Annex B Chester Public Utility District

B.1 Introduction

This Annex details the hazard mitigation planning elements specific to the Chester Public Utility District (Chester PUD or District), a new participating jurisdiction to the 2026 Plumas 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 information specific to the Chester PUD, with a focus on providing additional details on the planning process, risk assessment, and mitigation strategy for this jurisdiction.

B.2 Planning Process

As described above, the Chester PUD followed the planning process detailed in Chapter 3 of the Base Plan. In addition to providing representation on the Plumas 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 B-1. Additional details on Plan participation and District representatives are included in Appendix A. FILL OUT TABLE WITH WHO PARTICIPATED AND HOW.

Table B-1 Chester PUD – Planning Team

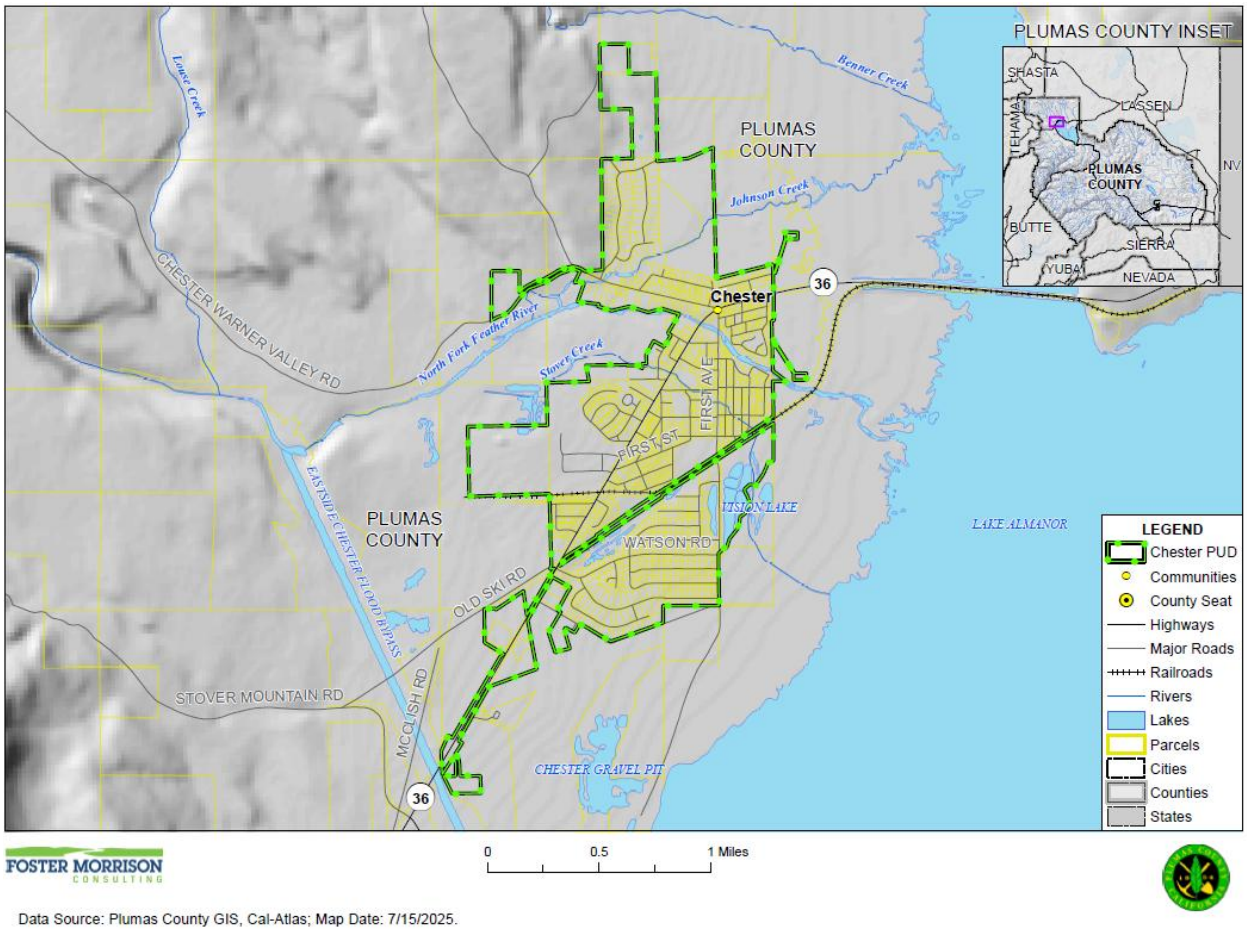
Name	Position/Title	How Participated

Source: Chester PUD

B.3 District Profile

The community profile for the Chester PUD is detailed in the following sections. Figure B-1 displays a District map and the location of Chester PUD within Plumas County.

Figure B-1 Chester PUD



Data Source: Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

B.3.1. Overview and Background

Chester Public Utility District (Chester PUD) provides domestic water distribution, wastewater collection and treatment, fire protection and ambulance services. In addition, Chester PUD is partially reimbursed from the County for providing street lighting services and also awards and administers a solid waste collection franchise for the area.

Chester PUD was formed in 1947 as an independent special district. It was organized to provide water and wastewater services to the residents of Chester. In 2009, Chester PUD consolidated with Chester Fire Protection District (FPD), and consequently, took on fire protection and ambulance services. The principal act that governs the District is the Public Utility District Act. The principal act empowers the District to acquire, construct, own, operate, control, or use works for supplying light, water, power, heat, transportation, telephone service, or other means of communication, or means for the disposal of garbage, sewage, or refuse matter. In addition, the District may acquire, construct, own, complete, use, and operate a fire department, street lighting system, public parks and other recreation facilities, and provide for the drainage of roads, streets, and public places.

Prior to 2024, the Chester Fire Department offered comprehensive fire services, including fire suppression, emergency medical care, and ambulance services to the Chester fire protection service Sphere of Influence (SOI). However, due to recurring budget deficits, the department significantly reduced its services. Currently, the Department operates only about three days per week, providing limited emergency and medical response services but no longer transporting patients. The Chester Fire Department now heavily relies on Peninsula Fire Protection District for patient transport and coverage on nonoperational days.

Chester PUD is located on the northwestern shore of Lake Almanor in Plumas County. Sitting at 4,534 ft in elevation, the climate is moderate with warm summers and mild winters. Average summer temperatures range from highs in the upper 70s to mid-90s, while winter temperatures average from highs in the 50s to lows in the low 30s. While there can be occasional rain or snow during the winter months, precipitation is generally light throughout the year. In addition to sunny skies and mild weather, Chester enjoys cool ocean breezes off of Lake Almanor during its warmest days and crisp mountain air during its cooler months.

The District does not border any other water, wastewater or fire providers. West Almanor CSD is located to the south of Chester PUD, and Walker Ranch is to the east. The Chester PUD boundary is entirely within Plumas County. The District's boundaries encompass approximately 1.75 square miles.

Chester PUD provides extra-territorial services under an out-of-area service agreement (OASA). An agreement was entered into by Chester PUD, Collins Pine Company and the Almanor Park and Recreation District in 2010 for a 20-year lease of property known as the Truman Collins Sports Complex on a 2.3-acre area needing water, wastewater and fire and EMS services provided by Chester PUD. The Almanor Park and Recreation District, through the Collins Pine Company, filed a Plumas LAFCo application for an OASA and Chester PUD agreed to serve and provide the sports complex area with domestic water and fire and EMS services, and in the future with wastewater.

TALK ABOUT PENN FIRE ADDITION?

B.4 Risk Assessment

As defined by FEMA, risk is a combination of hazard, vulnerability, and exposure. "It is the impact that a hazard would have on people, services, facilities, and structures in a community and refers to the likelihood of a hazard event resulting in an adverse condition that causes injury or damage."

The Chester PUD risk assessment identifies and profiles relevant hazards and assesses the exposure of lives, property, infrastructure, and the environment to these hazards. The process allows for a better understanding of the District's potential risk and vulnerability to hazards and provides a framework for developing and prioritizing mitigation actions to reduce risk from future hazard events.

Building on the District Profile above, a risk assessment was performed for the District. This includes the following sections:

- B.4.1 Assets Inventory and Growth and Development Trends
- B.4.2 Hazard Identification
- B.4.3 Hazard Profiles and Vulnerability to Specific Hazards

B.4.1. Assets Inventory and Growth and Development Trends

This section provides an inventory of the Chester PUD's total assets potentially at risk to hazards and an overview of growth and development trends. This section is broken into two parts:

- **Asset Inventory** – The assets inventory identifies the Chester PUD's total assets, including the people and populations; structures; critical facilities and infrastructure; community lifelines; natural, historic, and cultural resources; and economic assets and community activities of value. This data is not hazard specific, but is representative of total assets within the District, potentially at risk to identified hazards as discussed in Section B.4.3 Hazard Profiles and Vulnerability to Specific Hazards.
- **Growth and Development Trends** – A discussion of growth and development trends in the District, both current and future, is presented.

Assets Inventory

The District's asset inventory is detailed in the following sections:

- People and Populations
- Structures
- Critical Facilities and Infrastructure
- Community Lifelines
- Natural, Historic, and Cultural Resources
- Economic Assets and Community Activities of Value

A discussion of each of these assets follows and serves as the template for the asset discussion for each hazard in Section B.4.3.

People and Populations

The most important asset within any community are the people and populations that reside in the community. People and populations in the District include both District staff and workers as well as those populations located within District boundaries and are served by the District. This section includes an inventory of past and current populations of the District and also discusses vulnerable populations and underserved communities as a subsection of people and populations located within the District and potentially at risk to hazards. Information from the District and other sources as detailed below form the basis of this discussion.

Historic Population Trends and Current Population

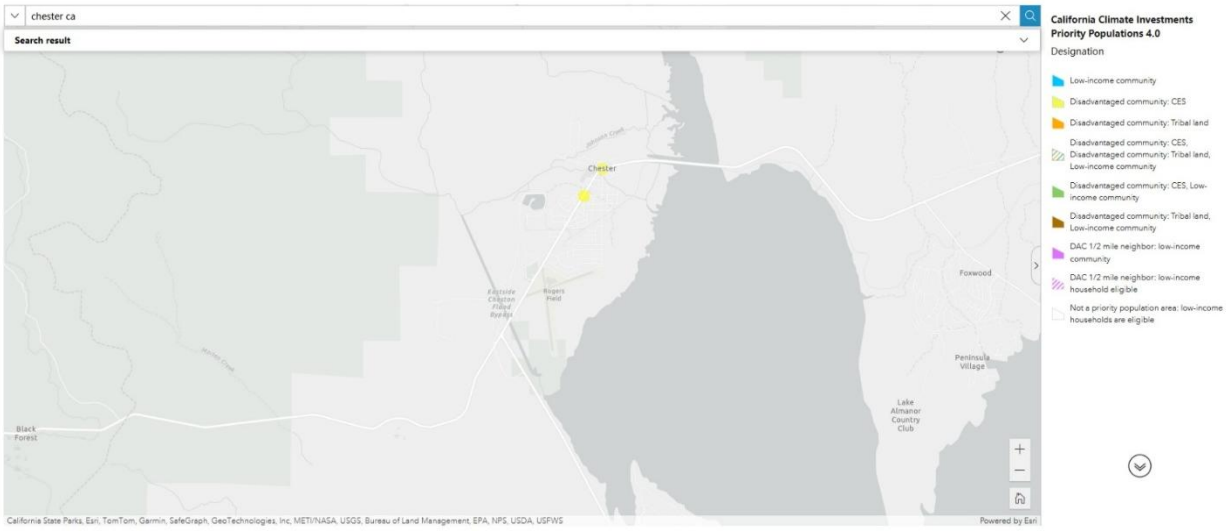
The most important asset within any community are the people and populations that reside in the District. The District has X staff. NUMBER OF DISTRICT STAFF? PUT THIS IN THE POP SECTIONS BELOW. In addition to District staff, the District provides services to PLACE NUMBER OF PEOPLE SERVED.

The District provided information about priority populations that they serve. This is similar to the vulnerable and underserved populations discussed in the Base Plan. For Chester, this can be seen in Figure

B-2. As shown in the areas in yellow, there are areas known as Disadvantaged Communities. This comes from the Cal EPA's Enviroscreen Tool. These "Disadvantaged Community: CES) areas include census tracts that met one of the criteria below:

- Received the highest 25% of overall scores in CES 4.0
- Lacked overall scores in CES 4.0 due to data gaps, be received the highest 5% of CES 4.0 cumulative pollution burden scores.
- Identified in the 2017 DAC designations as disadvantaged, regardless of their score in CES 4.0.

Figure B-2 Chester PUD Priority Populations



Source: California Climate Investments Priority Populations Mapping Tool 4.0. Provided by Chester PUD on 7/13/2025.

The District noted other special populations in the District. There is an elderly care facility. The hospital has a long-term skilled nursing facility. There is a portion of the population that is low income, as well. Both would need assistance.

Structures and Critical Facilities

This section considers Chester PUD's assets at risk, with a focus on key District assets such as critical facilities and 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.***

A critical facility is classified by the following categories: (1) Essential Services Facilities: (2) At-Risk Populations Facilities, and (3) Hazardous Materials Facilities.

Table B-2 lists critical facilities and other District assets identified by the District Planning Team as important to protect in the event of a disaster. Chester PUD's physical assets, valued at over $63 million, consist of structures and infrastructure to support the District's operations.

Table B-2 Chester PUD Critical Facilities and Infrastructure, and Other District Assets

Name of Asset	Facility Type	Replacement Value	Hazard Info
Tanks x2 (500k and 640k)	Water	$6,000,000	Fire, Earthquake, Extreme Weather
Well x4 +1 unused	Water	$5,000,000	Fire, Earthquake, Extreme Weather, Flood
Treatment Plant and CL Contact and Ponds	Wastewater	$20,000,000	Fire, Earthquake, Extreme Weather, Flood
Sewer Lines and Lift Stations	Wastewater	$20,000,000	Fire, Earthquake, Extreme Weather, Flood
Hydrants x240	Water	$1,000,000	Fire, Earthquake, Flood
Office Supplies, Electronics, Furniture	Water/Wastewater	$500,000	Fire, Earthquake, Extreme Weather, Flood
198 Main Building and Property	Water/Wastewater	$500,000	Fire, Earthquake, Extreme Weather, Flood
Water Lines and Meters	Water	$10,000,000	Fire, Earthquake, Extreme Weather, Flood
Total		**$63,000,000**	

Source: Chester PUD

Community Lifelines

Assessing the vulnerability of the Chester PUD to natural hazards and disasters also involves reviewing and inventorying the community lifelines in place that could be affected. It is important to include these items in hazard discussions as the continuous operation of critical government and business functions is essential to human health and safety, property protection, and economic security. The importance of community lifelines is discussed below:

- Lifelines are the most fundamental services in the community that, when stabilized, enable all other aspects of society to function.
- FEMA has developed a method for objectives-based response that prioritizes the rapid stabilization of Community Lifelines after a disaster.
- The integrated network of assets, services, and capabilities that provide lifeline services are used day-to-day to support the recurring needs of the community and enable all other aspects of society to function.

- When disrupted, decisive intervention (e.g., rapid re-establishment or employment of contingency response solutions) is required to stabilize the incident.

Community lifelines, as defined by FEMA, include the following:

- **Safety and Security** – Law Enforcement/Security, Fire Service, Search and Rescue, Government Service, Community Safety
- **Food, Hydration, Shelter** – Food, Water, Shelter, Agriculture
- **Health and Medical –** Medical Care, Public Health, Patient Movement, Medical Supply Chain, Fatality Management
- **Energy –** Power Grid, Fuel
- **Communications** – Infrastructure, Responder Communications, Alerts Warnings and Messages, Finance, 911 and Dispatch
- **Transportation** – Highway/Roadway/Motor Vehicle, Mass Transit, Railway, Aviation, Maritime
- **Hazardous Material –** Facilities, HAZMAT, Pollutants, Contaminants
- **Water Systems** – Potable Water Infrastructure, Wastewater Management

It should be noted that these community lifelines are all in place and functional as part of regular government operations in the Plumas County Planning Area serving as a partnership between the city, local special districts and agencies, and Plumas County. Due to its more rural nature, there is an interplay in community lifelines between all jurisdictions in the County. Most all of the District's community lifelines overlap with the Planning Area's. It should also be noted that these lifelines collectively include many of the critical facilities and infrastructure assets inventoried for this LHMP, including those assets owned by the District. As such, specific information on these community lifelines in the District and how they may be affected by a hazard event or disaster are discussed in the Base Plan.

Natural, Historic, and Cultural Resources

Assessing the vulnerability of the Chester PUD to natural hazards and disasters also involves inventorying the natural, historic, and cultural assets of the area. This step is important for the following reasons:

- Environmental and natural resources add to a community's identity and quality of life. They also help the local economy through agriculture, tourism, and recreation. They support ecosystem services, such as clean air and water.
- Conserving the environment may help people mitigate risk. It can also protect sensitive habitats, develop parks and trails, and build the economy.
- The community may decide that these types of resources warrant a greater degree of protection due to their unique and irreplaceable nature and contribution to the overall economy.
- If these resources are impacted by a disaster, knowing so ahead of time allows for more prudent care in the immediate aftermath, when the potential for additional impacts are higher.
- The rules for reconstruction, restoration, rehabilitation, and/or replacement are often different for these types of designated resources.
- Natural resources can have beneficial functions that reduce the impacts of natural hazards, such as wetlands and riparian habitat, which help absorb and attenuate floodwaters.

Natural Resources

Chester PUD has a variety of natural resources of value to the District. These natural resources parallel that of Plumas County as a whole. Information can be found in Section 4.2.1 of the Base Plan. ANY UNIQUE NATURAL RESOURCES IN THE DISTRICT?

Historic and Cultural Resources

Chester PUD has a variety of historic and cultural resources of value to the District. These historic and cultural resources parallel that of Plumas County as a whole. Information can be found in Section 4.2.1 of the Base Plan. ANY UNIQUE HISTORICAL OR CULTURAL RESOURCES IN THE DISTRICT?

Economic Assets and Community Activities of Value

Assessing the vulnerability of the Chester PUD to natural hazards and disasters also involves inventorying the economic assets and community activities of value in the District.

Economic Assets

After a disaster, economic resiliency is one of the major drivers of a speedy recovery. Each community has specific economic drivers. Economic assets for the County were discussed in Section 4.2.1 of the Base Plan and are assumed to be the same or similar for the District.

The District noted that there are economic assets in the Districts. Mill, Holiday Market, multiple restaurants, schools, churches, lake recreation and campgrounds, airport, hospital, Main St Bridge over Feather River, Causeway over Lake Almanor, bike trail, Chester Park,

Community Activities of Value

Inventorying economic assets in the District and their vulnerability to natural hazards and disasters also involves inventorying activities that have value to the community. This includes activities that are important to a community, like long-standing traditions such as a festival or fair or other activities that bring money into the communities such as sports tournaments and other recreational activities. Community Activities of Value for the County were discussed in Section 4.2.1 of the Base Plan and are assumed to be the same or similar for the District.

Growth and Development Trends

As part of the planning process, the District looked at changes in growth and development, both current and future, and examined these changes in the context of hazard-prone areas, and how the changes in growth and development affect loss estimates and vulnerability over time. This inventory section details future development/redevelopment projects that are likely to occur over the next five years covered by this 2025 LHMP. For Districts, this generally includes the following:

- Construction/development projects related to adding new District facilities, infrastructure, land acquisition, etc.

- Plans for expansion or build out of the District's service area, including new service hookups, and other District functions related to where the District will be expanding services.

Population Trends and Projections

The District noted that population is expected to stay flat or decrease over time.

Future Development Areas

It is important to review future development plans for the District. Future development should be sited in areas that are away from known hazard risks. If this is not possible, mitigation should be done to ensure that future development is protected against future hazards.

There are no current growth development plans the District is aware of, but there is potential. There's a lot of land owned by private owners and the Maidu Tribe. Some community members are working on creating more winter activities. The District noted that it does not cause future development to occur, but reacts to it by providing increased (or decreased) services.

B.4.2. Hazard Identification

The Chester PUD identified the hazards that affect the District and summarized their location, extent, likelihood of future occurrence, potential magnitude, and significance (or priority of a hazard) specific to the District.

Those hazards identified as a high or medium significance in Table B-3 are considered priority hazards for mitigation planning. Those hazards that occur infrequently or have little or no impact in the District were determined to be of low significance and not considered a priority hazard to the District. Significance was determined based on the hazard profile, focusing on key criteria such as frequency, extent, and resulting damage, including deaths/injuries and property, natural and cultural resources, and economic damage. The ability of a jurisdiction to reduce losses through implementation of existing and new mitigation measures was also considered as to the significance of a hazard. This assessment was used to prioritize those hazards of greatest significance, enabling the District to focus resources where they are most needed.

Table B-3 Chester PUD—Hazard Identification Assessment

Hazard	Geographic Extent	Likelihood of Future Occurrences	Magnitude/ Severity	Significance	Climate Change Influence
Ag Hazard: Severe Weather / Insects/Pests	Extensive	Highly Likely	Limited	Low	Medium
Climate Change	Extensive	Likely	Critical	Low	--
Dam Failure	Extensive	Unlikely	Critical	Low	Medium
Drought & Water Shortage (w/tree mortality)	Extensive	Likely	Limited	Medium	High
Earthquake	Extensive	Unlikely/Occasionally	Catastrophic	Low	Low
Flood: 1%/0.2% annual chance (w/levee failure)	Significant	Unlikely/Occasionally	Catastrophic	Medium	Medium
Flood: Localized Stormwater	Significant	Highly Likely	Limited	Medium	Medium
Haz Mat Transportation	Significant	Occasionally	Critical	Low	Low
Landslide, Mudslide, and Debris Flow	Significant	Likely	Negligible	Low	Medium
Severe Weather: Extreme Cold, Freeze, and Snow (w/avalanche)	Extensive	Highly Likely	Critical	Medium	Medium
Severe Weather: Extreme Heat	Extensive	Highly Likely	Negligent	Low	High
Severe Weather: Heavy Rains and Storms	Extensive	Highly Likely	Limited	Medium	Medium
Severe Weather: High Winds and Tornadoes	Extensive	Occasionally	Limited	Low	Medium
Volcano	Extensive	Unlikely	Critical	Low	
Wildfire (w/smoke and air quality)	Extensive	Highly Likely	Catastrophic	High	Medium

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

B.4.3. Hazard Profiles and Vulnerability to Specific Hazards

This section includes the hazard profiles and vulnerability assessment for hazards ranked of medium or high significance specific to the Chester PUD (as identified in the Significance column of Table B-3). This section focuses on where and how the District is affected by their priority hazards. Chapter 4 of the Base Plan provides more detailed information about these hazards and their impacts on the Plumas County Planning Area. Methodologies for evaluating vulnerabilities and calculating loss estimates are the same as those described in Section 4.2 of the Base Plan.

Hazard Profiles and Vulnerability Assessment

Each hazard is profiled in the following format:

- **Hazard Profile** – A hazard profile is included for each hazard. This includes information on:
  - ✓ **Hazard Overview** – A general discussion of the hazard and related issues is detailed here.
  - ✓ **Location** and **Extent** – Location is the geographic area within the District that is affected by the hazard. Extent is the expected range of intensity for each hazard. These are discussed in specific detail for mapped hazards, and in more general detail for those hazards that do not have discrete mapped hazard areas.
  - ✓ **Past Occurrences** – Past occurrences are discussed for each hazard. A discussion of disaster declarations is included in each hazard section. NCDC events are also discussed. Other past occurrences data specific to the District follow the disaster declarations and NCDC events for each hazard.
  - ✓ **Climate Change** – This section contains the effects of climate change (as applicable). The possible influence of climate change on the hazard is discussed.

After the hazard profile, a vulnerability assessment is presented. As part of the vulnerability assessment, an estimate of the vulnerability of the District to each identified hazard, in addition to the estimate of risk of future occurrence, is provided in each of the hazard-specific sections. 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.

After this classification, a general discussion of hazard vulnerabilities occurs. This is done in the following format:

- **Vulnerability Overview** – A general discussion of the hazard vulnerability and related issues is detailed here.
- **Local Concerns** – This includes District provided information on how the District is uniquely affected by or vulnerable to each hazard.
- **Assets at Risk** – A discussion of the assets at risk follows, presented in the same order as in Section B.4.1 above, with a few exceptions. This includes sections on: People and Populations; Structures and Critical Facilities and Infrastructure; and Natural, Historic, and Cultural Resources. These are discussed in specific terms for mapped hazards, and in more general terms for those hazards that are unmapped. Sections on Community Lifelines and Economic Assets and Community Activities of Value are not included in the Sections below, as they are common to all jurisdictions and are fully covered in Section B.4.1 above and Chapter 4 of the Base Plan.
- **Impacts** – A discussion on hazard impacts follows. Impacts describe how each hazard can affect the District, its assets, and the ability to provide continued and reliable services. The type and severity of impacts reflect both the potential magnitude of the hazard and the vulnerability of the asset.
- **Future Conditions/Future Development** – A discussion of how future conditions and future development will affect or influence each hazard over time is also included. This considers both new District assets and improvements as well as any changes in service area.

Power Interruption/Power Failure: A Common Vulnerability of all Hazards

An impact of almost all hazards evaluated as part of this LHMP Update relates to power shortage and/or power failures. The US power grid crisscrosses the country, bringing electricity to homes, offices, factories, warehouses, farms, traffic lights and even campgrounds. According to statistics gathered by the U.S. Department of Energy, major blackouts are on the upswing. Incredibly, over the past two decades, blackouts impacting at least 50,000 customers have increased 124 percent. The electric power industry does not have a universal agreement for classifying disruptions. Nevertheless, it is important to recognize that different types of outages are possible so that plans may be made to handle them effectively. In addition to blackouts, brownouts can occur. A brownout is an intentional or unintentional drop in voltage in an electrical power supply system. Intentional brownouts are used for load reduction in an emergency. Electric power disruptions can be generally grouped into two categories: intentional and unintentional. More information on types of power disruptions can be found in Section 4.3 of the Base Plan.

Public Safety Power Shutoff (PSPS)

An intentional disruption type of power shortage/failure event has been recently implemented in California as a result of wildfires starting as a result of downed power lines or electrical equipment. This was the case for the Camp Fire in 2018. As a result, California's three largest energy companies (including PG&E), at the direction of the California Public Utilities Commission (CPUC), are preparing all Californians for the threat of wildfires and power outages during times of extreme (fire) weather. To help protect customers and communities during extreme fire weather events, electric power may be shut off for public safety in an effort to proactively prevent wildfire. This is called a PSPS. More information on PSPS criteria can be found in Section 4.3 of the Base Plan.

In addition to PSPSs, to help prevent wildfires, electric utilities have begun to evolve safety efforts. This includes installing safety settings on powerlines in and around high fire-risk areas. These are known as Enhanced Powerline Safety Settings (EPSS), and they help prevent falling tree branches, animals and other

hazards from causing a wildfire. By stopping ignitions, it helps prevent wildfires from starting and spreading. According to PG&E, if ignitions occur, the size of fires can be much smaller due to EPSS. In 2022, there was a 99% decrease in acres impacted by ignitions (as measured by fire size from electric distribution equipment (compared to the 2018-2020 average). This decrease occurred despite dry conditions.

Local Concerns

The District noted that there have been occasional Power Outages during heavy snow events, including those associated with PSPS events, that have affected them. Specific events couldn't be recalled. Power outages is common with heavy snow.

Drought & Water Shortage

Likelihood of Future Occurrence–Likely
Vulnerability–Medium

Hazard Profile

Drought and water shortage are complex issues 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 supply is the most significant issue and is critical for agriculture, manufacturing, tourism, recreation, and commercial and domestic use. Drought has also affected tree mortality in the area in the past. As the population in the area continues to grow, so will the demand for water.

Tree Mortality and Drought

One of the secondary hazards of drought in the Plumas County Planning Area, that can also affect Chester PUD, is the increased risk to trees from beetle kill and other insects, pathogens and parasites, and other tree mortality and die back issues. Drought weakens trees and makes them more susceptible to insect infestation and other pathogens. Insects, such as bark beetles and others, frequently attack trees weakened by drought, disease, injuries, or other factors that may stress the tree. These insects and other pathogens can contribute to the decline and eventual death of trees throughout the District. The tree mortality and dieback problems are a high priority because of the issue of hazardous trees and an increased wildfire hazard. In addition to an increase in wildfire fuels, hazardous trees can fall onto structures causing damage and a result in a reduction on the tree canopy within the District that provides relief during extreme heat days.

Location and Extent

Drought and water shortage are regional phenomenon. The whole of the District and County 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) or for longer periods (which may challenge water supplies). Should a drought last for a long period of time, water shortage becomes a larger issue. Current drought conditions in the District are shown in Section 4.3.9 of the Base Plan.

Past Occurrences

Disaster Declaration History

There have been 2 state and 1 federal disaster declarations for Plumas County. This can be seen in Table B-4. Additionally, there have been 16 USDA Secretarial Disaster Declarations from drought in the County since 2012.

Table B-4 Plumas County –State and Federal Drought Disaster Declarations 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Drought	2	1976, 2015	1	1977

Source: Cal OES, FEMA

NCDC Events

There have been 2 NCDC drought events in Plumas County since 1993. These most likely had some impact on the District.

Chester PUD Events

Based on historical information, the occurrence of drought in California, including the Chester PUD, is cyclical, driven by weather patterns. Section 4.3.9 of the Base Plan notes that five droughts have occurred in the past 86 years that likely affected the District.

Specifically, 2020-2023 was the most recent drought. The District noted that a moderate drought caused impacts including wildfire-related injuries, mental health effects, water-related illnesses and injuries, Valley fever, and respiratory illnesses. During this time, the Dixie Fire occurred causing one firefighter's death, infrastructure damage, and property damage. This drought along with the wildfire, caused reduced tourism and recreation use, economically affecting the District. While there is not much cropland in Chester, this was also an area that was affected during these years.

Climate Change and Drought and Water Shortage

It is likely that climate change will increase the chance of future occurrence as well as future impacts associated with drought and water shortage. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Climate scientists studying California find that drought conditions are likely to become more frequent and persistent over the 21st century due to climate change. The experiences of California during recent years underscore the need to examine more closely the state's water storage, distribution, management, conservation, and use policies. The 2021 CAS (as well as the 2024 Draft CAS) stresses the need for public policy development addressing long term climate change impacts on water supplies. The CAS notes that climate change is likely to significantly diminish California's future water supply, stating that: California must change its water management and uses because climate change will likely create greater competition for limited water supplies needed by the environment, agriculture, and cities.

A 2018 report from the Public Policy Institute of California noted that thousands of Californians – mostly in rural, small, disadvantaged communities – already face acute water scarcity, contaminated groundwater, or complete water loss. Climate change would make these effects worse.

Cal Adapt scenarios for modeled future drought scenarios were shown in Section 4.3.9 of the Base Plan.

Vulnerability to Drought and Water Shortage

Based on historical information, the occurrence of drought and water shortage 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. The vulnerability of the Chester PUD to drought may vary and include reduction in water supply, turf losses, impacts to natural resources, and an increase in dry fuels and tree dieback.

The whole of the District is at some measure of vulnerability to drought and water shortage. An assessment of a community's vulnerability to drought and water shortage begins with an understanding of local exposure to drought. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

The District's greatest concern from drought is from increased wildfire risk. Wildfire risk is discussed in greater detail in the Wildfire profile below.

In addition, within the District, there are two health care facilities, an elderly care facility and long-term skilled nursing facility. Along with this, there are populations of Chester PUD that are low-income, which could be affected by drought if assistance is needed.

Assets at Risk

Assets at risk from this hazard include people and populations; structures and critical facilities and infrastructure; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

The people and populations (both staff and those served by the District) of the District are not directly affected by general drought conditions; although, their turfed areas, trees, and other water dependent resources can all be affected. In extreme drought conditions, however, residents and other populations within the District may be vulnerable to drought and water shortage issues. Water quality can be impacted causing health problems, especially to vulnerable populations where access to clean water supplies can be more challenging. Water shortages can have an effect on all of the populations in the District, but often have a greater effect on the unhoused and other vulnerable populations that may be unable to access and afford clean drinking water during shortages. During periods of drought as the costs of water usage may increase, those who are economically disadvantaged may be unable to afford the increased costs of potable water.

Structures and Critical Facilities and Infrastructure

Most District structures, critical facilities, and infrastructure have a limited vulnerability to drought and water shortage. Should drought conditions be severe enough to cause water shortage reliability issues, some facilities and infrastructure may be affected. Water and wastewater systems (like those of the District) may be impacted during times of reduced water supply and need to employ contingencies to remain functional and fully operational. Other water dependent systems may also be adversely affected. Further, the secondary hazard of drought (increased potential for spread of urban fires and wildfire) can pose a significant risk to District facilities. Drought can also stress trees, causing die off. These trees may fall on critical infrastructure adjacent to them and impact power lines and other utilities.

The District noted that the facilities listed in Table B-2 are all at some risk of drought, but the greater risk is the wildfires that occur during periods of drought.

Natural, Historic, and Cultural Resources

Drought and water shortage can have a significant impact on natural resources. Water levels in reservoirs and lakes may be reduced and a loss of wetlands and coastal marsh areas may occur. Severe drought conditions can contribute to an increase in erosion of soils and lead to poor soil quality. Further, all of the trees in the District are at risk to drought impacts and a reduction in water supply. These trees provide a wealth of social and environmental benefits to District residents and visitors, from shade and beauty to air quality, carbon reduction and stormwater management. Drought can devastate crops and dry out pastures, dry out forests and critical habitat areas, and reduce food and water available for wildlife and livestock. Additionally, drought conditions can also cause soil to compact and not absorb water well, potentially

making an area more susceptible to flooding. It is unlikely that drought and water shortage would have a significant impact on historic and cultural resources in the District.

Impacts from Drought and Water Shortage

The vulnerability of the District to drought is District-wide, but impacts may vary and include reduction in water supply and an increase in dry fuels. The potential for a reduction in water supply during drought conditions generally leads to both mandated and voluntary conservations measures during extended droughts. During these times, the costs of water can also increase. Also of concern, the increased dry fuels, fuel loads, and tree mortality events associated with drought conditions can result in an increased fire danger. In areas of extremely dry fuels, the intensity and speed of fires can be significant. Water supply and flows for fire suppression can also be an issue during extended droughts. Drought can also lead to And cause tree die off within the District.

Other qualitative impacts associated with drought in the District are those related to water intensive activities such as municipal usage, commerce, tourism, and recreation use. With more precipitation likely falling as rain instead of snow in the Sierra's, and warmer temperatures causing decreased snowfall to melt faster and earlier, water supply is likely to become more unreliable. In addition, drought and water shortage is predicted to become more common. This means less water available for use over the long run, and additional challenges for water supply reliability, especially during periods of extended drought.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the Chester PUD include the following:

- Climate change is likely to exacerbate future drought conditions and associated impacts and vulnerability of the District to drought and water shortage.
- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District may add staff, but this number would be small. The District noted it has no control over population changes in its Planning Area, it merely reacts to them by providing additional (or reduced) services.
- It is unknown how changes in land use and development will affect drought and water shortage in the District's Service Area. The District conducts water supply planning to ensure a continued water supply to address future drought conditions.

Future Development

HOW WILL FUTURE DEVELOPMENT AFFECT YOUR DISTRICT'S DROUGHT RISK? WHAT SUPPLIES YOUR DISTRICT WITH WATER? HOW ARE YOU PROTECTING IT CURRENTLY AND WILL BE PROTECTING IT IN THE FUTURE?

Flood: 1%/0.2% Annual Chance (w/Levee Failure)

Likelihood of Future Occurrence–Occasional (1%)/Unlikely (0.2%)
Vulnerability–Moderate

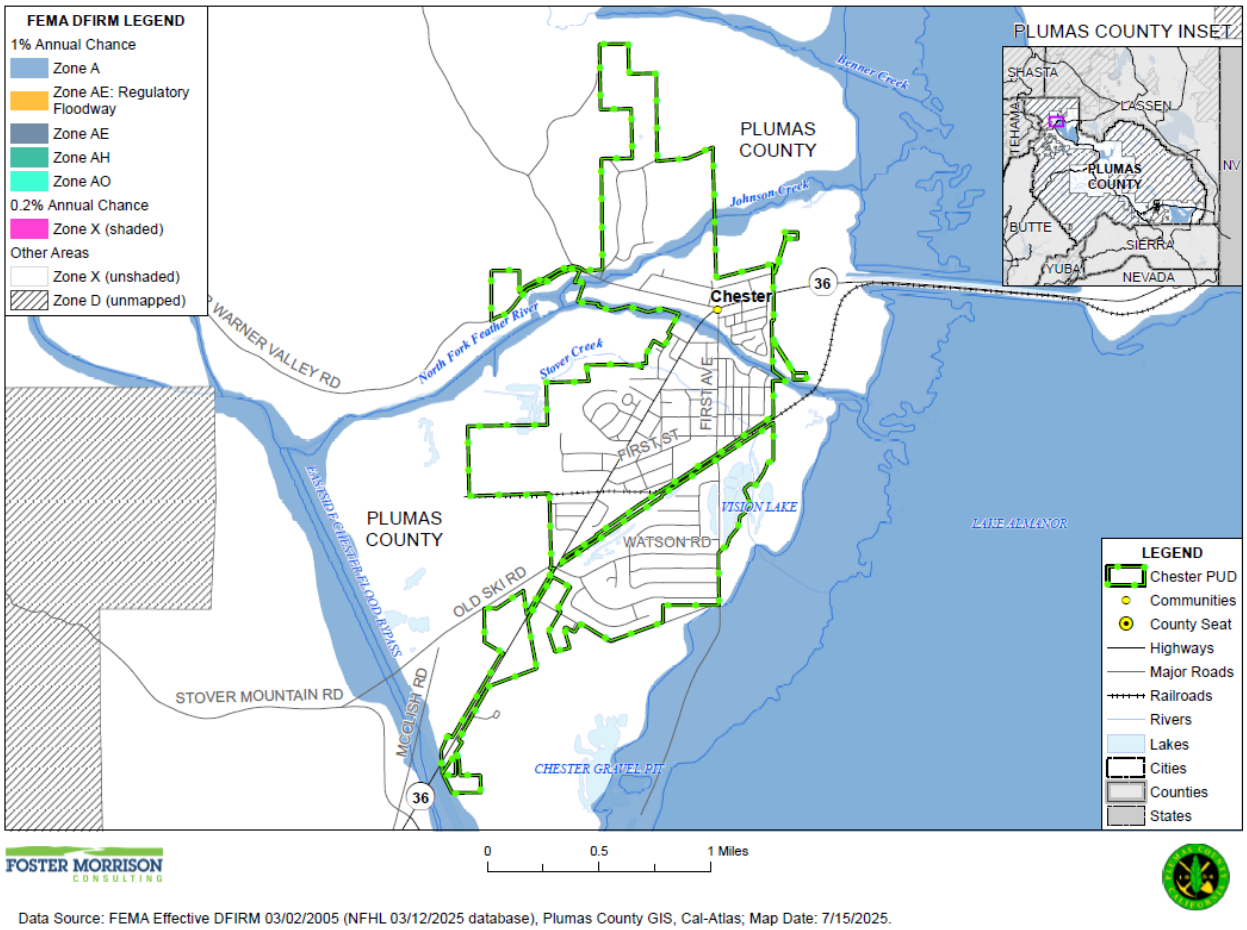
Hazard Profile

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 District and have caused damage in the past. Flooding can be a problem in the District. Historically, the District has been at risk to flooding primarily during the winter and spring months when river systems in the District swell with heavy rainfall and snowmelt runoff. The District has also been at risk during atmospheric river flood events. Normally, storm floodwaters are kept within defined limits by a variety of storm drainage and flood control measures (like levees) located throughout the Plumas County Planning Area and the Chester PUD. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage. Flooding has occurred within the 1% annual chance floodplains and in other localized areas in the District.

Location and Extent

The Chester PUD has areas located in the 1% annual chance flood zones. This is seen in Figure B-3.

Figure B-3 Chester PUD – FEMA DFIRM Flood Zones



Data Source: FEMA Effective DFIRM 03/02/2005 (NFHL 03/12/2025 database), Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

Table B-5 details the DFIRM mapped flood zones located within the District.

Table B-5 Chester PUD– DFIRM Flood Hazard Zones

Flood Zone	Description	Present in District
A	1% annual chance flooding: No base flood elevations provided	X
AE	1% annual chance flooding: Base flood elevations provided	
AE Regulatory Floodway	1% annual chance flood: Regulatory floodway; Base flood elevations provided	
AH	1% annual chance flood areas of shallow flooding between one to three feet deep. Regulatory floodway; Base flood elevations provided	
Shaded X	0.2% annual chance flooding: The areas between the limits of the 1% annual chance flood and the 0.2-percent-annual-chance (or 500-year) flood	
X (unshaded)	Area of minimal flood hazard	X

Source: FEMA DFIRM 03/02/2005

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, 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.

Geographical flood extents for the District from the FEMA DFIRMs are shown in Table B-6.

Table B-6 Chester PUD – Geographical DFIRM Flood Zone Extents

Jurisdiction/ Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
1% Annual Chance Flood Hazard						
Zone A						
Agricultural	0	0.0%	0	0.0%	0	0.0%
Commercial	2	0.2%	1	0.2%	1	0.1%
Federal Lands	0	0.0%	0	0.0%	0	0.0%
Government	4	0.4%	0	0.0%	4	1%
Industrial	0	0.0%	0	0.0%	0	0.0%
Institutional	1	0.1%	0	0.0%	1	0.2%
Miscellaneous	0	0.0%	0	0.0%	0	0.0%
Recreational	0	0.0%	0	0.0%	0	0.0%
Residential	37	3%	33	5%	4	1%
ROW/Utilities	5	0.4%	0	0.0%	5	1%
Zone A Total	**49**	**4%**	**35**	**5%**	**14**	**3%**
1% Annual Chance Flood Hazard Total	**49**	**4%**	**35**	**5%**	**14**	**3%**
Other Areas						
Zone X (unshaded)						
Agricultural	3	0.2%	0	0.0%	3	1%
Commercial	164	14%	121	17%	42	9%
Federal Lands	0	0.0%	0	0.0%	0	0.0%
Government	109	9%	0	0.0%	109	23%
Industrial	17	1%	13	2%	4	1%
Institutional	26	2%	4	1%	22	5%
Miscellaneous	15	1%	0	0.0%	15	3%
Recreational	1	0.05%	1	0.1%	0	0.0%
Residential	634	54%	541	76%	94	20%
ROW/Utilities	163	14%	-		163	35%
Zone X (unshaded) Total	**1,130**	**96%**	**680**	**95%**	**451**	**97%**

Jurisdiction/ Flood Zone/ Property Use	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Other Areas Total	**1,130**	**96%**	**680**	**95%**	**451**	**97%**
Grand Total	**1,179**	**100%**	**714**	**100%**	**465**	**100%**

Source: FEMA DFIRM 03/02/2005

THERE ARE LEVEES IN THE AREA SERVED BY THE DISTRICT. ARE ANY DISTRICT FACILITIES PROTECTED BY ANY LEVEES?

Past Occurrences

Disaster Declaration History

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

Table B-7 Plumas County – State and Federal Disaster Declarations from Flood 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Flood (including heavy rain and storm)	22	1950, 1955, 1958 (twice), 1964, 1963, 1964, 1969, 1970 1980, 1986, 1993, 1992*, 1995 (twice*), 1996, 1997, 2006, 2017 (twice*), 2023 (twice*)	19	1950, 1955, 1958 (twice), 1963, 1964, 1969, 1970, 1986, 1992 (twice), 1995 (twice), 1997, 2006*, 2017 (twice*), 2023 (twice*)

Source: Cal OES, FEMA
*included a landslide component

NCDC Events

The NCDC tracks flooding events for the County. Events have been tracked for flooding since 1993. Plumas County has seen 15 events. Depending on the location, these events most likely had some impact on the District.

Chester PUD Events

The District noted that the following events had affects or damages to the District:

Chester had a history of annual flooding (especially in 1937) until the super ditch was built in 1938 to allow water to bypass during high flows. This reduced flooding, however, the District noted two events after the construction of the super ditch.

- 1956 flooding
- 1964 flooding

All of the events above caused significant property damage, structural damage to homes and businesses and caused school and road closures throughout the District. To aid the super ditch, the Chester diversion dam was installed in 1976. This significantly reduced flooding. Once a decade the District noted that typically a more critical flood occurs, generally caused by snowpack melting from warmer temps. Water meters can get buried with debris, the populations can decline temporarily, schools close, and businesses closed as Chester may see flood depths in areas of a couple feet of water.

Climate Change and Flood

It is likely that climate change will increase the chance of future occurrence as well as future impacts associated with flood. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

According to the 2021 CAS (as well as the 2024 Draft CAS), climate change may affect flooding in California, the Plumas County Planning Area, and the Chester PUD. While average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is possible that average soil moisture and runoff could decline, however, due to increasing temperature, evapotranspiration rates, and spacing between rainfall events. Reduced snowpack and increased number of intense rainfall events are likely to put additional pressure on water infrastructure which could increase the chance of flooding associated with breaches or failures of flood control structures such as levees and dams. Cal Adapt future precipitation projections were shown in Section 4.3.4.

Vulnerability to Flood: 1% and 0.2% Annual Chance

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 damage. Predominantly, the effects of 1% and 0.2% annual chance flooding are generally confined to areas near the waterways of the District. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat.

The whole of the District is at some measure of vulnerability to floods. An assessment of a community's vulnerability to flood begins with an understanding of local exposure to flood. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

The diversion dam significantly reduced the risk but if the diversion dam fails or the lake drainage system fails, Chester could see significant devastation.

If the super ditch fails, the snowpack melts in a rainstorm, or if the lake gets too full and cannot drain fast enough. Chester is flat and low in comparison to the surrounding mountains. Flooding could damage all

electronic devices and destroy infrastructure along with the potential to break the wastewater pond levees. It could be as catastrophic as fire and create full destruction of the community.

The District is also concerned with rain on snow events, which can cause greater flooding in the District.

OTHER VULNERABILITIES/CONCERNS/ISSUES SPECIFIC TO THE DISTRICT? DO FLOOD EVENTS RESULT IN LOSS OF SERVICE, EVEN TEMPORARILY? CAN THE DISTRICT PROVIDE DETAILS ON THE ROOT CAUSE OF FLOOD ISSUES THAT WOULD SUPPORT MITIGATION ACTION DEVELOPMENT?

Assets at Risk

Assets at risk from this hazard include people and populations; structures and critical facilities; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All people and populations (both District staff and those in the Service Area) located in the 1% and 0.2% annual chance floodplains are at some risk to flooding. Certain vulnerable populations located within areas prone to flooding may be at increased risk to this hazard, especially during a large event with minimal advance notice. These vulnerable populations include: the unhoused, those with limited mobility, and those that lack the resources to leave the area.

Populations served by the District can be the most vulnerable. Not only are the residents at risk, but their homes and contents are all at risk, compounding the impacts associated with significant hazard events. The District's ability to provide services to its populations during flood events is paramount.

Structures and Critical Facilities

Certain District structures are at risk of DFIRM flooding and primarily include those structures located within the 1% and 0.2% annual chance floodplains. District assets listed in Table B-2 would be at risk to flooding.

Flooding presents a threat to both critical facilities and infrastructure, as well as community lifelines. Critical infrastructure plays an immensely important role in our communities. As previously noted, communities rely on roads, rail corridors, and related biking and pedestrian routes for transportation, and on water infrastructure for drinking water, wastewater service, and draining streets of rainwater. Damage to any one of these systems can threaten public safety, wreak havoc on daily life, impact properties far from flood zones, and result in economic impacts that cascade throughout California.

Natural, Historic, and Cultural Resources

Large flood events can affect natural, historic, and cultural resources. There are a number of ways floodwaters can impact natural resources and the environment. Wildlife habitats can be destroyed by floodwaters. Contaminated floodwater can pollute rivers and habitats. Silt and sediment can destroy natural areas. Riverbanks and natural levees can be eliminated as rivers reach bankfull capacity. Rivers can be

widened, and deposition can increase downstream. Trees can be uprooted by high-velocity water flow. Plants that survive the initial flood may die due to being inundated with water. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to structures within the flooded areas, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged and lost during extreme flood events. Any of these that fall in the flood zones shown on Figure B-3 would be vulnerable.

Impacts from Flood: 1% and 0.2% Annual Chance

Floods are among the costliest natural disasters in terms of human hardship and economic loss nationwide. Large flood events, including those associated with 1% and 0.2% annual chance floods, can cause substantial damage to structures, landscapes, and utilities as well as life safety issues. People may be swept away in floodwaters, causing injuries or deaths. 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. Direct impacts, such as drowning, can be limited with adequate warning and public education about what to do during floods. Floodwaters can transport large objects downstream which can damage or remove stationary structures. Structures can be damaged directly from floodwaters and can also be damaged from trees falling as a result of water-saturated soils. 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 causing power outages. The interruption of power causes major problems and can result in the closure of governmental offices and community businesses. Roads can be damaged and closed, causing safety and evacuation issues.

Standing water can cause damage to crops, roads, foundations, and electrical circuits. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, loss of environmental resources, and economic impacts.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the Chester PUD include the following:

- As discussed in the hazard profile section, climate change is anticipated to exacerbate this hazard over time.

- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District may add staff, but this number would be small. The District noted it has no control over population changes in its service territory, it merely reacts to them by providing additional (or reduced) services.
- Changes in land use and development in the District are expected to be limited in the near future and thus are not likely to affect flooding and associated impacts to the District. Additional development traditionally leads to additional flooding. In addition, adherence to protective building codes for new development will also assist in limiting future impacts and associated vulnerabilities of the District to this hazard. With adherence to development standards, future losses to new development should be minimal.

Future Development

Future development is expected to be minimal in the District. Future development in the District may be built in the floodplain, as long as it conforms to the standards of the floodplain ordinance. The County enforces their floodplain management ordinance on areas inside the District. More detail on the specifics of the floodplain ordinance can be found in Section 4.4.1 of the Base Plan. New District facilities and assets will be sited in such a way as to reduce the risk from flooding to District structures.

Flood: Localized Stormwater Flooding

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile

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 District and the Plumas County Planning Area, especially during the rainy season from November through April. Prolonged heavy rainfall (including that from atmospheric river events) contributes to a large volume of runoff resulting in high peak flows of moderate duration.

Location and Extent

The Chester PUD is subject to localized flooding throughout the District. This is discussed in **Error! R eference source not found.** below. 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.

Past Occurrences

Disaster Declaration History

There have been no state or federal disaster declarations specific to localized floods. There would most likely have been localized flood events during the 22 state and 19 federal disaster declarations for flood events, including heavy rains and storms, as shown in the previous 1%/0.2% annual chance flood section.

NCDC Events

The NCDC occurrences of localized flooding are included in the 1% and 0.2% annual chance flood hazard profile above where past flood events were noted. These include 15 flood related events for the entire County Planning Area reported since 1993.

Chester PUD Events

While a large storm event caused flooding in other areas, Chester did not flood in 2023. Instead, it was severely impacted with snow. There were road closures and property damage. There was a significant flood in 1971 that caused damage and population relocation. Chester had a history of annual flooding until the super ditch was built in 1938 to allow water to bypass during high flows. This significantly reduced flooding.

Once a decade there's typically a more critical flood, generally caused by Snowpack melting from warmer temps. Water meters were buried with debris, the population declined temporarily, schools closed and some businesses closed. These larger flood events can be seen in the Flood section above.

Climate Change and Localized Flood

It is likely that climate change will increase the chance of future occurrence as well as future impacts from localized floods. Atmospheric river events, occurring in recent years, is thought to be attributed to climate change and reflect storms of greater volume and intensity. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Even if average annual rainfall may decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century, increasing the likelihood of overwhelming stormwater systems built to historical rainfall and storm averages. This makes localized flooding more likely.

Vulnerability to Localized Flood

Flood vulnerability and their impacts vary by location and severity of any given flood event and will likely only affect certain areas of the District during specific times. Based on the risk assessment, it is evident that floods will continue to have potentially significant impacts to certain areas of the District. However, while flooding can cause significant impacts, depending on the duration and volume of precipitation and the drainage in any given area, many of the floods in the District are minor, localized flood events that are more of a nuisance than a disaster.

Many areas of the District are at some measure of vulnerability to localized flooding. An assessment of a community's vulnerability to localized flooding begins with an understanding of local exposure to localized flooding. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Historically, the District has been affected by flooding of streams and creeks occurring during large snow melt events. Additional development in the District and in the watersheds of these streams affects both the frequency and duration of damaging floods through an increase in stormwater runoff and contributes to localized flooding occurring in areas throughout the District. The lack of or inadequate drainage infrastructure in the District contributes to localized flooding issues. This includes those locations on Table B-8.

Table B-8 CPUD - List of Localized Flooding Areas

Road/Location Name	Flooding	Pavement Deterioration	Washout	High Water	Landslide/ Mudslide	Debris	Downed Trees
All of Chester if the lake drainage system or super ditch bypass fails	X	X	X	X		X	
Where the bypass ditch and Feather River go through town	X	X	X	X		X	

Source: Chester PUD

The District is also concerned with rain on snow events, which can cause greater flooding in the District. While this is an issue for the District, specific flooding problem areas couldn't be identified.

Assets at Risk

Assets at risk from this hazard include people and populations; structures and critical facilities; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All District staff and populations served (including vulnerable populations) are traditionally not highly vulnerable to localized flooding, but their structures and contents can be at risk. Localized flooding may also cause transportation issues as roads and lanes are impacted or closed and affect the ability for District staff and District residents to travel throughout the District.

Structures and Critical Facilities and Infrastructure

Structures and critical facilities and infrastructure in areas with localized flooding can be affected if floodwaters intrude into the structure. Structures in low lying areas, can be at greater risk. Buildings with older foundations that are prone to water intrusion are also at greater risk. Once water finds its way into a structure, it tends to continue to do so until the path that brings water into a structure is mitigated. Structures can also be damaged by trees that have become uprooted and fall during rain and storm events. Large trees falling onto structures can cause significant damage.

No assets from Table B-2 were specifically identified as being at risk to localized flooding.

Natural, Historic, and Cultural Resources

Natural resource assets may have some vulnerabilities to localized flood during major storm events, but can benefit from floodwaters, often by design. Many open spaces take overflow water and release it into the underlying soils and natural areas. Wetlands areas in the District actually help reduce the risk of flooding, as they can absorb excess rainfall that would have to be drained away from impervious surfaces. Flooding can provide many benefits to the natural environment, including recharging wetlands and groundwater, increasing fish production, creating wildlife habitat, and rejuvenating soil fertility. These smaller localized flooding events often provide more benefits to the environment in comparison to negative impacts associated with large flood events. Historic and cultural resources may be at some measure of vulnerability if they are located in areas subject to repeated localized flooding.

Impacts from Localized Flood

Primary concerns associated with stormwater flooding include impacts to infrastructure that provide 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 District infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break utility lines and interrupt services to District facilities. Standing water can cause damage to crops, roads, and foundations of District facilities. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

Life safety issues from localized flooding would be more limited. The amount and type of damage or flooding that occurs varies from year to year and from storm to storm, depending on the quantity of precipitation and runoff.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Likelihood of Future Occurrence discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the Chester PUD include the following:

- As discussed in the hazard profile section, climate change is anticipated to exacerbate this hazard over time.
- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District may add staff, but this number would be small. The District noted it has no control over population changes in its service territory, it merely reacts to them by providing additional (or reduced) services.
- Changes in land use and development in the District are expected to be limited in the near future and thus are not likely to affect flooding and associated impacts to the District. Additional development traditionally leads to additional flooding. In addition, adherence to protective building codes for new development will also assist in limiting future impacts and associated vulnerabilities of the District to this hazard. With adherence to development standards, future losses to new development should be minimal.

Future Development

The District noted that no future development is currently known to be occurring. However, he risk of stormwater/localized flooding to future development can be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater or choosing not to develop in areas that often are subject to localized flooding will reduce future risks of losses due to stormwater/localized flooding. Future development in the District will add to the drainage issues already faced by the District, unless adequate drainage facilities are installed in new development locations.

Severe Weather: Extreme Cold, Freeze, and Snow

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile

According to the National Weather Service (NWS) and the Western Regional Climate Center (WRCC), extreme cold often accompanies a winter storm or is left in its wake. Snow can occur during these events. Excess snow can cause avalanches to occur. Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Infants and the elderly are some of the most susceptible. Pipes may freeze and burst in homes or buildings that are poorly insulated or without heat. Freezing temperatures can cause significant damage to agricultural industry.

Location and Extent

Extreme cold and freeze events occur on a regional basis. Average low temperatures in the District can reach as low as 29º. There is no scale for extreme cold and freeze other than temperatures below 32°F.

Extreme cold and freeze have 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. Extreme cold can occur in any location of the City. All portions of the District and County are at risk to extreme cold and freeze.

Snowfall can affect almost all areas of the County and the District. While an average snowfall in the district can be up to 7 inches in a month, there have been instances where up to four feet have fallen in a 24 hour span as ween in the Chester PUD events section. Depending on the elevation of any given area, severe snowstorms are some of the most common extreme weather events that occur in the City and Plumas County. There is no scale (i.e. Richter, Enhanced Fujita) to measure the effects of snowfall other than snow depths. Heavy snow has a slow to moderate onset and can generally be predicted in advance for the County. Snow events can last for hours or for days, and snow can stay on the ground for weeks to months at a time.

Past Occurrences

Disaster Declaration History

The County has had no past federal and one past state disaster declarations for extreme cold and freeze. There were no disasters from snow or from avalanche. Table B-9 shows the dates of the disaster declarations. There have been USDA disaster declarations (2016, twice in 2022, 2023) from freeze since 2012.

Table B-9 Plumas County – Federal and State Disaster Declarations for Freeze 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Freeze	1	2007	0	–

Source: Cal OES, FEMA

NCDC Events

The NCDC data shows 549 extreme cold, freeze, and snow incidents for Plumas County since 1993, some of which likely affected the District.

Chester PUD Events

Heavy snow caused white out conditions, tree limbs falling on cars and homes, cars stalled due to white out conditions, freezing and breaking of water lines, and road closures occurred in Dec of 2022, Jan of 2023, and March of 2023. In Jan of 2023 up to 4 feet of snow fell in 24 hours. A church caved in and multiple outbuildings were damaged. Roads were closed, it was hard to get supplies to businesses

Climate Change and Extreme Cold, Freeze, and Snow (w/avalanche)

According to the 2021 CAS (as well as the 2024 Draft CAS), freezing spells and snow are likely to become less frequent in California as climate temperatures increase; if emissions increase, freezing events could occur only once per decade in large portion of the State by the second half of the 21st century. According to a California Natural Resources Report in 2014, it was determined that while fewer freezing spells would

decrease cold related health effects, too few freezes could lead to increased incidence of disease as vectors and pathogens do not die off.

Vulnerability to Extreme Cold, Freeze, and Snow

Extreme cold and freeze events happen in the District each year. Snow occurs regularly and can contribute to avalanches occurring in sloped areas. Cold, freeze, snow, and avalanche can impact both structures and populations in the Planning Area and in extreme conditions, may affect the ability of the District to operate. The whole of the District and County Planning Area has some measure of vulnerability to extreme cold, freeze, and snow.

An assessment of a community's vulnerability to this hazard begins with an understanding of local exposure to District. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

Chester PUD is most concerned with an inability to access District source and treatment locations. Along with this, the risk of pipes and water lines freezing is high and power outages can occur during heavy snow events. The District is also concerned with rapid snowmelt from heat or rain on snow events, which can cause greater flooding in the District.

Assets at Risk

Assets at risk from this hazard include people and populations; structures and critical facilities; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All District staff and populations the District serve are at some vulnerability to extreme cold, freeze, and snow. Some employees may face a risk while working outdoors. All populations served by the District are vulnerable to extreme cold and freeze, but this hazard generally affects people spending large amounts of time outside (including District staff). Prolonged exposure to cold can cause frostbite or hypothermia and can be life-threatening. Vulnerable populations to cold and freeze include the unhoused; individuals who exercise or train outdoors; outdoor workers; individuals that lack the resources to afford heat; and the young, old, or medically fragile individuals that are more susceptible to cold related impacts. In addition to vulnerable populations, pets and livestock are at risk to freeze and cold. Snow has an effect on buildings, but its effect on people and populations are minimal. Avalanche can affect populations, though the District has few developed areas at risk to avalanche.

Structures and Critical Facilities and Infrastructure

Structures and critical facilities and infrastructure in the District have some measure of risk from extreme cold and freeze. Buildings can be affected directly by freeze, pipes that feed buildings can be damaged during periods of extreme cold and cause water damage and other related impacts to a structure. Structures can also be damaged by downed trees during freeze and winter storm events. Snowfall can occur and can be heavy enough to damage structures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets in the District. Infrastructure such as roads, highways, and bridges can become slippery or blocked by large snow events, causing accidents and road closures.

Those District assets noted as being at risk to severe weather in Table B-2 are at risk.

Natural, Historic, and Cultural Resources

Depending on how low the temperatures go and the duration of an extreme cold and freeze event, natural resources in the District may be affected. During periods of freeze, trees in the District may be damaged. This is especially true if a freeze occurs during a winter storm with winds and precipitation. Other natural resources like wildlife may be at risk during a period of freeze. While it is rare for historic buildings to be affected directly by freeze, damages to pipes that feed historic buildings can be damaged during periods of extreme cold and cause additional impacts to the structures.

Impacts from Severe Weather: Extreme Cold, Freeze, and Snow

Extreme cold and freeze can affect critical facilities and infrastructure, down trees, break pipes, and can be a life safety issue. Transportation networks, communications, and utilities infrastructure are often the most vulnerable physical assets in the District. Infrastructure such as roads and utilities are at risk to freezing temperatures and snow, causing failures and hazardous road conditions. When extreme cold is coupled with high winds, snows, and freezing storms, power lines may be downed, resulting in power outages and an interruption of utilities and critical services. During periods of extremely low or prolonged cold temperatures, other impacts to the District can include interruption in business and school activities.

The elderly, the young, and those experiencing medical issues are often more vulnerable to temperature extremes, but anyone can be affected. Exposure to cold temperatures can cause hypothermia and frostbite. Those exercising or recreating outdoors, outdoor workers, and the unhoused may be at a higher risk.

One of the most significant impacts from snow avalanches are the closure of transportation corridors, which can isolate populations and interrupt commodity flows. Avalanches tend to occur during extended periods of snow when new snow is deposited on the existing snow pack causing stress on the layers beneath and triggering a collapse resulting in an avalanche. Avalanches can also be triggered by severe weather such as high winds and unusually warm weather and even earthquake events. There may be occasions where avalanches contribute to the presence of other hazards, such as flash floods resulting from mountainside erosion. Avalanches might cause erosion on sloped terrain, thereby increasing the likelihood of future landslides. In addition, debris deposited in a river or stream because of avalanches might alter its flow and contribute to flooding later.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the Likelihood of Future Occurrence discussion above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on these factors for the District include the following:

- Climate change is unlikely to exacerbate extreme cold, freeze, and snow (and avalanche) and their associated impacts to the District.
- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District noted it has no control over population changes, it merely reacts to them by providing additional (or reduced) services.
- Changes in land use and development in the District area are expected to be limited in the near future and thus are not likely to affect extreme cold and freeze and associated impacts to the District. In addition, adherence to protective building codes for new development will also assist in limiting future impacts and associated vulnerabilities of the District to this hazard.

Future Development

Future development built to code should be able to withstand extreme cold and freeze. Pipes at risk of freezing should be mitigated by either burying or insulating them from freeze as new facilities are improved or added. Current State of California and Plumas County codes provide such provisions for new construction.

Severe Weather: Heavy Rains and Storms

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Medium

Hazard Profile

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 in the District falls mainly in the fall, winter, and spring months. Wind often accompanies these storms; hail and lightning are rare in the District.

Location and Extent

Rains and storms can occur in any location of the District. All portions of the District are at risk to heavy rains and storms. Most of the severe rains occur during the fall, winter, and spring months in the District as discussed below. 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. Hail and lightning are rarer in the District and Plumas County. Duration of severe storms in the District can range from minutes to hours to days.

Past Occurrences

Disaster Declaration History

According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the District. This contributes to many of the federal disaster declarations related to flooding. Disaster declarations from flooding, including heavy rains and storms, are shown on Table B-10. IN addition, there have been two USDA disaster declarations from heavy rain and storms (once in 2016 and once in 2017) since 2012.

Table B-10 Plumas County – State and Federal Disaster Declarations from Flood (Heavy Rain and Storms) 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Flood (including heavy rains and storms)	22	1950, 1955, 1958 (twice), 1964, 1963, 1964, 1969, 1970 1980, 1986, 1993, 1992*, 1995 (twice*), 1996, 1997, 2006, 2017 (twice*), 2023 (twice*)	19	1950, 1955, 1958 (twice), 1963, 1964, 1969, 1970, 1986, 1992 (twice), 1995 (twice), 1997, 2006*, 2017 (twice*), 2023 (twice*)

Source: Cal OES, FEMA

NCDC Events

The NCDC data recorded 132 hail, heavy rain, and storm incidents for Plumas County since 1950.

Chester PUD Events

In 2023, a severe weather event caused significant snowfall to accumulate within the District, causing road closures and property damage.

In addition, the District noted that heavy rains and storms are an annual occurrence often resulting in flooding. Events causing flood issues are listed in the Past Occurrences section of the Flood: 1%/0.2% Annual Chance and Flood: Localized Stormwater Flooding discussions above.

Climate Change and Heavy Rains and Storms

It is likely that climate change will increase the chance of future occurrence as well as future impacts from heavy rains and storms. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

According to the 2021 CAS (as well as the 2024 Draft CAS), while average annual rainfall may increase or decrease slightly, the intensity of individual rainfall events is likely to increase during the 21st century. It is unlikely that hail will become more common in Plumas County and the Chester PUD. The amount of lightning is not projected to change.

Cal-Adapt noted that, on average, the projections show little change in total annual precipitation in California. Furthermore, among several models, precipitation projections do not show a consistent trend during the next century. Cal-Adapt modeled scenarios are shown in Section 4.3.4 of the Base Plan.

Vulnerability to Heavy Rain and Storms

Heavy rain and severe storms are the most frequent type of severe weather occurrences in the District. These events can cause both significant and localized flooding. Flooding can be worse during times where the ground is already saturated. Wind often accompanies these storms and has caused damage in the past. Hail and lightning are rare in the District, but also can cause damage, with lightning occasionally igniting wildfires.

The whole of the District is at some measure of vulnerability to heavy rain and storms. An assessment of a community's vulnerability to heavy rains and storms begins with an understanding of local exposure to heavy rain and storms. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

The District noted that one of the primary issues associated with heavy rains and storms is the resulting flooding caused by large precipitation events. The District is also concerned with rain on snow events, which can cause greater flooding in the District. In addition, the District is concerned about power outages, floods, road closures, ground saturation from flooding.

OTHER VULNERABILITIES/CONCERNS/ISSUES SPECIFIC TO THE DISTRICT? CAN THE DISTRICT PROVIDE DETAILS ON THE HEAVY RAIN ISSUES THAT WOULD SUPPORT MITIGATION ACTION DEVELOPMENT?

Assets at Risk

Assets at risk from this hazard include people and populations; structures and critical facilities; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All District staff and the populations served by the District are at some vulnerability to heavy rains and storms. Those District employees that work outdoors could be affected to a limited extent by this hazard. All populations served by the District have some measure of risk to heavy rains and storms. Those populations that work or recreate outside and unhoused individuals are more vulnerable to impacts from heavy storm events. Heavy rains and storms occur every year and do not generally cause significant adverse impacts to individuals; it is the secondary hazard, flooding, which poses the biggest impact to people.

Structures and Critical Facilities and Infrastructure

District facilities and structures have some risk to heavy rains and storms. Heavy rain and storms can affect critical facilities and infrastructure during large events. Structures built to modern building codes are built to withstand heavy rains and storms (including thunderstorm winds and lightning); older structures may be more vulnerable. During a heavy storm, localized flooding may cause water intrusion into buildings from the outside. Trees can be downed causing impacts to structures. Older homes and buildings may be at increased risk to heavy rains and storms. Power outages during severe storm events can occur, impacting the use of structures until the power is back online. Local roads, streets, and bridges can be impacted resulting in closures restricting traffic flow in the District. In certain areas, large storms can cause erosion and localized landslides which can impact affected facilities.

Those District assets noted as being at risk to severe weather in Table B-2 are at risk.

Natural, Historic, and Cultural Resources

Large rain and storm events and associated flooding can affect natural, historic, and cultural resources. Silt and sediment can damage natural areas. Trees can be uprooted and downed by high winds. Extended periods of rainfall can erode natural banks along waterways and degrade soil stability for terrestrial species. While some natural systems can be adversely impacted during these large storms, heavy rain events can also provide benefits. Groundwater and wetland areas can be recharged and water supplies replenished. Historic and cultural resources may also be affected. Generally, the impacts are associated with damage to structures affected by large storm events, but other cultural resources such as those associated with Native Americans and old tribal areas can also be disturbed, damaged, and lost during extreme rain and storm and events.

Impacts from Heavy Rain and Storms

Impacts from heavy rains and storms include damage to property, critical facilities and infrastructure, and the natural landscape. This includes: erosion; downed trees; damaged utility structures and infrastructure; power outages; road damage and blockages; and even lightning strikes to critical infrastructure and people.

Lightning can also cause wildfires and urban fires to occur. Landsliding and erosion occur when the soil on slopes becomes oversaturated and fails. Climate change may cause these impacts to worsen.

Actual damage associated with the primary effects of severe storms and heavy rains has been somewhat limited. It is the secondary hazards caused by these severe weather events, such as floods and erosion that would likely have the greatest impact.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile section above), changes in population patterns, and changes in land use and development. The influencing effects of these factors on this hazard are discussed further in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the District include the following:

- As discussed in the hazard profile section, climate change is anticipated to exacerbate this hazard over time.
- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District may add staff, but this number would be small. The District noted it has no control over population changes in its service territory, it merely reacts to them by providing additional (or reduced) services.
- Changes in land use and development in the District are expected to be limited in the near future and thus are not likely to affect heavy rains and storm and associated impacts to the District. In addition, adherence to protective building codes for new development will also assist in limiting future impacts and associated vulnerabilities of the District to this hazard. With adherence to development standards, future losses to new development should be minimal.

Future Development

New District facilities follow state and local building codes which should reduce the risk to future development in the District from heavy rains and storms. New critical facilities should be built to withstand hail damage, lightning, and thunderstorm winds. Changes in land use may also amplify the impacts of heavy rains and storms, as additional impervious surfaces can cause additional runoff and localized flooding throughout the District.

Wildfire (with smoke and air quality)

Likelihood of Future Occurrence–Highly Likely
Vulnerability–Extremely High

Hazard Profile

Wildland fire and the risk of a conflagration is an ongoing concern for the Chester PUD. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountainous areas and subsequent fire control practices have affected the natural cycle of fire regimes. Wildland fires affect grass, forest, and brushlands, as well as structures. 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. These weather conditions can result in red flag (e.g., fire weather) days, and can result in PSPS events in the District. While wildfire risk has predominantly been associated with more remote forested areas and wildland urban interface (WUI) areas, significant wildfires also occur in more populated developed areas. There is also the concern of wildfires occurring in these more remote, forested areas, that under certain weather conditions, can extend into areas not generally considered at a high risk to wildfire. Smoke and air quality also become an issue, both from fires occurring inside and outside of the Plumas County Planning Area and the District.

Wildfire Smoke and Air Quality

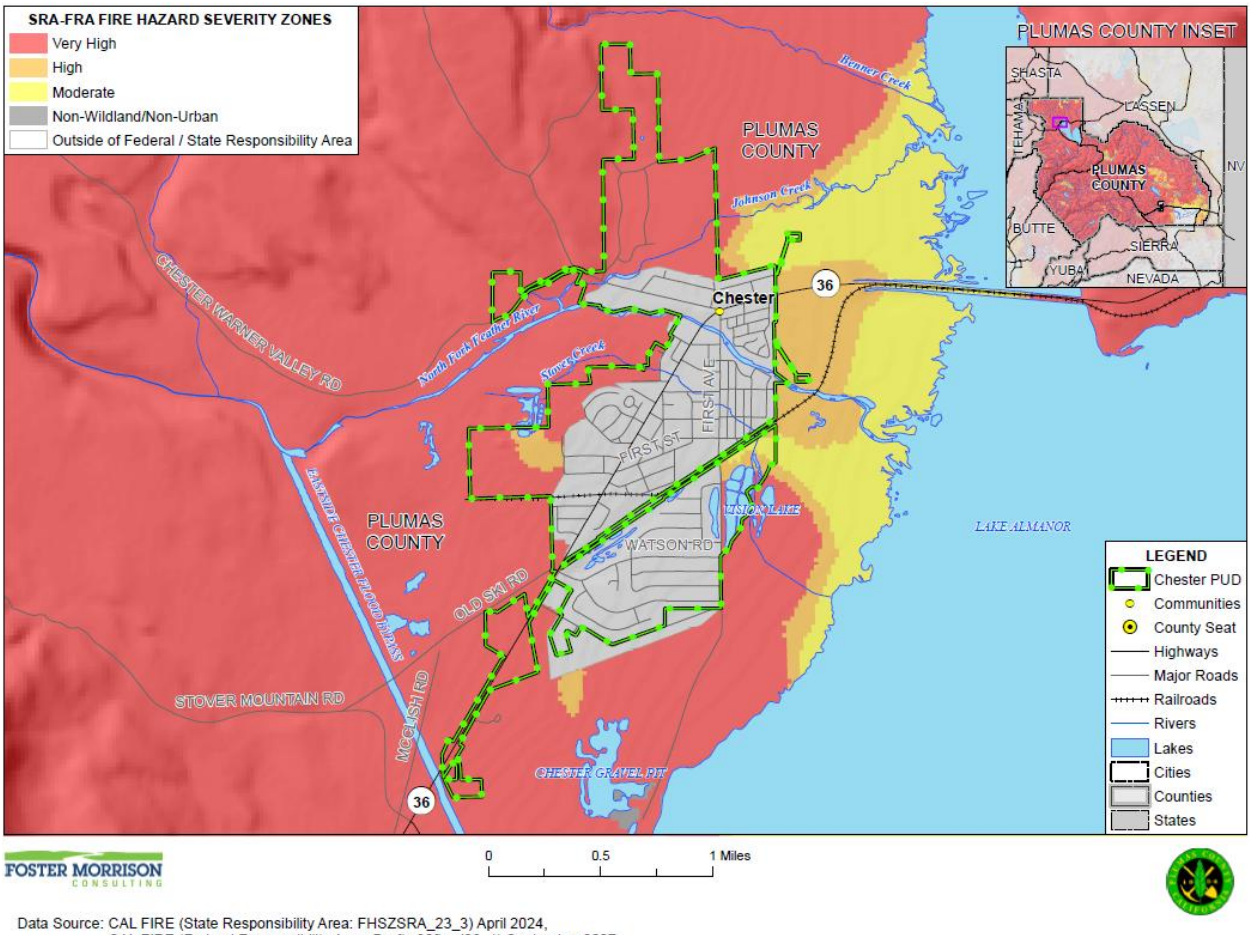
Smoke from wildfires is made up of gas and particulate matter, which can be easily observed in the air. Air quality standards have been established to protect human health with the pollutant referred to as PM2.5 which consists of particles 2.5 microns or less in diameter. These smaller sizes of particles are responsible for adverse health effects because of their ability to reach the lower regions of the respiratory tract.

Wildfire smoke can have negative effects to those who live in or near a fire burn area. Smoke and air pollution from wildfires can be a severe health hazard. Significant wildfires occurring in both Plumas County, nearby northern California communities, and elsewhere have created significant air pollution affecting area residents. This was the case during the 2021 Caldor Fire, as well as others that affected the Plumas County Planning Area.

Location and Extent

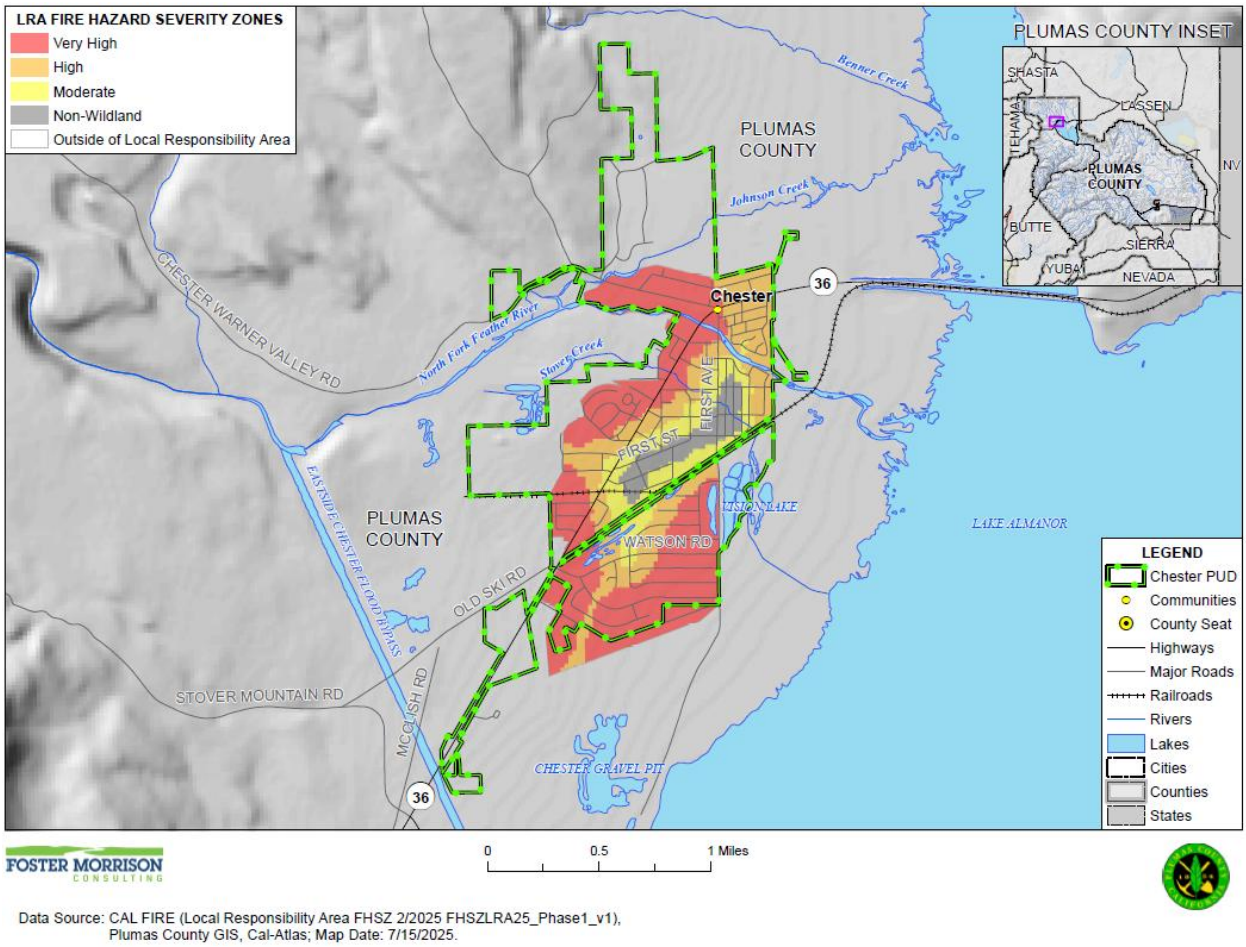
Wildfire can affect all areas of the District. CAL FIRE has estimated that the risk varies across the District and has created maps showing risk variance. Following the methodology described in Section 4.3.16 of the Base Plan, wildfire maps for the Chester PUD were created. Figure B-4 shows the CAL FIRE State Responsibility Areas (SRA) and Federal Responsibility Areas (FRA) and their associated Fire Hazard Severity Zones (FHSZ) in the District. Figure B-5 shows the CAL FIRE Local Responsibility Areas (LRA) and their associated Fire Hazard Severity Zones (FHSZ) in the District. As shown on the maps, FHSZs within the District range from Moderate to Very High.

Figure B-4 Chester PUD – CAL FIRE SRA/FRA Fire Hazard Severity Zones



Data Source: CAL FIRE (State Responsibility Area: FHSZSRA_23_3) April 2024,
CAL FIRE (Federal Responsibility Area: Draft c32fhszl06_1) September 2007,
Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

Figure B-5 Chester PUD – CAL FIRE LRA Fire Hazard Severity Zones



Data Source: CAL FIRE (Local Responsibility Area FHSZ 2/2025 FHSZLRA25_Phase1_v1), Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

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. Geographical FHSZ extents in the SRA/FRA are shown in Table B-11, while extents in the LRA are shown on Table B-12.

Table B-11 Chester PUD – CAL FIRE SRA/FRA Fire Hazard Severity Zone Geographical Extents

Jurisdiction / Fire Hazard Severity Zones	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	435	37%	275	38%	161	35%
High	37	3%	22	3%	16	3%
Moderate	10	1%	0	0.0%	10	2%
Non-Wildland/Non-Urban	0	0.0%	0	0.0%	0	0.0%

Jurisdiction / Fire Hazard Severity Zones	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Outside of Federal / State Responsibility Area	696	59%	418	59%	279	60%
Total	**1,179**	**100%**	**714**	**100%**	**465**	**100%**

Source: CAL FIRE

Table B-12 Chester PUD – CAL FIRE LRA Fire Hazard Severity Zone Geographical Extents

Jurisdiction / Fire Hazard Severity Zones	Total Acres	% of Total Acres	Improved Acres	% of Total Improved Acres	Unimproved Acres	% of Total Unimproved Acres
Very High	350	30%	222	31%	128	27%
High	195	17%	113	16%	81	17%
Moderate	101	9%	54	8%	47	10%
Non-Wildland	51	4%	29	4%	23	5%
Outside of Local Responsibility Area	483	41%	296	41%	186	40%
Total	**1,179**	**100%**	**714**	**100%**	**465**	**100%**

Source: CAL FIRE

Past Occurrences

Disaster Declaration History

There has been eight state and six federal disaster declarations due to fire, as shown in Table B-13.

Table B-13 Plumas County – State and Federal Wildfire Disaster Declarations 1950-2025

Disaster Type	State Declarations		Federal Declarations	
	Count	Years	Count	Years
Fire	8	1960 (unnamed), 1987(Clarks Fire), 1999 (Bucks Fire), 2020 (twice – Bear Fire, North Complex Fire), 2021 (three – Dixie Fire, Monument Fire, Lava Fire/Beckwourth Complex)	6	1999 (Bucks Fire), 2008 (BTU Lightning Complex), 2020 (twice – Bear Fire, North Complex Fire), 2021 (twice – Dixie Fire, Lava Fire/Beckwourth Complex)

Source: Cal OES, FEMA

NCDC Events

The NCDC has tracked 15 wildfire events in the County dating back to 1993. Many more fires have occurred, but were not reported to the NCDC database.

Chester PUD Events

There have been several wildfires over the years that have impacted Chester with air quality, road closures, and rising home insurance costs. The only fire that appears to have closely threatened the community of Chester was the Dixie fire. All but one road was closed, the entire town was evacuated for over a week, supplies were hard to get, 2 structures were burnt across Lake Almanor, smoke damage occurred to many homes through the ventilation, and animals were pushed into town and farther out. The burn scar causes ecological and economical damages including tourism and population decline, fire insurance rising considerably, the dead trees becoming overloaded with beetles, no protection from the wind due to loss of trees, schools and businesses were shut down.

Climate Change and Wildfire

It is likely that climate change will increase the chance of future occurrence as well as future impacts from wildfire. More information on future impacts to the District can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

Warmer temperatures can exacerbate drought conditions. Drought often kills plants and trees, which serve as fuel for wildfires. Warmer temperatures could increase the number of wildfires and pest outbreaks, such as the western pine beetle. Cal-Adapt's wildfire tool predicts the potential increase in the amount of burned areas for the year 2090-2099, as compared to recent (2010) conditions. This is shown in Section 4.3.16 of the Base Plan. Based on this model, Cal-Adapt predicts that wildfire risk in Plumas County will increase moderately at the end of the century. However, wildfire models can vary depending on the parameters used. Cal-Adapt does not take landscape and fuel sources into account in their model. In all likelihood, in the Plumas County Planning Area, precipitation patterns, high levels of heat, topography, and fuel load will determine the frequency and intensity of future wildfire.

Vulnerability to Wildfire

Risk and vulnerability to the District from wildfire is of significant concern. Wildfires that occur in the District occur from a variety of both natural and manmade causes. The District can be affected both by fires that start on or near District lands as well as those that start elsewhere and move into the District. In addition to burning large areas of land, air quality can be affected in the District by smoke from fires occurring inside the District as well as those from many miles away.

The whole of the District is at some measure of vulnerability to wildfire. An assessment of a community's vulnerability to wildfire begins with an understanding of local exposure to wildfire. This is included in the Local Concerns section below followed by a discussion of the District's Assets at Risk to this hazard.

Local Concerns

The District has specific concerns and unique vulnerabilities regarding this hazard. These concerns form a portion of the basis for the mitigation strategy and mitigation actions that seek to reduce risk and vulnerability to this hazard.

If a large wildfire were to occur in the District, above ground infrastructure would have to be completely replaced. Economic impacts could be severe as Chester could lose a significant portion, if not all, of District income depending on the severity of the fire; from population decline as well as a reduction in tourism. Chester thrives off summer tourism and a fire significantly impacts the tourism of the area. The busyness of the summer allows small business to survive through the winter. Along with that, the nearby lake needs to maintain the beautiful surroundings for tourism to be continual throughout the summer.

Fire can cause the District, and the population that stay, to rebuild and restart with all aspects of having a functioning society. It can take years to rebuild District infrastructure. Income to rebuild could be diminished to nothing.

OTHER VULNERABILITIES/CONCERNS/ISSUES SPECIFIC TO THE DISTRICT? CAN THE DISTRICT PROVIDE DETAILS ON THE WILDFIRE ISSUES THAT WOULD SUPPORT MITIGATION ACTION DEVELOPMENT?

Assets at Risk

Assets at risk from this hazard include people and populations served; structures and critical facilities; and natural, historic, and cultural resources. These are discussed in the following sections.

People and Populations

All populations (both District staff and Service Area populations) are at some vulnerability to wildfire. Certain vulnerable populations are at greater risk to the effects of wildfire as well as smoke and air quality issues that wildfires bring. Vulnerable populations include the unhoused , infants and children under age five and their caregivers, the elderly (65 and older), individuals with disabilities, individuals' dependent on medical equipment, individuals who exercise, recreate, or work (like District staff) outdoors, and individuals with impaired mobility.

Structures and Critical Facilities and Infrastructure

All structures in the District have some risk to wildfire. Wildfire presents a threat to critical facilities and infrastructure. This includes most of the District assets that were shown on Table B-2 above.

Natural, Historic, and Cultural Resources

Natural, historic, and cultural resources located within areas at risk to wildfire would be vulnerable. Should a wildfire occur in the District, the impacts to natural, historic and cultural resources could be extensive and include air pollution, contamination from water runoff containing toxic products, other environmental discharges or releases from burned materials affecting soils, habitat areas, wildlife, and aquatic resources, and total destruction of natural resources. Debris and runoff from burned areas can affect reservoirs and rivers in the District. Historic and cultural resources can be damaged or destroyed and are often more vulnerable due to their older age, construction type, and lack of fire prevention infrastructure such as sprinklers.

Impacts from Wildfire

Potential impacts from wildfire include loss of life and injuries; damage to structures, critical facilities and infrastructure, and other improvements, natural and cultural resources, croplands, and timber; and loss of recreational opportunities. Out of control wildfires can have catastrophic impacts. 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. Smoke impacts may come from wildfires outside the District, as well as from within.

Although the physical damages and casualties arising from wildland-urban interface or conflagration 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, Plumas Sierra REC, or Liberty Utilities to initiate a PSPS 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. In addition, catastrophic wildfire can create favorable conditions for other hazards such as flooding, landslides, and erosion during the rainy season.

The impacts of a fire are felt long after the fire is extinguished. In addition to the loss of property in fires, the loss in vegetation and changes in surface soils alters the environment. When supporting vegetation is burned, hillsides become destabilized and prone to erosion. The burnt surface soils are harder and absorb less water. When winter rains come, this leads to increased runoff, erosion, and landslides in hilly areas.

Impacts to the District include potential loss of water availability for fire suppression and/or consumption. Wastewater treatment can also be rendered inoperable when wildfire eliminates the availability of electricity. All wastewater equipment have generators, however, the water distribution equipment does not. Without backup electricity generation, water and wastewater cannot be conveyed. Water quality will also suffer if water treatment functionality is compromised. The economic impact alone to the District including the loss of function of buildings and infrastructure and the cost of reacting to these fires is a major concern.

Wildfire smoke can also have negative effects to those who live in or near a fire burn area. Smoke and air pollution from wildfires can be a severe health hazard. Significant wildfires occurring in nearby northern California communities since the previous LHMP have created significant air pollution affecting area residents. District residents have been affected by wildfire smoke and poor air quality, from fires both within the County and from those much further away.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the District may be affected in the future by climate change (which was discussed in the hazard profile above), changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. These are discussed in the Future Conditions/Future Development discussion below.

Future Conditions/Future Development

This section provides a discussion of how future conditions will influence or affect the hazard over time and also discusses future development relative to each hazard.

Future Conditions

Future conditions may be affected by climate change, changes in population patterns (migration, density, or the makeup of socially vulnerable populations), and changes in land use and development. Findings on this for the Chester PUD include the following:

- Climate change is likely to exacerbate future wildfire conditions and associated impacts and vulnerability of the District to wildfire.
- Population projections for the area served by the District show the population to be shrinking, which limits additional impacts to the District. The District noted it has no control over population changes, it merely reacts to them by providing additional (or reduced) services.
- Changes in land use and development in the District are expected to be limited in the near future and thus would have possible associated wildfire impacts to the District. Additional development traditionally leads to additional fires. In addition, adherence to protective building codes for new development will also assist in limiting future impacts and associated vulnerabilities of the District to this hazard. With adherence to development standards, future losses to new development should be minimal.

The District will take wildfire into account when siting new facilities. Fire hydrants, defensible space, well production, water storage, and distribution should all be considered when assessing future development. New facilities will be built to the most current California Building standards for wildfire.

Future Development

Additional growth and development within moderate or higher fire hazard severity zones in the District would place additional assets at risk to wildfire. More vulnerable populations may experience a disproportionate impact from wildfire, and this should be considered as development continues. However, District building codes are in effect and should continue to be updated as appropriate to reduce future impacts.

B.5 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.

B.5.1. Regulatory Mitigation Capabilities

Table B-14 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 Chester PUD.

Note: The District does not have the authority to regulate land use and development within its jurisdiction. Authority for promulgating and enforcing zoning, land use, and development requirements falls to counties and incorporated communities. As such development within the District's jurisdictional boundaries will conform to the zoning and land use development ordinances and building codes of the county or incorporated community in which the District is located.

Table B-14 Chester PUD's Regulatory Mitigation Capabilities

Plans	In Place Y/N	Does the plan address hazards? Can the plan be used to carry out mitigation actions? When was it last updated??
Capital Improvements Plan	N	We will be creating one
Climate Change Adaptation Plan	N	
Community Wildfire Protection Plan	N	Penn Fire will be working on this plan
General Plan/Comprehensive Plan/Master Plan	N	
Continuity of Operations Plan	N	
Economic Development Plan	N	
Land Use Plan	N	
Local Emergency Operations Plan	N	
Stormwater Management Plan	N	
Transportation Plan	N	
Other		
Land Use Planning and Ordinances	**Y/N**	**Is the ordinance an effective way to reduce hazard impacts? Is the ordinance adequately administered and enforced?**
Acquisition of land for open space and public recreation use	N/A	
Building code	N/A	
Flood insurance rate maps	N/A	
Floodplain ordinance	N/A	
Natural hazard-specific ordinance (stormwater, steep slope, wildfire)	N/A	
Subdivision ordinance	N/A	
Zoning ordinance	N/A	
Other		

How can these capabilities be expanded and improved to reduce risk?
The acquisition of land for recreational uses is an ordinance we need. The rest are covered pretty good by the County ordinances.

Source: Chester PUD

B.5.2. Administrative/Technical Mitigation Capabilities

Table B-15 identifies the District department(s) responsible for activities related to mitigation and loss prevention in the Chester PUD.

Table B-15 Chester PUD's Administrative and Technical Mitigation Capabilities

Administration	In Place Y/N	Describe capability Is coordination effective?
Staff		**Is staffing adequate to enforce regulations? Is staff trained on hazards and mitigation? Is coordination between agencies and staff effective?**
Chief Building Official	N	
Civil Engineer, including dam and levee safety	N	
Community Planner	Y	
Emergency Manager	Y	
Floodplain Administrator	N	
GIS Coordinator	Y	
Planning Commission	Y	
Other		
Technical	**Y/N**	**Has capability been used to assess/mitigate risk in the past?**
Grant writing	Y	Y
Hazard data and information	N	
GIS analysis	N	
Mutual aid agreements	Y	Theres one with Indian Valley. We are working on updating it.
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District would like to work with all neighboring utility districts on mutual aid agreements. Most District grants are not for mitigation. They typically are for when we are under a violation notice or in an emergency situation.		

Source: Chester PUD

B.5.3. Fiscal Mitigation Capabilities

Table B-16 identifies financial tools or resources that the District could potentially use to help fund mitigation activities.

Table B-16 Chester PUD's Fiscal Mitigation Capabilities

Funding Resource	In Place 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	N	Water and wastewater facilities
Community Development Block Grant	N	
Federal funding programs (non-FEMA)	N	State funding is our normal grant source
Fees for water, sewer, gas, or electric services	N	
Impact fees for new development	N	
State funding programs	Y	Water and wastewater facilities and Chester Fire
Stormwater utility fee	N	
Other		
How can these capabilities be expanded and improved to reduce risk?		
The District is in need of a capital improvement plan. That will be worked on in the future.		

Source: Chester PUD

B.5.4. Mitigation Education, Outreach, and Partnerships

Table B-17 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 B-17 Chester PUD's Mitigation Education, Outreach, and Partnerships

Program/Organization	In Place Y/N	How widespread are each of these in your community?
Community newsletters	N	
Hazard awareness campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, school programs, public events)	N	
Local news	Y	
Organizations that interact with underserved and vulnerable communities	N	
Social media	N	

Program/Organization	In Place Y/N	How widespread are each of these in your community?
How can these capabilities be expanded and improved to reduce risk?		
We plan to have an informational Facebook page to communicate with the public. We also send out mass mailings when required		

Source: Chester PUD

B.5.5. Other Mitigation Efforts

The District has many other completed or ongoing mitigation projects/efforts that include the following:

CAN THE DISTRICT PROVIDE A LIST OF PAST HAZARD MITIGATION TYPE PROJECTS AND ACTIVITIES THAT HAVE BEEN IMPLEMENTED BY HAZARD. INCLUDE ANY NOTABLE HAZARD RISK REDUCTION MEASURES.

B.6 Mitigation Strategy

B.6.1. Mitigation Goals and Objectives

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

B.6.2. NFIP Mitigation Strategy

The District does not participate in the NFIP, as it is not an eligible participant. Many of the District's projects work to reduce impacts from flooding thus furthering the objectives of the NFIP.

B.6.3. Mitigation Actions

The Planning Team for the Chester PUD 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, , and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning based on criteria detailed in Chapter 5:

- Drought & Water shortage
- Floods: 1%/0.2% annual chance
- Floods: Localized Stormwater
- Severe Weather: Extreme Cold, Freeze, and Snow (w/avalanche)
- Severe Weather: Heavy Rain and Storms (Wind, Hail, Lightning)
- Wildfire (w/smoke and air quality)

Non-priority hazards for mitigation planning include:

- Agricultural Hazards (Severe Weather/Pests/Invasive Species)

- Climate Change
- Dam Failure
- Earthquake
- Hazardous Materials Transport
- Landslide, Mudslide, and Debris Flow
- Severe Weather: Extreme Heat
- Severe Weather: High Winds and Tornado
- Volcano

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 LHMP's 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.

Mitigation Actions

Action 1. Asbestos Water Line Natural Disaster Hazard

Hazards Addressed: Flood, Fire, Extreme Weather, Dam Failure, Drought and Water Shortage, Landslide, Mudslide, Debris, Volcano and Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): All of the water lines in Chester are made of asbestos cement. Contractors frequently installed asbestos cement (AC) pipes in water systems from the 1920s through the late 1970s. The use of these pipes was largely discontinued in North America by the 1980s due to growing health concerns about asbestos exposure. If the pipes are dry without water going through them, they can become brittle and will become a high health hazard. Asbestos water lines can release fibers into drinking water and air, posing a risk of health problems like kidney and gastrointestinal cancers, and potentially benign intestinal polyps. Undisturbed, intact asbestos-cement pipe is considered less hazardous, but damaged or dry asbestos pipe a serious concern. It is unknown how long the pipes would need to be dry to become brittle and release the excess of fibers. If there was a water outage (of an extended duration) CPUD would test the water once service was restored. If the test fails the required limit of 0.2 million fibers per liter (MFL), the asbestos pipe should be replaced immediately to avoid potential serious health issues that could lead to some cancers and possibly death.

Project Description: All asbestos cement water lines to be replaced with C900, which can withstand extended water outages.

Other Alternatives: Routinely notify the public of the hazard and failed tests, and continue to provide water with known serious health risks after a natural disaster occurs.

Existing Planning Mechanism(s) through which Action Will Be Implemented: Chester PUD does not have the funds to replace the water pipes with the correct material, C900 PVC. Grant funding to replace the pipes before a natural disaster creates the hazard, is CPUD's only option to avoid extended water outages, health hazards, and emergency public notifications. Implement as a stand alone project. The District will not be able to recover the required funds to replace the AC pipe due to the high cost of the project.

Responsible Office/Partners: Chester Public Utility District

Benefits (Losses Avoided): Human and animal life and wellness is a major concern with the ability to deliver safe drinking water after a natural disaster a top priority. The project could cost around 30 million dollars. If the District has to absorb that cost in a loan, the rate payers will have to absorb that cost in their monthly base rate and water will not be deliverable at a rate that anyone can afford, (around $4000 a month).

Potential Funding (Local Budgets, Grant Funds, etc.): The District is currently contracted with RCAC to apply for all grant options. We are researching Federal, State, County, and Foundations for grant options. Examples are; grants.gov, FEMA, DFA, Kevin Kiley's office, HMGP, USDA, RCAC, CRWA, EPA, SWRCB, WRFP, CWSRF, SWRPs, DWP, NFWF, RUS…

Timeline: To be initiated within the 5 years covered by this plan (may take longer due to planning and funding application processing)

Project Priority (High, Medium, Low): High

Action 2. Backup Power

Hazards Addressed: Flood, Fire, Extreme Weather, Dam Failure, Drought and Water Shortage, Landslide, Mudslide, Debris, Volcano and Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): Climate change leads to drought, Fire, and flooding, and climate change which cause many natural hazards that can create extended power outages. The District is currently short a generator for one of our wells and has no solar. Fuel for generators can be a limited resource during an extended power outages.

Project Description: Add an additional automatic generator to provide backup power to one of the District's wells, a fuel reserve storage tank, solar to all well and wastewater powered locations. This will allow continuous operations for water and wastewater during extended power outages.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Implement as a stand alone project.

Responsible Office/Partners: Chester Public Utility District

Benefits (Losses Avoided): The district can continue regular facility services to customers during power outages. Solar would save thousands monthly on water pumping costs. Automated operations during power outages would save thousands annually on staff time. Customer's quality of life during emergencies would be improved with continuous service.

Potential Funding (Local Budgets, Grant Funds, etc.): The District is currently contracted with RCAC to apply for all grant options. We are researching Federal, State, County, and Foundations for grant options. Examples are; grants.gov, FEMA, DFA, Kevin Kiley's office, HMGP, USDA, RCAC, CRWA, EPA, SWRCB, WRFP, CWSRF, SWRPs, DWP, NFWF, RUS…

Timeline: Within 2 years

Project Priority (High, Medium, Low): High

Action 3. Public Outreach Program

Hazards Addressed: All community assessed hazards and emergencies: flood, fire, extreme weather, dam failure, drought, water shortage, landslide, mudslide, debris, environmental awareness, earthquakes, volcanos, road closures, public safety

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): Community preparedness is vital during emergencies and natural disasters.

Project Description: Bringing awareness to the community of how to be prepared for community emergency situations. There is a ham radio at Chester PUD at other local locations, monitored and tested monthly by a local group, Almanor Repeater Foundation. The same group maintains an AM radio frequency 147.735 MHz WRTZ-707 for emergency communications and alerts. We want to help promote the Ham and AM radio stations as part of our emergency outreach program by means of CPUD's website, Facebook, and through the Chamber of commerce's public outreach platform.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented: CPUD will coordinate with the Almanor Hams, become members of the Chamber of Commerce and utilize their platform, attend town hall meetings, and maintain our Facebook page and website.

Responsible Office/Partners: Chester Public Utility District and the Almanor Hams

Benefits (Losses Avoided): Being prepared avoids chaos, loss of life and property, unnecessary costs, panic, vehicle accidents and added stress

Potential Funding (Local Budgets, Grant Funds, etc.): Internal district and staff time

Timeline: Less than a year

Project Priority (High, Medium, Low): High

Action 4. Tree and Brush Removal

Hazards Addressed: Flood, Fire, Extreme Weather, Dam Failure, Drought and Water Shortage, Landslide, Mudslide, Debris, Volcano, and Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): Trees and brush around our facilities pose a hazard in a natural disaster. Drought kills trees and brush, and creates high fire hazard conditions. The weight of heavy snow can cause trees and limbs to fall on buildings.

Project Description: Remove trees and brush within defensible space limits set by Cal Fire.

Other Alternatives: No Action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Implement as a stand alone project. Hire a licensed company to create a defensible space around all infrastructure facilities.

Responsible Office/Partners: Chester Public Utility District

Benefits (Losses Avoided): Possibly millions in damages and District wide water and wastewater outages can be prevented depending on the natural disaster that occurs.

Potential Funding (Local Budgets, Grant Funds, etc.): RCAC are contracted to apply for grants for CPUD. Some of the following sources will be applied for: Sierra Nevada Conservancy (SNC) Wildfire and Forest Resilience Directed Grant Program, Community Wildfire Defense Grant Program (CWDG), State Fire Capacity (SFC) Grant Program, Cal Fire, other State and Federal grants, foundations.

Timeline: 1 year

Project Priority (High, Medium, Low): High

Action 5. Wastewater Infrastructure

Hazards Addressed: Flood, Fire, Extreme Weather, Dam Failure, Drought and Water Shortage, Landslide, Mudslide, Debris, Volcano and Earthquake

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): A natural disaster emergency could cause damage to our existing wastewater collection and treatment system. If the wastewater collection pipes are broken, the levees at the ponds are broken, or the treatment plant burned or flooded due to a natural hazard it would mean around 1400 customers without the ability to occupy their homes or businesses until repair work was

completed and potentially a major environmental contamination. It could contaminate the drinking water system and Lake Almanor. Our existing wastewater system is approximately 60 years old, making it more susceptible to breaks from natural disasters.

Project Description: Wastewater collection and treatment system

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: We are in the construction grant application process to perform upgrades to the treatment plant and replace a section of the collection system which will mitigate weak areas. The pond levees and most of the collection system do not currently have any grant applications in process. Replacing weak points is the best form of mitigation. Implement as a stand alone project.

Responsible Office/Partners: Chester Public Utility District

Benefits (Losses Avoided): Replacing weak parts of the wastewater system will protect the environment from wastewater contamination, as well as reinforcing the pond levees. If the wastewater system is damaged in an emergency the cost would be much higher to replace and clean up contamination. Human health is a grave concern if the drinking water or lake Almanor is contaminated with wastewater.

Potential Funding (Local Budgets, Grant Funds, etc.): Chester PUD does not have the funds to replace the wastewater system and clean up contamination. The customers would have to spend thousands to relocate temporarily or permanently. We are currently contracted with RCAC to apply for all grant options. We are researching Federal, State, County, and Foundations for grant options. Examples are; grants.gov, FEMA, DFA, Kevin Kiley's office, HMGP, USDA, RCAC, CRWA, EPA, SWRCB, WRFP, CWSRF, SWRPs, DWP, NFWF, RUS…

Timeline: To be initiated within the 5 years covered by this plan (may take longer due to planning and funding application processing)

Project Priority (High, Medium, Low): High

Action 6. Wireless Radio Meters

Hazards Addressed: Flood, Fire, Extreme Weather, Dam Failure, Drought and Water Shortage, Landslide, Mudslide, and Debris

Goals Addressed: 1, 2, 3, 4, 5, 6, 7, 8, 9

Issue/Background (Problem Statement): Sever weather and heavy snow makes it impossible to read meters in the winter. Currently CPUD waits until the snow is removable or mostly melted to read meters and bills for the total usage. The problem is there is no way to tell if there are any leaks from freezing pipes or other breaks. This can cause storage capacity issues and high customer bills. During fires and other natural disasters meters can still be safely read with wireless radio meters, leaks immediately detected and storage capacity maintained.

Project Description: Replace existing manually read meters with wireless radio meters.

Other Alternatives: No action

Existing Planning Mechanism(s) through which Action Will Be Implemented: Implement as a stand alone project. CPUD needs a grant to pay for the meters and install them. We can require them with all new annexed parcels.

Responsible Office/Partners: Chester Public Utility District

Benefits (Losses Avoided): Huge financial savings for the District and the customers. Ability to maintain water storage and deliver continuous water service to all customers throughout the extreme conditions and natural disasters.

Potential Funding (Local Budgets, Grant Funds, etc.): We are currently contracted with RCAC to apply for all grant options. We are researching Federal, State, County, and Foundations for grant options. Examples are; grants.gov, FEMA, DFA, Kevin Kiley's office, HMGP, USDA, RCAC, CRWA, EPA, SWRCB, WRFP, CWSRF, SWRPs, DWP, NFWF, RUS…

Timeline: Within 2 years

Project Priority (High, Medium, Low): High