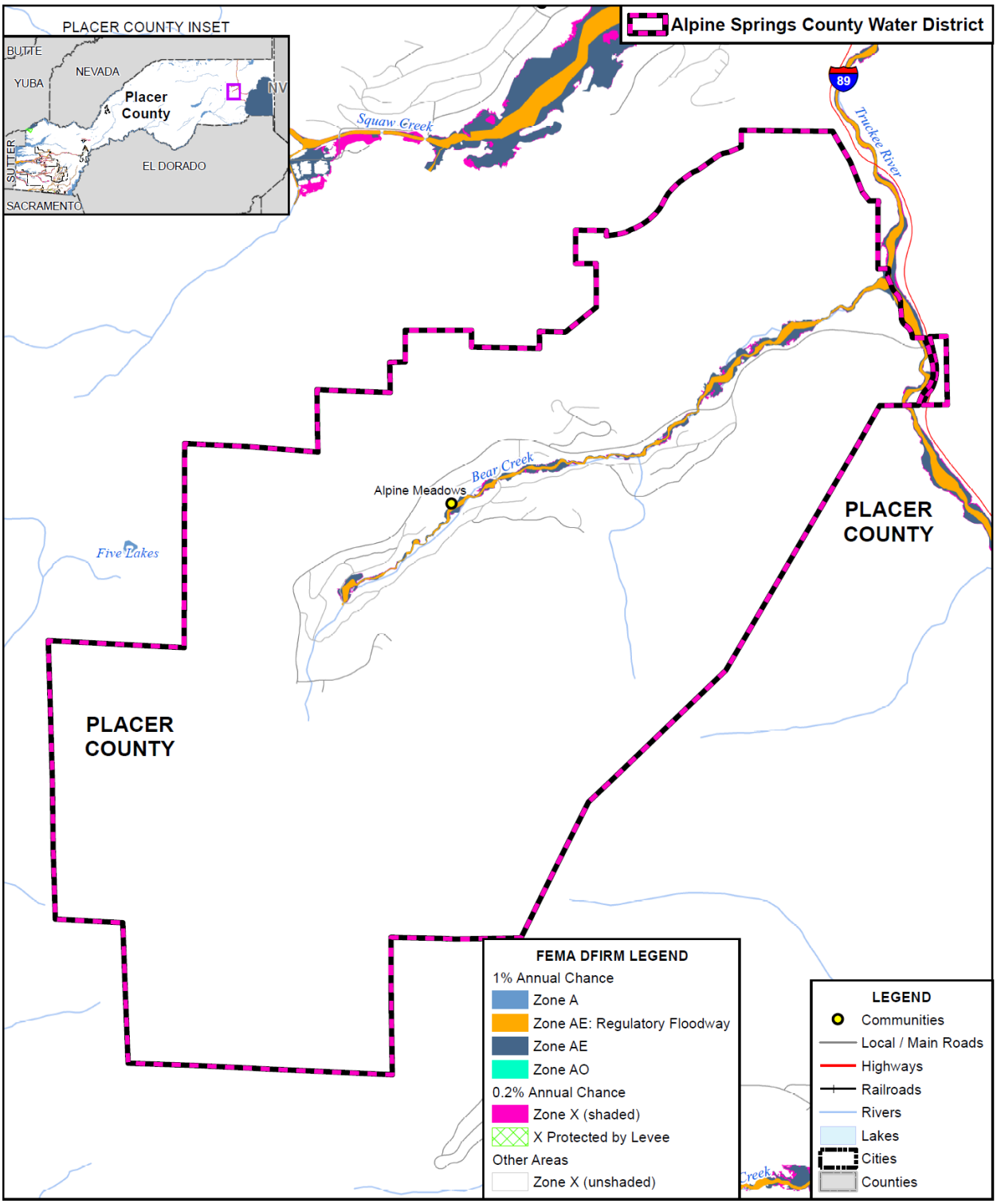
Bear Creek is the main drainage channel which runs the length of Alpine Meadows. The channel is fairly well defined and would be subject to flooding in selected area during a 1% or 0.2% annual chance flood event. The creek does have several crossings of local streets which are privately maintained. Based upon observations of these crossing it would appear that one or more of these creek crossing would be subject to wash out during a 1% or 0.2% annual chance flood event. The District is not aware of any specific studies which would confirm that flooding would or would not occur.

As previously described in Section 4.3.12 of the Base Plan, the Placer County Planning Area and the Alpine Springs County Water District have been subject to historical flooding.

Location and Extent

The Alpine Springs County Water District has areas located in the 1% and 0.2% annual chance floodplain. This is seen in Figure G-2.

Figure G-2 Alpine Springs County Water District – FEMA DFIRM Flood Zones



Data Source: FEMA DFIRM 11/2/2018, Placer County GIS, Cal-Atlas, NVBLM; Map Date: 2021.

Table G-6 details the DFIRM mapped flood zones within the 1% annual chance flood zone as well as other flood zones located within the District.

Table G-6 Alpine Springs County Water District– DFIRM Flood Hazard Zones

Flood Zone	Description	Flood Zone Present in the District
A	Areas subject to inundation by the 1% annual-chance flood event generally determined using approximate methodologies. Because detailed hydraulic analyses have not been performed, no Base Flood Elevations (BFEs) or flood depths are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.	
AE	Areas subject to inundation by the 1% annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply.	X
AE – Regulatory Floodway	Areas subject to inundation by the 1% annual-chance flood event determined by detailed methods. Base Flood Elevations (BFEs) are shown. Mandatory flood insurance purchase requirements and floodplain management standards apply. Different from AE in that it adds the water course and adjacent lands that must be reserved in order to discharge the base flood without increasing the water surface elevation by more than one foot.	X
AH	An area inundated by 1% annual chance flooding (usually an area of ponding), for which BFEs have been determined; flood depths range from 1 to 3 feet	
AO	Areas subject to inundation by 100-year shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet	
Shaded X	500-year flood the areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood	X
X Protected by Levee	An area determined to be outside the 500-year flood and protected by levee from 100-year flood	
X	Areas outside of known floodplains.	X

Source: FEMA

Additionally, flood extents can generally be measured in volume, velocity, and depths of flooding. Expected flood depths in the District vary, depending on the nature and extent of a flood event; specific depths are unknown. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Flooding in the District tends to have a shorter speed of onset, due to the amount of water that flows through the District.

Past Occurrences

A list of state and federal disaster declarations for Placer County from flooding is shown on Table G-7. These events also likely affected the District to some degree.

Table G-7 Placer County – State and Federal Disaster Declarations from Flood 1950-2020

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	16	1950, 1955, 1958 (twice), 1962, 1963, 1969, 1973, 1980, 1983, 1986, 1995 (twice), 1997, 2008, 2017	13	1955, 1958, 1962, 1964, 1969, 1983, 1986, 1995 (twice), 1997, 2006 (twice), 2017

Source: Cal OES, FEMA

Vulnerability to and Impacts from Flood

Floods have been a part of the District's historical past and will continue to be so in the future. During winter months, long periods of precipitation and the timing of that precipitation are critical in determining the threat of flood, and these characteristics further dictate the potential for widespread structural and property damages. Predominantly, the effects of flooding are generally confined to areas near the waterways of the County. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat. This threatens structures in the floodplain. Structures can also be damaged from trees falling as a result of water-saturated soils. Electrical power outages happen, and the interruption of power causes major problems. Loss of power is usually a precursor to closure of governmental offices and community businesses. Roads can be damaged and closed, causing safety and evacuation issues. People may be swept away in floodwaters, causing injuries or deaths.

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Floods can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. Floods can be extremely dangerous, and even six inches of moving water can knock over a person given a strong current. During a flood, people can also suffer heart attacks or electrocution due to electrical equipment short outs. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Ground saturation can result in instability, collapse, or other damage. Objects can also be buried or destroyed through sediment deposition. Floodwaters can also break utility lines and interrupt services. Standing water can cause damage to crops, roads, foundations, and electrical circuits. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

Assets at Risk

The District noted that the AME Well, Office Building, Shop & Vehicle Storage building from Table G-4 are at risk from this hazard.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

Flooding occurs in areas other than the FEMA mapped 1% and 0.2% annual chance floodplains. Flooding may be from drainages not studied by FEMA, lack of or inadequate drainage infrastructure, or inadequate maintenance. Localized, stormwater flooding occurs throughout the County during the rainy season from November through April. Prolonged heavy rainfall contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

ASCWD is subject to localized flooding throughout the District. Flood extents are usually measured in areas affected, velocity of flooding, and depths of flooding. Expected flood depths in the District vary by location. Flood durations in the District tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Localized flooding in the District tends to have a shorter speed of onset, especially when antecedent rainfall has soaked the ground and reduced its capacity to absorb additional moisture.

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.

Past Occurrences

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.

Vulnerability to and Impacts from Localized Flooding

Historically, much of the growth in the District and County has occurred adjacent to streams, resulting in significant damages to property, and losses from disruption of community activities when the streams overflow. Additional development in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase in stormwater runoff.

Primary concerns associated with stormwater flooding include life safety issues, and impacts to property and to infrastructure that provides a means of ingress and egress throughout the community. Ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break

utility lines and interrupt services. Standing water can cause damage to crops, roads, and foundations. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

Assets at Risk

The District noted that all its facilities from Table G-4 are at limited risk from localized flooding.

Landslide, Mudslide, Debris Flows

Likelihood of Future Occurrence–Occasional
Vulnerability–Medium

Hazard Profile and Problem Description

According to the California Geological Survey (CGS), landslides refer to a wide variety of processes that result in the perceptible downward and outward movement of soil, rock, and vegetation under gravitational influence. Common names for landslide types include slump, rockslide, debris slide, lateral spreading, debris avalanche, earth flow, and soil creep. Landslides may be triggered by both natural and human-induced changes in the environment that result in slope instability.

The susceptibility of an area to landslides depends on many variables including steepness of slope, type of slope material, structure and physical properties of materials, water content, amount of vegetation, and proximity to areas undergoing rapid erosion or changes caused by human activities. These activities include mining, construction, and changes to surface drainage areas. Landslide events can be determined by the composition of materials and the speed of movement. A rockfall is dry and fast while a debris flow is wet and fast. Regardless of the speed of the slide, the materials within the slide, or the amount of water present in the movement, landslides are a serious natural hazard.

Debris flows, can also occur in some areas of the County and the District. These debris flows generally occur in the immediate vicinity of existing drainage swales or steep ravines. Debris flows occur when near surface soil in or near steeply sloping drainage swales becomes saturated during unusually heavy precipitation and begins to flow downslope at a rapid rate. Debris flows are also common during the rainy season in post fire areas.

Location and Extent

Landslides, mudslides, and debris flows can affect certain areas of the District. The CGS has estimated that the risk varies across the District and has created maps showing risk variance. This risk variance falls into multiple categories. These are discussed in Section 4.3.14 of the Base Plan. According to the District Planning Team, risk varies within the District range from low to high. The speed of onset of landslide is often short, especially in post-wildfire burn scar areas, but it can also take years for a slope to fail. Landslide duration is usually short, though digging out and repairing landslide areas can take some time.

Past Occurrences

There have been no federal or state disaster declarations in the County from landslide. 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.

Vulnerability to and Impacts from Landslide

Although landslides are primarily associated with slopes greater than 15 percent, they can also occur in relatively flat areas and as cut-and-fill failures, river bluff failures, lateral spreading landslides, collapse of wine-waste piles, failures associated with quarries, and open-pit mines. Landslides may be triggered by both natural- and human-caused activity.

Impacts in the District may be to structures, infrastructure, and to life safety. Impacts from landslide, mudslides and debris flow in the District include interruption of service and infrastructure damage. To date the district has not had any problems with landsides affecting its infrastructure.

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from this hazard.

Pandemic

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

According to the World Health Organization (WHO), a disease epidemic occurs when there are more cases of that disease than normal. A pandemic is a worldwide epidemic of a disease. A pandemic may occur when a new virus appears against which the human population has no immunity.

A pandemic occurs when a new virus emerges for which people have little or no immunity, and for which there is no vaccine. This disease spreads easily person-to-person, causes serious illness, and can sweep across the country and around the world in a very short time. The U.S. Centers for Disease Control (CDC) and Prevention has been working closely with other countries and the WHO to strengthen systems to detect outbreaks of that might cause a pandemic and to assist with pandemic planning and preparation. An especially severe pandemic could lead to high levels of illness, death, social disruption, and economic loss.

Location and Extent

During a pandemic, the whole of the District, County, and surrounding region is at risk, as pandemic is a regional, national, and international event. The speed of onset of pandemic is usually short, while the

duration is variable, but can last for more than a year as shown in the 1918/1919 Spanish Flu. There is no scientific scale to measure the magnitude of pandemic. Pandemics are usually measured in numbers affected by the pandemic, and by number who die from complications from the pandemic.

Past Occurrences

There has been one state and federal disaster declaration due to pandemic, as shown in Table G-8.

Table G-8 Placer County – State and Federal Pandemic Disaster Declarations 1950-2020

Disaster Type	Federal Declarations		State Declarations	
	Count	Years	Count	Years
Pandemic	1	2020	1	2020

Source: Cal OES, FEMA

The 20th century saw three outbreaks of pandemic flu.

- The 1918-1919 Influenza Pandemic (H1N1)
- The February 1957-1958 Influenza Pandemic (H2N2)
- The 1968 Influenza Pandemic (H3N2)

To date, the 21st century has seen two acknowledged pandemics.

- 2009 Swine Flu (H1N1)
- 2019/2020 COVID 19

In response to the initial outbreak of COVID-19 and subsequent shelter in place orders, District management quickly developed protocols to avoid the spread of disease. Due to the essential nature of the work the District performs, Staff were required to continue to report for duty in person.

Staff adapted guidelines to prevent the spread of COVID-19 and protect the health and safety of employees. All in office staff continued to adhere to cleaning, physical distancing and hand-washing guidelines.

District Board meetings were adapted to a virtual environment via Zoom and the office was and remains closed to the public.

The evolving nature of the pandemic demanded flexibility and adaptability of staff. Pandemic-related policies have been implemented and updated on a continual basis since the onset of COVID-19 and in accordance with federal, state and local laws. This required dedication and attention to several authorities for information to properly communicate, inform and educate staff.

The rate of infection within the District was negligible and there have been no staff to staff transmissions as of April 2021. The fiscal impacts on the District have been insignificant. The District did not reduce staff or pay throughout the pandemic.

Vulnerability to and Impacts from Pandemic

Pandemics have and will continue to have impacts on human health in the region. A pandemic occurs when a new virus emerges for which there is little or no immunity in the human population; the virus causes serious illness and spreads easily from person-to-person worldwide. There are several strategies that public health officials can use to combat a pandemic. Constant surveillance regarding the current pandemic, use of infection control techniques, and administration of vaccines once they become available. Citizens can help prevent the spread of a pandemic by staying home, or "self-quarantining," if they suspect they are infected. Pandemic does not affect the buildings, critical facilities, and infrastructure in the District. Pandemic can have varying levels of impact to the citizens of the District and greater County, depending on the nature of the pandemic.

Impacts could range from school and business closings to the interruption of basic services such as public transportation, health care, and the delivery of food and essential medicines. Hospitalizations and deaths can occur, especially to the elderly or those with pre-existing underlying conditions. As seen with Covid-19, multiple businesses were forced to close temporarily (some permanently) and unemployment rose significantly. Supply chains for food and essentials can be interrupted. Prisons may need to release prisoners to prevent significant outbreaks.

Assets at Risk

Pandemics do not affect District facilities, but can affect District personnel who operate District facilities.

Severe Weather: Freeze and Snow

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

According to the NWS and the WRCC, winter snow storms can include heavy snow, ice, and blizzard conditions. Heavy snow can immobilize a region, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse roofs and knock down trees and power lines. In less populated areas, homes and residents may be isolated for days. The cost of snow removal, damage repair, and business losses can have a tremendous impact on cities and towns.

Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days until the damage can be repaired. Power outages can have a significant impact on communities, especially critical facilities such as public utilities. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

Some winter storms are accompanied by strong winds, creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chills. Strong winds accompanying these intense storms and cold fronts can knock down trees, utility poles, and power lines. Blowing snow can reduce visibility to only a few feet in areas where there are no trees or buildings. Serious vehicle accidents with injuries and deaths can result.

Location and Extent

Freeze and snow are regional issues, meaning the entire District is at risk to cold weather and freeze events. While there is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of freeze, the WRCC reports that in a typical year, minimum temperatures fall below 32°F on 209.0 days with 0.4 days falling below 0°F in eastern Placer County. Snowfall is measured in depths, and the WRCC reports that average snowfall on the eastern side of the County is 190.7 inches. Freeze and snow has a slow onset and can be generally be predicted in advance for the County. Freeze events can last for hours (in a cold overnight), or for days to weeks at a time. Snow event can last for hours or days, and the snow stays all winter in the eastern portion of the County, often with significant snow depths.

Past Occurrences

There has been no federal and one state disaster declarations in the County for freeze and snow, as shown on Table G-9.

Table G-9 Placer County – State and Federal Disaster Declarations from Freeze and Snow 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Freeze	1	1972	0	–

Source: Cal OES, FEMA

The District noted that cold and freeze is a regional phenomenon; events that affected the County also affected the District. Those past occurrences were shown in the Base Plan in Section 4.3.3.

The District reported one 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.

Vulnerability to and Impacts from Severe Weather: Freeze and Snow

The District experiences temperatures below 32 degrees during the winter months. Freeze can cause injury or loss of life to residents of the District. While it is rare for buildings to be affected directly by freeze, damages to pipes that feed building can be damaged during periods of extreme cold. Freeze and snow can occasionally be accompanied by high winds, which can cause downed trees and power lines, power outages, accidents, and road closures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets to impacts of severe winter weather in the County. 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.

Effects to the District from cold and freeze are limited as infrastructure and facilities were constructed with severe mountain environment in mind. Sustained winter power outages of several days have been experienced in the past due to storm.

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from this hazard.

Severe Weather: Heavy Rains and Storms (Hail, Lightning)

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

Storms in the District occur annually and are generally characterized by heavy rain often accompanied by strong winds and sometimes lightning and hail. Approximately 10 percent of the thunderstorms that occur each year in the United States are classified as severe. A thunderstorm is classified as severe when it contains one or more of the following phenomena: hail that is three-quarters of an inch or greater, winds in excess of 50 knots (57.5 mph), or a tornado. Heavy precipitation, as snow (and sometimes rain), in the District falls mainly in the fall and spring months.

Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the District. All portions of the District are at risk to heavy rains. Most of the severe precipitation (rain or snow) occurs during the fall, winter, and spring months, within the eastern side of the County. There is no scale by which heavy rains and severe storms are measured. Magnitude of storms is measured often in rainfall and damages. The speed of onset of heavy rains can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of severe storms in California, Placer County, and the District can range from minutes to hours to days. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

Past Occurrences

There have been past disaster declarations from heavy rains and storms, which were discussed in Past Occurrences of the flood section above. According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the District. This is the cause of many of the federal disaster declarations related to flooding. The District did not identify any past events resulting in significant damage.

Vulnerability to and Impacts from Heavy Rain and Storms

While precipitation as snow is predominant during the winter months, heavy rain and severe storms are among the most frequent type of severe weather occurrences in the District. These events can cause localized flooding. Elongated events, or events that occur during times where the ground is already

saturated can cause 1% and 0.2% annual chance flooding. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the District.

Actual damage associated with the effects of severe weather include impacts to property, critical facilities (such as utilities), and life safety. Heavy rains and storms often result in localized flooding creating significant issues. Roads can become impassable and ground saturation can result in instability, collapse, or other damage to trees, structures, roadways and other critical infrastructure. Floodwaters and downed trees can break utilities and interrupt services.

During periods of heavy rains and storms, power outages can also occur. These power outages can affect pumping stations and lift stations that help alleviate flooding. More information on power shortage and failure can be found in the Severe Weather: Extreme Heat Section above, as well as in Section 4.3.2 of the Base Plan.

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from this hazard.

Severe Weather: High Winds and Tornadoes

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

High winds, as defined by the NWS glossary, are sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. High winds can cause significant property and crop damage, threaten public safety, and have adverse economic impacts from business closures and power loss. High winds can also contribute to PSPS events.

Tornadoes are rotating columns of air marked by a funnel-shaped downward extension of a cumulonimbus cloud whirling at destructive speeds of up to 300 mph, usually accompanying a thunderstorm. Tornadoes form when cool, dry air sits on top of warm, moist air. Tornadoes are the most powerful storms that exist. Tornadoes, though rare, are another severe weather hazard that can affect areas of the Placer County Planning Area, primarily during the rainy season in the late fall, winter, and early spring.

Location and Extent

The entire District is subject to significant, non-tornadic (straight-line), winds. Each area of the County is at risk to high winds. Magnitude of winds is measured often in speed and damages. These events are often part of storm events, but can occur outside of storms. The speed of onset of winds can be short, but accurate weather prediction mechanisms often let the public know of upcoming events. Duration of winds in California is often short, ranging from minutes to hours. The Beaufort scale is an empirical 12 category scale that relates wind speed to observed conditions at sea or on land. Its full name is the Beaufort Wind Force Scale. The Beaufort Scale was shown in Section 4.3.5 of the Base Plan.

Tornadoes, while rare, can occur at any location in the County and District. Prior to February 1, 2007, tornado intensity was measured by the Fujita (F) scale. This scale was revised and is now the Enhanced Fujita scale. Both scales are sets of wind estimates (not measurements) based on damage. The new scale (EF) provides more damage indicators (28) and associated degrees of damage, allowing for more detailed analysis and better correlation between damage and wind speed. It is also more precise because it considers the materials affected and the construction of structures damaged by a tornado. The F Scale and EF Scale are shown in Section 4.3.5 of the Base Plan.

Past Occurrences

There has been no federal or state disaster declarations in the County for winds and tornadoes. The District did not identify any past events resulting in significant damage

Vulnerability to and Impacts from Severe Weather: Wind and Tornado

High winds are common occurrences in the District throughout the entire year. Straight line winds are primarily a public safety and economic concern. Windstorm can cause damage to structures and power lines which in turn can create hazardous conditions for people. Debris flying from high wind events can shatter windows in structures and vehicles and can harm people that are not adequately sheltered. High winds can impact critical facilities and infrastructure and can lead to power outages. Wind can also drive wildfire flames, spreading wildfires quickly During periods of high winds and dry vegetation, wildfire risk increases. High winds that occur during periods of extreme heat can cause PSPS events to be declared in the County. More information on power shortage and failure can be found in the Severe Weather: Extreme Heat Section above, as well as in Section 4.3.2 of the Base Plan.

Impacts from high winds in the District will vary. Future losses from straight line winds include:

- Downed trees
- Power line impacts and economic losses from power outages
- Increased PSPS events
- Occasional building damage, primarily to roofs

Assets at Risk

The District noted that all its facilities from Table G-4 are at risk from this hazard.

Tree Mortality

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile and Problem Description

One of the many vulnerabilities of drought in Placer County is the increased risk of widespread tree mortality events that pose hazards to people, homes, and community infrastructure, create a regional economic burden to mitigate, and contribute to future fuel loads in forests surrounding communities. During extended drought, trees become more vulnerable and tree mortality is driven by a build-up in

endemic bark beetle populations and exacerbated by latent populations of a suite of native insects and disease. Non-native forest pests (insects and/or pathogens) can also contribute to tree mortality events.

Location and Extent

Onset of tree mortality events can be relatively fast; however conditions – such as drought and high stand densities – that lead to tree mortality accumulate slowly over time. Duration of tree mortality is lengthy, as once the tree dies, it remains in place until removed by human activity, wildfire, or breakdown of the wood by nature. CAL FIRE representatives in the County noted that Placer County is still in the infestation cycle in most of the WUI and will be until drought cycle ends for several years. It is a high to very high likelihood to impact the County of Placer for a few more years. Many areas in Placer County have seen increases in tree mortality. The County has mapped these areas, and that map was shown in Section 4.3.18 of the Base Plan. Using a color legend, the map provided by CAL FIRE shows a scale of:

- Deep burgundy depicting areas with more than 40 dead trees per acre
- Red depicting 15 - 40 dead trees per acre
- Orange depicting 5 -15 dead trees per acre
- Yellow depicting 5 or less dead trees per acre

In the past decade, mortality has increased in the eastern portion of Placer County. During the 2012-2018 drought, the state of California Tree Mortality Task force designated multiple Tier 1 and Tier 2 High Hazard Zones where tree morality posed an elevated risk to human health, properties, and resource values. A number of Placer County areas were designated during this event and the majority of Placer County watersheds were designated as Tier 2 high hazard zones because of the significant levels of tree mortality, along with numerous Tier 1 High hazard "hot spots". A map of these areas was shown in in Section 4.3.18 of the Base Plan.

Past Occurrences

There have been no state or federal disasters in the County related directly to tree mortality, though it has most likely contributed to the intensity of past wildfires in the County. Those events are shown in the Past Occurrences section of Wildfire below. In 2015, then-Governor Edmund G. Brown Jr. proclaimed a state of emergency due to the extreme hazard of the dead and dying trees. Following the proclamation, 10 counties were determined to be most affected, which included Placer County. Placer County proclaimed a local emergency due to tree mortality conditions on Dec. 8, 2015.

No events of past tree mortality have affected the District.

Vulnerability to and Impacts from Tree Mortality

Placer County is unique in that many residential and business areas of the community are in the wildland urban interface/intermix with the forest. Trees in these interface/intermix areas are particularly vulnerable to insect and/or drought driven mortality because of the additional stressors that urban environments impose on trees (i.e. soil compaction, altered hydrology, physical damage, heat islands etc.). This exacerbates the occurrence of tree mortality within the populated settings of the County.

Dead trees are a hazard to the general public and forest visitors, but the risk of injury, death, property damage or infrastructure damages varies depending how the hazard interacts with potential targets. Dead trees within the wildland urban intermix or wildland urban interface or urban areas therefore pose a greater risk to due to their proximity to residents, businesses, and road, power, and communication infrastructure.

Dead trees may fall or deteriorate in their entirety or in part – either mechanism has the potential for injury, death, or inflicting severe damage to targets. As the time since tree mortality increases, so does the deterioration of wood and the potential for tree failure.

Assets at Risk

The District noted that none of its facilities from Table G-4 are at risk from this hazard.

Wildfire

Likelihood of Future Occurrence–Occasional
Vulnerability–High

Hazard Profile and Problem Description

Wildland fire and the risk of a conflagration is an ongoing concern for the Alpine Springs County Water District. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of the ecosystem. Wildland fires affect grass, forest, and brushlands, as well as any structures located within them. Where there is human access to wildland areas the risk of fire increases due to a greater chance for human carelessness and historical fire management practices. Historically, the fire season extends from early spring through late fall of each year during the hotter, dryer months; however, in recent years, the risk of wildfire has become a year around concern. Fire conditions arise from a combination of high temperatures, low moisture content in the air and fuel, accumulation of vegetation, and high winds. While wildfire risk has predominantly been associated with more remote forested areas and wildland urban interface (WUI) areas, significant wildfires can also occur in more populated, urban areas.

According to the Community Wildfire Protection Plan (CWPP) for the Alpine Meadows area, lightning is the most common ignition source. Many lightning strikes are accompanied by rain so ignitions do not always expand to wildfires. Dry lightning occurs annually in the District and is a significant concern for ignition. Human ignitions are also a significant a 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.

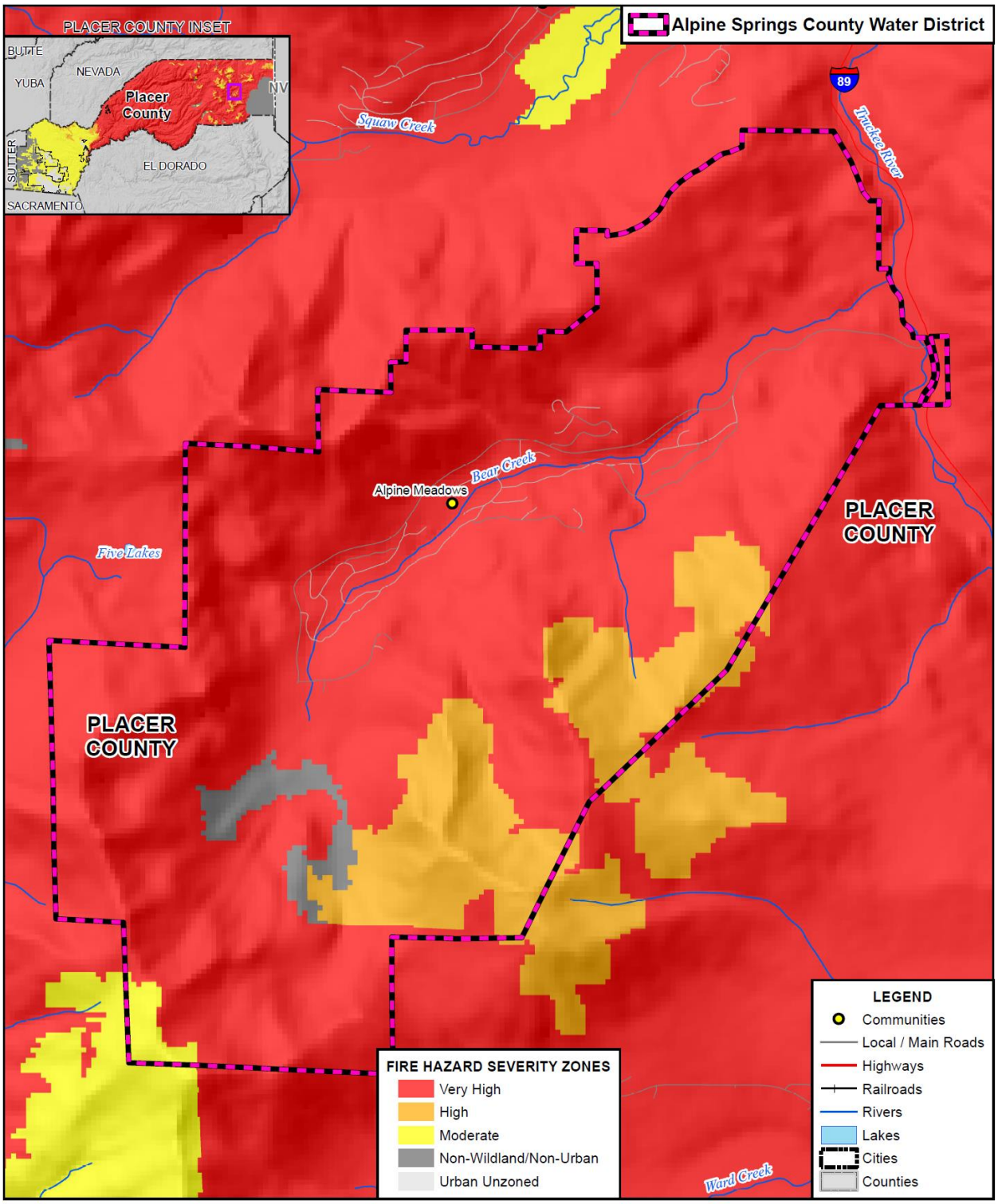
Once an ignition expands into a wildfire, weather and topography usually dictate how devastating the fire will be. According to the CWPP, the high elevation of Alpine Meadows allows for lower temperatures and better moisture recovery during the night. Southwest winds do blow down the canyon but are not 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 relative to other areas in the Tahoe Basin 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, destructive fires in recorded time.

Location and Extent

Wildfire can affect all areas of the District. CAL FIRE has estimated that the risk varies across the District and has created maps showing risk variance. Following the methodology described in Section 4.3.19 of the Base Plan, wildfire maps for the Alpine Springs County Water District were created. Figure G-3 shows the CAL FIRE FHSZ in the District. As shown on the maps, fire hazard severity zones within the District range from Moderate to Very High.

Figure G-3 Alpine Springs County Water District – Fire Hazard Severity Zones



FOSTER MORRISON CONSULTING

0 0.65 1.3 Miles

COUNTY OF Placer

Data Source: Cal-Fire (Draft 09/2007 - c31fhszl06_1, Adopted 11/2007 - fhszs06_3_31, Recommended 12/2008 - c31fhszl06_3), Placer County GIS, Cal-Atlas, NVBLM; Map Date: 2021.

Wildfires tend to be measured in structure damages, injuries, and loss of life as well as on acres burned. Fires can have a quick speed of onset, especially during periods of drought or during hot dry summer months. Fires can burn for a short period of time, or may have durations lasting for a week or more.

Past Occurrences

There has been five state and six federal disaster declarations for Placer County from fire. These can be seen in Table G-10.

Table G-10 Placer County – State and Federal Disaster Declarations Summary 1950-2020

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Fire	5	1961, 1965, 1973, 1987, 2010	6	2002, 2004, 2008, 2009, 2014 (twice)

Source: Cal OES, FEMA

None of the fire's listed above created a major impact nor damages to the District and neighboring communities.

Vulnerability to and Impacts from Wildfire

Risk and vulnerability to the Placer County Planning Area and the District from wildfire is of significant concern, with some areas of the Planning Area being at greater risk than others as described further in this section. High fuel loads in the Planning Area, combined with a large built environment and population, create the potential for both natural and human-caused fires that can result in loss of life and property. These factors, combined with natural weather conditions common to the area, including periods of drought, high temperatures, low relative humidity, and periodic winds, can result in frequent and potentially catastrophic fires. During the nearly year around fire season, the dry vegetation and hot and sometimes windy weather results in an increase in the number of ignitions. Any fire, once ignited, has the potential to quickly become a large, out-of-control fire. As development continues throughout the County and the District, especially in these interface areas, the risk and vulnerability to wildfires will likely increase.

Potential impacts from wildfire include loss of life and injuries; damage to structures and other improvements, natural and cultural resources, croplands, and loss of recreational opportunities. Wildfires can cause short-term and long-term disruption to the District. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the District by changing runoff patterns, increasing sedimentation, reducing natural and reservoir water storage capacity, and degrading water quality. Fires can also affect air quality in the District; smoke and air pollution from wildfires can be a severe health hazard.

Although the physical damages and casualties arising from large fires may be severe, it is important to recognize that they also cause significant economic impacts by resulting in a loss of function of buildings and infrastructure. Economic impacts of loss of transportation and utility services may include traffic delays/detours from road and bridge closures and loss of electric power, potable water, and wastewater services. Schools and businesses can be forced to close for extended periods of time. Recently, the threat

of wildfire, combined with the potential for high winds, heat, and low humidity, has caused PG&E to initiate PSPSs which can also significantly impact a community through loss of services, business closures, and other impacts associated with loss of power for an extended period. More information on power shortage and failure can be found in Section 4.3.2 of the Base Plan. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

The Alpine Meadows 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.

Assets at Risk

The District noted that all of its facilities from Table G-4 are at risk from this hazard.

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 five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation education, outreach, and partnerships, and other mitigation efforts.

G.6.1. Regulatory Mitigation Capabilities

Table G-11 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 Alpine Springs County Water District.

Table G-11 Alpine Springs County Water District 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/General 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?		
The District is seeking to add additional communication resources to agencies that relay on outside resources.		

Source: Alpine Springs County Water District

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

Table G-12 identifies the District department(s) responsible for activities related to mitigation and loss prevention in the District.

Table G-12 Alpine Springs County 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 annul 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		
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?		
Programs set up specifically for small low staff districts will be sought to increase District capabilities.		

Source: Alpine Springs County Water District

G.6.3. Fiscal Mitigation Capabilities

Table G-13 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table G-13 Alpine Springs County 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	Capital improvement projects are typically projects that replace existing assets. Funding for mitigation projects is at the discretion of the Board of Directors.
Authority to levy taxes for specific purposes	No	
Fees for water, sewer, gas, or electric services	Yes	District enterprise funds include water, sewer, and solid waste. The District is currently researching the potential to allocate a portion of these funds to fuels reduction.
Impact fees for new development	Yes	The fire department assesses mitigation fees for new development.
Storm water utility fee	No	
Incur debt through general obligation bonds and/or special tax bonds	No	
Incur debt through private activities	No	
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?		
Improvements to streamline the application process to receive funding from additional sources for mitigation will be sought.		

Source: Alpine Springs County Water District

G.6.4. Mitigation Education, Outreach, and Partnerships

Table G-14 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.

Table G-14 Alpine Springs County 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.	No	
Ongoing public education or information program (e.g., responsible water use, fire safety, household preparedness, environmental education)	Yes	District Newsletter - articles highlight fire safety, water conservation, and information important to the community

Program/Organization	Yes/No	Describe program/organization and how relates to disaster resilience and mitigation. Could the program/organization help implement future mitigation activities?
Natural disaster or safety related school programs	No	
StormReady certification	No	
Firewise Communities certification	Yes	Holds an annual clean-up day.
Public-private partnership initiatives addressing disaster-related issues	No	
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District will seek to engage local community and homeowner groups to assist with education and outreach.		

Source: Alpine Springs County Water District

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 has many other completed or ongoing mitigation efforts that include the following:

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 Alpine Springs County Water 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 Alpine Springs County Water District identified and prioritized the following mitigation actions 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, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Avalanche
- Climate Change
- Drought & Water Shortage
- Earthquake
- Floods: 1% / 0.2% Annual Chance
- Floods: Localized Stormwater
- Landslides, Mudslides, and Debris Flows
- Pandemic
- Severe Weather: Freeze and Snow
- Severe Weather: Heavy Rains and Storms
- Severe Weather: High Winds and Tornadoes
- Wildfire

It should be noted that many of the projects submitted by each jurisdiction in Table 5-4 in the Base Plan benefit all jurisdictions whether or not they are the lead agency. Further, many of these mitigation efforts are collaborative efforts among multiple local, state, and federal agencies. In addition, the countywide public outreach action, as well as many of the emergency services actions, apply to all hazards regardless of hazard priority. Collectively, this multi-jurisdictional mitigation strategy includes only those actions and projects which reflect the actual priorities and capacity of each jurisdiction to implement over the next 5-years covered by this plan. It should further be noted, that although a jurisdiction may not have specific projects identified for each priority hazard for the five year coverage of this planning process, each jurisdiction has focused on identifying those projects which are realistic and reasonable for them to implement and would like to preserve their hazard priorities should future projects be identified where the implementing jurisdiction has the future capacity to implement.

Multi-Hazard Actions

Action 1. Fire Fuels Mitigation

Hazards Addressed: Wildfire

Goals Addressed: 1, 2, 3, 4, 5, 6, 7

Issue/Background: A buildup of forest fuel loads has substantially increased the risk of the spread of wildfire

Project Description: Parcel and forest treatment to reduce the forest loads in and around Alpine Meadows

Other Alternatives: N/A

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

- Community cleanup days
- Community Chipping Program
- Outside contracts with Foresters and NTFPD

Responsible Agency/ Department/Partners: ASCWD

Cost Estimate: $25,000 annually

Benefits (Losses Avoided): Catastrophic fire losses to homes and business

Potential Funding: Additional funding may be available if awarded the State of California Climate Investment Fire Prevention Grant

Timeline: Annually

Project Priority (H, M, L): High