# Annex A City of Portola

## A.1 Introduction

This Annex details the hazard mitigation planning elements specific to the City of Portola, who completed a stand alone LHMP in 2019 before joining this County in this 2026 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 City. This Annex provides additional information specific to the City of Portola, with a focus on providing additional details on the planning process, risk assessment, and mitigation strategy for this jurisdiction.

## A.2 Planning Process

As described above, the City of Portola 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 City 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 A-1. Additional details on Plan participation and City representatives are included in Appendix A.

*Table A-1 City of Portola – Planning Team*

| Name | Position/Title | How Participated |
|---|---|---|
| Ryan Bonk | City Manager | Attended meetings, coordinated efforts and reviews with internal staff, provided feedback |
| Todd Roberts | Director of Public Works | Provided internal review throughout the process and feedback on mitigation plan overall |
| Karen Downs | Contracts Planner | Provided internal review throughout the process and feedback on mitigation plan overall. |

Coordination with other community planning efforts is paramount to the successful implementation of this LHMP Update. This section provides information on how the City integrated the previously approved 2019 LHMP into existing planning mechanisms and programs. Specifically, the City incorporated into or implemented the 2019 LHMP through other plans and programs shown in Table A-2.

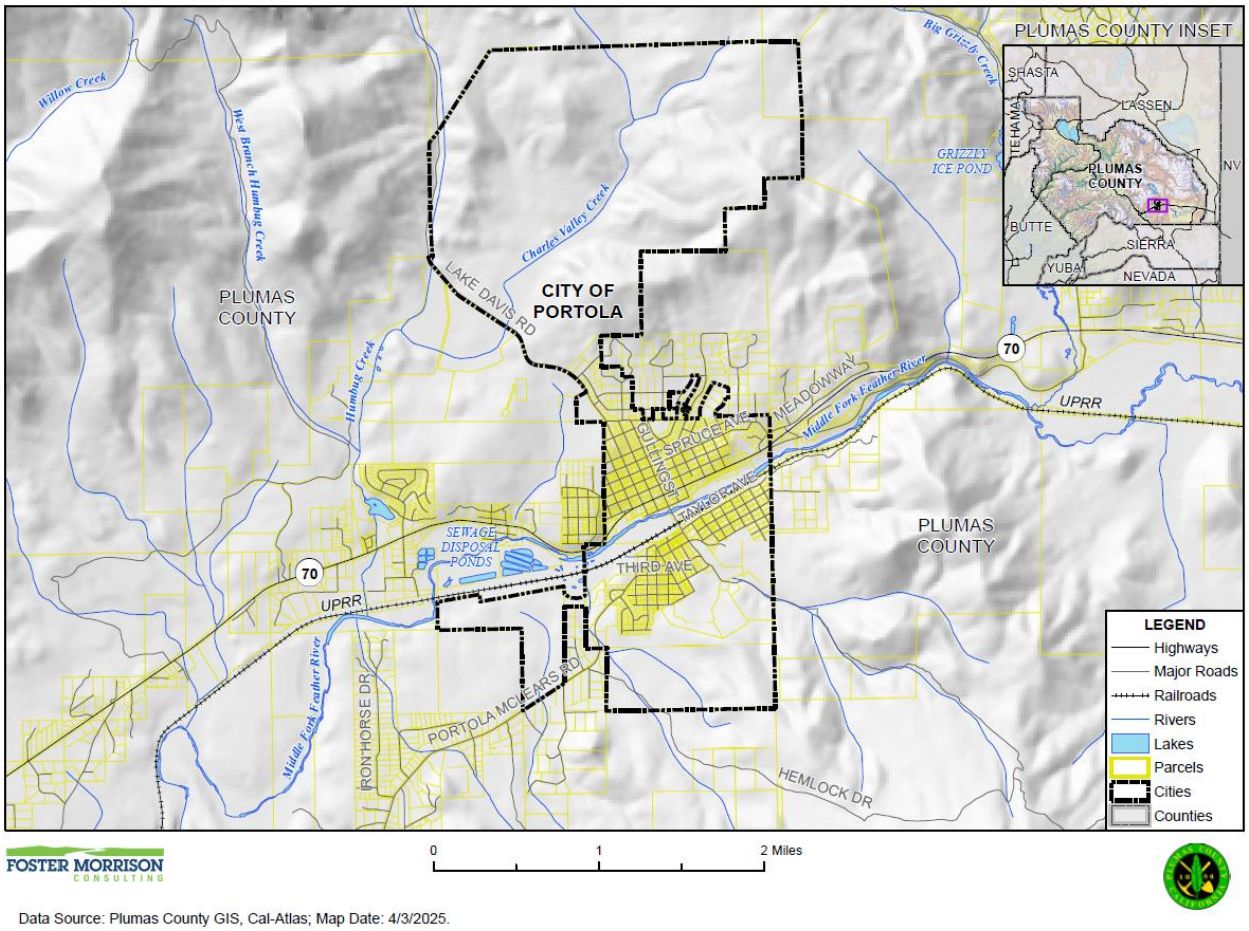
*Table A-2 2019 LHMP Incorporation*

| Planning Mechanism 2019 LHMP Was Incorporated/Implemented In. | Details: How was it incorporated? |
|---|---|
| State Hazard Mitigation Plan | The State Hazard Mitigation Plan was reviewed for recent updates on Statewide hazard events and hazard information for consistency. |
| General Plan Safety Element | (including incorporated documents)- Information from the recently-updated document was cross-referenced for inclusion as part of the overall profile. Additionally, any vulnerabilities identified were included as part of the vulnerability and risk assessment for wildfire, landslide, and flood. |
| Portola General Plan | Reviewed and included as part of the vulnerability assessment. |
| Plumas County Emergency Operations Plan | The EOP was reviewed to gather hazard information as it related to the assessed natural hazards. |
| Portola Emergency Operations Plan | Plan on file at City Hall. In addition, Plumas County has an Emergency Operations Plan that we also have at City Hall. |

## A.3 Community Profile

The community profile for the City of Portola is detailed in the following sections. Figure A-1 displays a City map and the location of City of Portola within Plumas County.

*Figure A-1 City of Portola*




Data Source: Plumas County GIS, Cal-Atlas; Map Date: 4/3/2025.

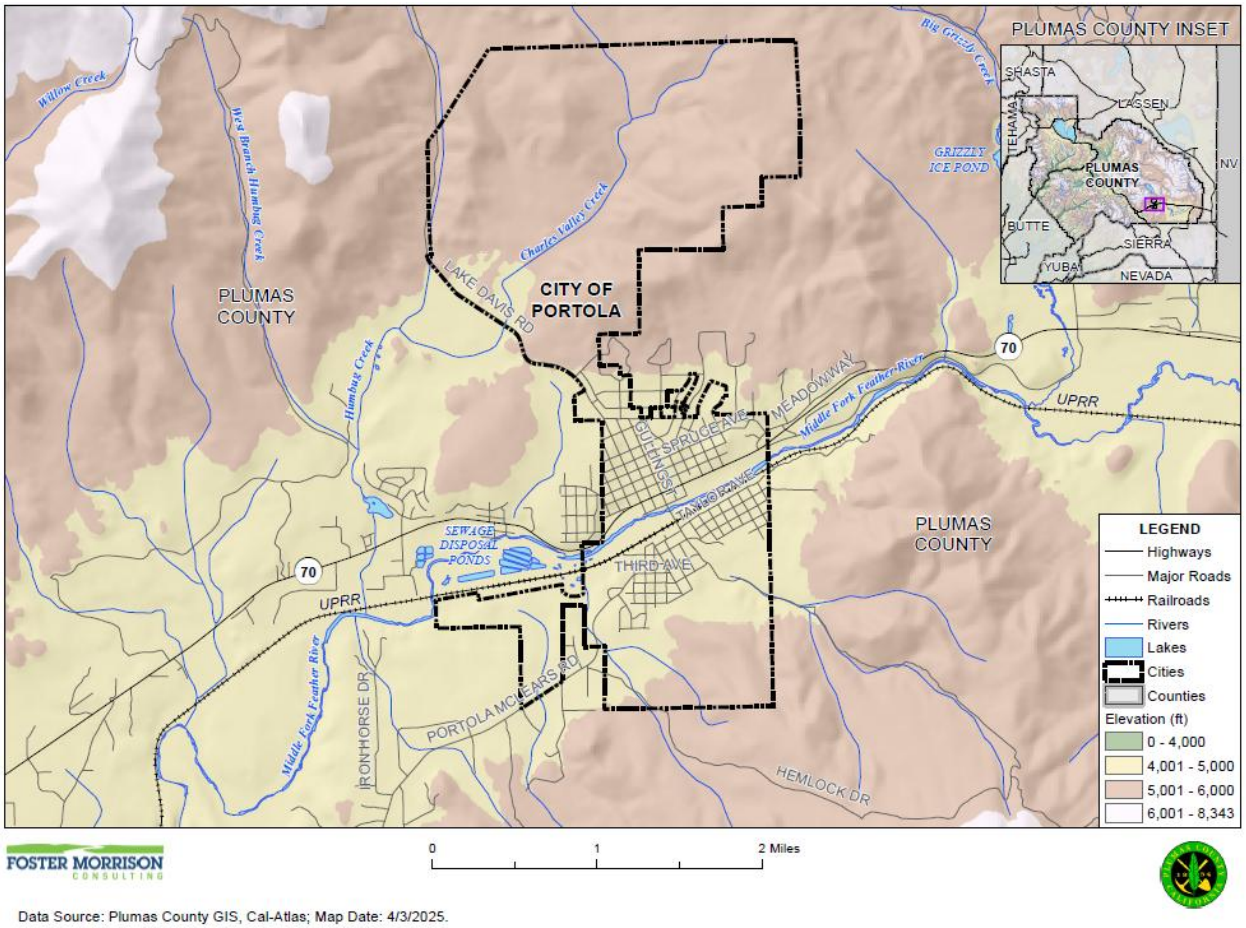
## A.3.1. Geography and Climate

The City of Portola is located along the Middle Fork of the Feather River in the southeast portion of Plumas County, California. Nearby towns include Beckwourth to the east and Grazeable to the west. Reno, Nevada is approximately 50 miles to the southeast and Sacramento, California is approximately 150 miles to the southwest. The City of Portola is the only incorporated city in Plumas County.

Being on the eastern slopes of the Sierra Nevada, Portola has a continental Mediterranean climate with dry summers characterized by extreme diurnal temperature swings, and cold (though not severe) and snowy winters. Frosts occur on 218 mornings per year. Extreme cold is rare and temperatures below 0°F are observed on only 2.6 mornings per winter in an average year. During the summer, daytime temperatures of 100 °F are reached on average only once every two years.

Elevations in the City are shown on Figure A-2.

*Figure A-2 City of Portola – Elevations*




Data Source: Plumas County GIS, Cal-Atlas; Map Date: 4/3/2025.

## A.3.2. History

Portola, the only incorporated city in Plumas County, California, was established in the early 20th century as a key railroad hub along the Middle Fork of the Feather River in the Sierra Nevada. Named after Spanish explorer Gaspar de Portolá—despite him never exploring the area—Portola's origins are tied to the Western Pacific Railroad, now part of the Union Pacific, which shaped its identity as a "railroad town." The surrounding Sierra Valley, the largest valley in North America above 5,000 feet, was home to Maidu and Washoe Native American tribes before European settlement, with evidence of their presence in seed grinding holes and artifacts along the Feather River. In the 1850s, James P. Beckwourth, a mountain man of mixed African American and Native American descent, established a trading post in nearby Sierra Valley, facilitating travel during the California Gold Rush. Logging also played a significant role in Portola's founding, with companies like the Roberts Lumber Company and Reno Mill and Lumber harvesting pine and fir from the region's forests starting in 1905.

The city's development was driven by its strategic location along the Feather River drainage, fostering a small-town, bucolic character that persists today. Portola's economy and culture remained closely tied to the railroad, with the Western Pacific Railroad Museum becoming a major attraction, offering a "Run A Locomotive" program that draws visitors. The annual Railroad Days event celebrates this heritage with live

music, a farmer's market, and a 5K run. Despite its small population—2,100 as of the 2020 census—Portola has maintained its historical charm, with original buildings and sidewalks still present in the downtown area. However, economic and geographic constraints, along with the declining prominence of the railroad industry, have limited its growth compared to other California cities. Local newspapers and longtime residents preserve the town's history, which is further documented by the Portola Area Historical Society.

Portola's natural surroundings, including Lake Davis and the nearby Plumas-Eureka State Park, have made it a haven for outdoor enthusiasts, offering fishing, camping, and hiking opportunities. The city gained national attention in 1996–1997 and again in 2007 due to conflicts with the California Department of Fish and Game over the eradication of invasive northern pike in Lake Davis, highlighting tensions between environmental management and community interests. With a continental Mediterranean climate featuring dry summers and snowy winters, Portola's location on the eastern slopes of the Sierra Nevada adds to its appeal as a scenic, tranquil destination.

## A.3.3. Economy and Tax Base

The economy of the City of Portola is historically based on logging; both as a logging camp and mill site. As the logging industry grew, railroads sprang up to help more efficiently transport the lumber in and out of the area. When the Western Pacific Railway through the Feather River Canyon was completed in 1910, the City of Portola provided the ideal location for a depot which has sustained the City to present day. Currently the City of Portola remains a railroad hub which helps support year round outdoor recreation, tourism, and a Railroad museum.

US Census estimates show economic characteristics for the City of Portola. These are shown in Table A-3 and Table A-4. Mean household income in the City was $47,497. Median household income in the City was $42,385.

***Table A-3 City of Portola – Civilian Employed Population 16 years and Over***

| Industry | Estimated Employment | Percent |
|---|---|---|
| Agriculture, forestry, fishing and hunting, and mining | 27 | 3.4% |
| Construction | 94 | 11.8% |
| Manufacturing | 25 | 3.1% |
| Wholesale trade | 0 | 0.0% |
| Retail trade | 88 | 11.1% |
| Transportation and warehousing, and utilities | 53 | 6.7% |
| Information | 0 | 0.0% |
| Finance and insurance, and real estate and rental and leasing | 45 | 5.7% |
| Professional, scientific, and management, and administrative and waste management services | 19 | 2.4% |
| Educational services, and health care and social assistance | 274 | 34.4% |
| Arts, entertainment, and recreation, and accommodation and food services | 119 | 14.9% |
| Other services, except public administration | 7 | 0.9% |

| Industry | Estimated Employment | Percent |
|---|---|---|
| Public administration | 45 | 5.7% |

Source: US Census Bureau American Community Survey 2023 Estimates

### *Table A-4 City of Portola – Income and Benefits*

| Income Bracket | Percent |
|---|---|
| <$10,000 | 7.5% |
| $10,000 – $14,999 | 7.9% |
| $15,000 - $24,9999 | 23.3% |
| $25,000 – $34,999 | 3.2% |
| $35,000 – $49,999 | 21.1% |
| $50,000 – $74,999 | 18.2% |
| $75,000 – $99,999 | 9.8% |
| $100,000 – $149,999 | 7.8% |
| $150,000 – $199,999 | 0.9% |
| $200,000 or more | 0.2% |

Source: US Census Bureau American Community Survey 2023 Estimates

As the service center for eastern Plumas County, future economic development depends on maintaining and expanding that role. Historically, the economy was based on natural resource extraction, but availability, environmental pressures, commodity value, and export difficulties have made these historic industries less viable. Current economic development has increased as workers seeking an active outdoor lifestyle relocate and are able to use technology to operate successful businesses free of traditional commuting and manufacturing restrictions. Additional resources are facilitating expanding tourism and visitor opportunities to help further develop this sector of the economy.

Major employers in the City include: C Roy Carmichael Elementary School and Walton's Grizzly Lodge.

## A.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 City of Portola 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 City'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 Community Profile above, a risk assessment was performed for the City. This includes the following sections:

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

## A.4.1. Assets Inventory and Growth and Development Trends

This section provides an inventory of the City of Portola'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 City of Portola'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 City, potentially at risk to identified hazards as discussed in Section A.4.3 Hazard Profiles and Vulnerability to Specific Hazards.
- **Growth and Development Trends** – A discussion of growth and development trends in the City, both current and future, is presented.

### *Assets Inventory*

The City'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 A.4.3.

#### People and Populations

The most important asset within any community are the people and populations that reside in the community. This section includes an inventory of past and current populations of the City and also discusses vulnerable populations and underserved communities as a subsection of people and populations located within the City and potentially at risk to hazards. Information from the City, US Census Bureau, California Department of Finance, and other sources as detailed below form the basis of this discussion.

##### Historic Population Trends and Current Population

Population growth can increase the number of people living in hazard prone areas. The City of Portola has 2,098 residents, as of January 1, 2025. The City of Portola has seen growth rates as shown in Table A-5. As shown, the City has grown and shrunk periodically since 1950.

*Table A-5 City of Portola– Population Changes Since 1950*

| Year | Population | % Change |
|---|---|---|
| 1950 | 2,261 | – |
| 1960 | 1,874 | -17.1% |
| 1970 | 1,625 | -13.3% |
| 1980 | 1,885 | 16.0% |
| 1990 | 2,193 | 16.3% |
| 2000 | 2,227 | 1.6% |
| 2010 | 2,104 | -5.5% |
| 2020 | 2,100 | -0.2% |
| 2025 | 2,098 | -0.1% |

Source: US Census Bureau, California Department of Finance (2025)

### Underserved and Vulnerable Populations and Disadvantaged Communities

The City has a socially and economically diverse community, and many residents that are socially or economically disadvantaged or vulnerable due to varying reasons reside within the City. The City and surrounding County are no strangers to large natural disasters which have had a direct impact on the populations of the area. Thus, it is important to consider the potential effects of hazard events and disasters on these more vulnerable populations. Socially vulnerable and disadvantaged communities in the City are discussed by the following sources:

- CDC Social Vulnerability Index
- California Department of Water Resources (CA DWR) Special Populations and Disadvantaged Community Mapping
- FEMA Community Disaster Resilience Zones
- City Planning Team Input

#### *CDC Social Vulnerability Index*

Every community must prepare for and respond to a hazard event, including the range of natural hazards addressed in this Plan, from severe weather extremes to large potentially catastrophic events such as wildfires or earthquakes. A number of factors, including poverty, lack of access to transportation, and crowded housing may weaken a community's ability to prevent human suffering and financial loss in a disaster. These factors are known as social vulnerability.

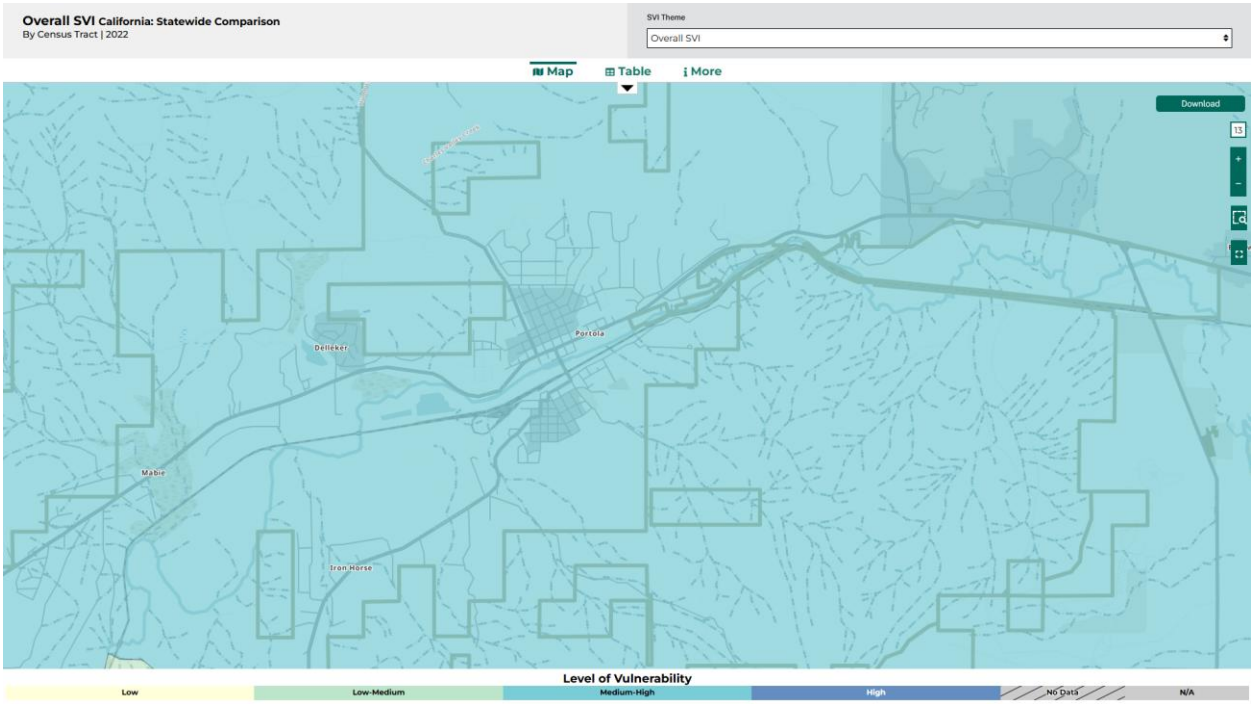
Social vulnerability refers to the potential negative effects on communities caused by external stresses on human health. Such stresses include natural or human-caused disasters, or disease outbreaks. Reducing social vulnerability can decrease both human suffering and economic loss. The Agency for Toxic Substances and Disease Registry (ATSDR) Geospatial Research, Analysis & Services Program (GRASP) created databases to help emergency response planners and public health officials identify and map communities that will most likely need support before, during, and after a hazardous event. The CDC used these databases to create the CDC Social Vulnerability Index (CDC SVI), which uses 15 U.S. census

variables to help local officials identify communities that may need additional support before, during, or after disasters.

CDC SVI uses U.S. Census data to determine the social vulnerability of every census tract. Census tracts are subdivisions of counties for which the Census collects statistical data. The CDC SVI ranks each tract on 15 social factors, including poverty, lack of vehicle access, and crowded housing, and groups them into four related themes. Each tract receives a separate ranking for each of the four themes, as well as an overall ranking. Maps of the four themes for the City are shown in the figures below.

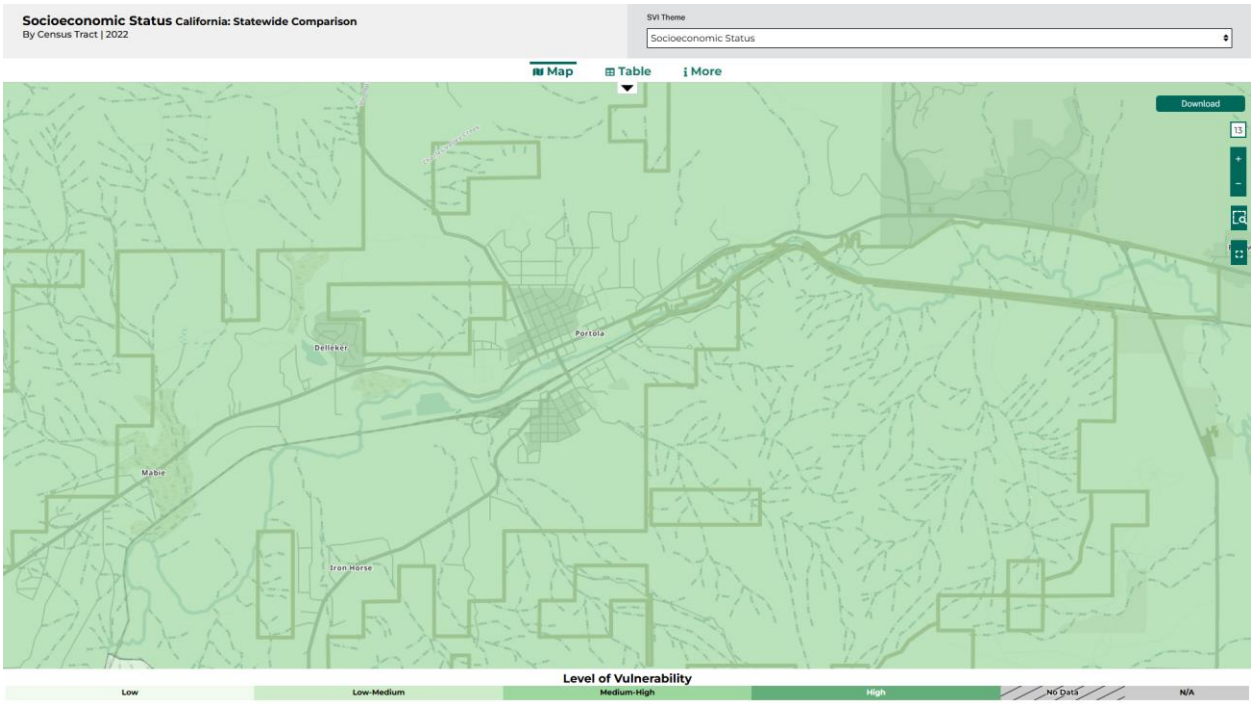
The overall SVI map is shown in Figure A-3; the socioeconomic SVI for the census tracts in and around the City are shown in Figure A-4; the household composition SVI is shown in Figure A-5; the minority and language SVI is shown in Figure A-6; and the housing and transportation SVI is shown in Figure A-7. Overall, the maps indicate that, in general, the City sees little change in social vulnerability regardless of location. As shown, there is very minimal change in each SVI across the City.

### *Figure A-3 City of Portola – Overall Social Vulnerability*




Source: CDC Social Vulnerability Index – map retrieved 12/16/2024
Level of Vulnerability Rating: **Yellow** – Low; **Green** – Low/Medium; **Aqua** – Medium/High; **Blue** – High; **Grey Hatched** – No Data; **Grey** – Not Available

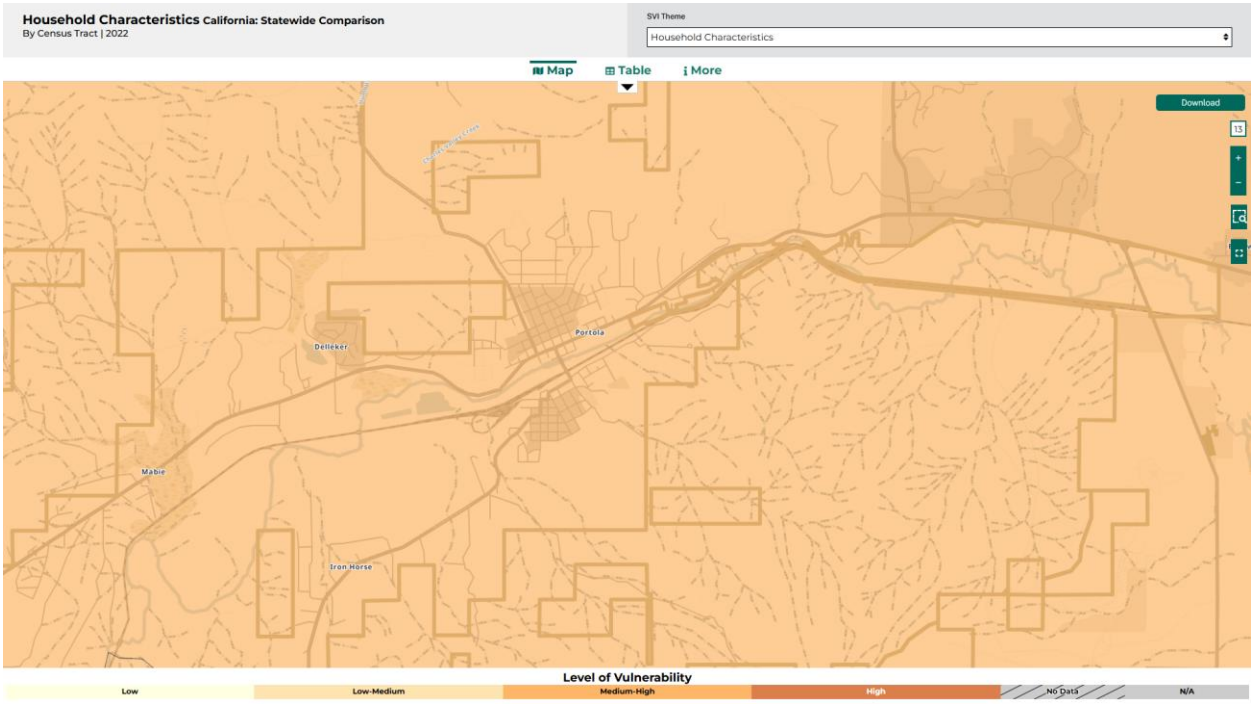
## *Figure A-4 City of Portola – Socioeconomic Status Vulnerability*




Source: CDC Social Vulnerability Index – map retrieved 12/16/2024

Level of Vulnerability Rating: **Faint Green** – Low; **Light Green** – Low/Medium; **Green** – Medium/High; **Dark Green** – High; **Grey Hatched** – No Data; **Grey** – Not Available

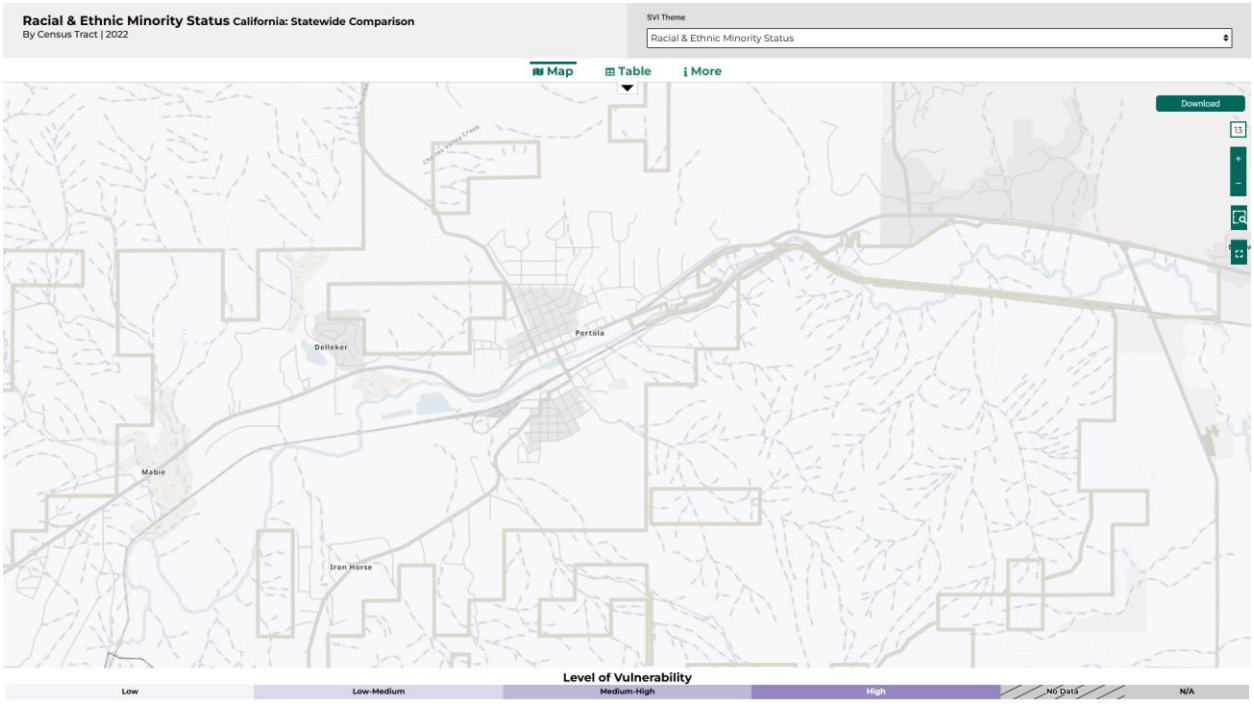
## *Figure A-5 City of Portola – Household Characteristics*




Source: CDC Social Vulnerability Index – map retrieved 12/16/2024

Level of Vulnerability Rating: **Faint Orange** – Low; **Light Orange**– Low/Medium; **Orange** – Medium/High; **Dark Orange** – High; **Grey Hatched** – No Data; **Grey** – Not Available

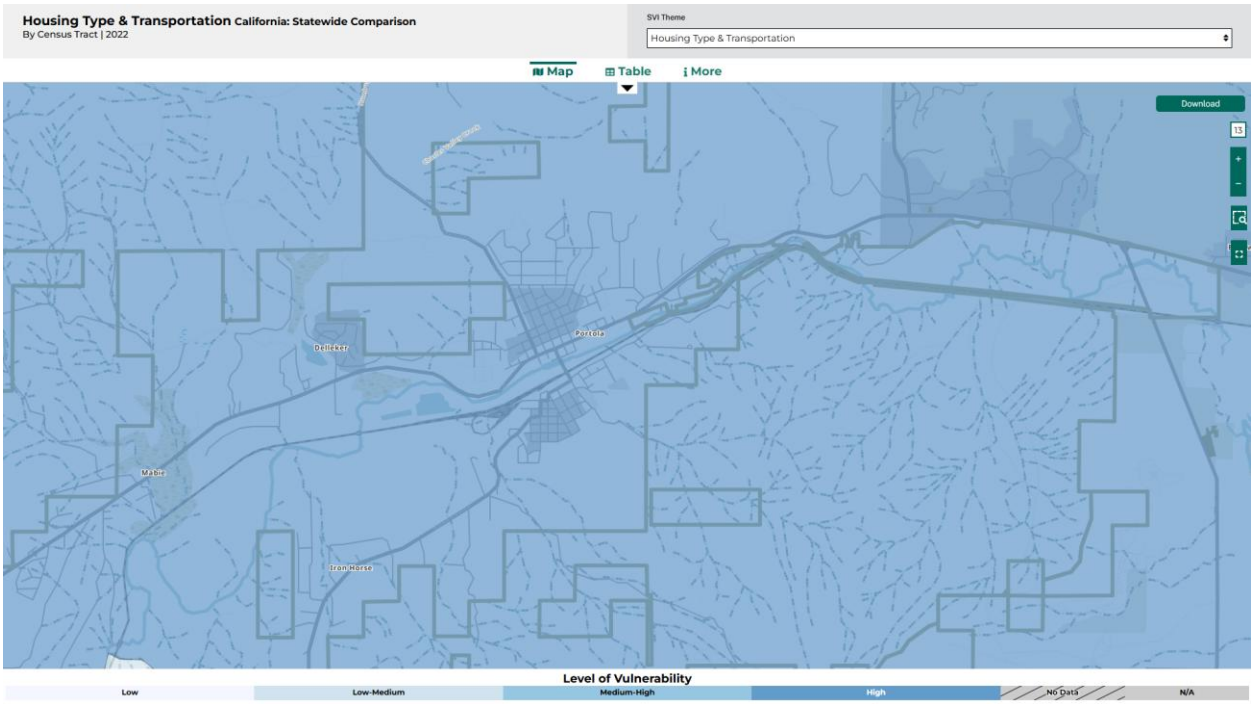
## *Figure A-6 City of Portola – Racial and Ethnic Minority Status*




Source: CDC Social Vulnerability Index – map retrieved 12/16/2024

Level of Vulnerability Rating: **Faint Purple** – Low; **Light Purple** – Low/Medium; **Purple** – Medium/High; **Dark Purple** – High; **Grey Hatched** – No Data; **Grey** – Not Available

### *Figure A-7 City of Portola – Housing Type and Transportation*

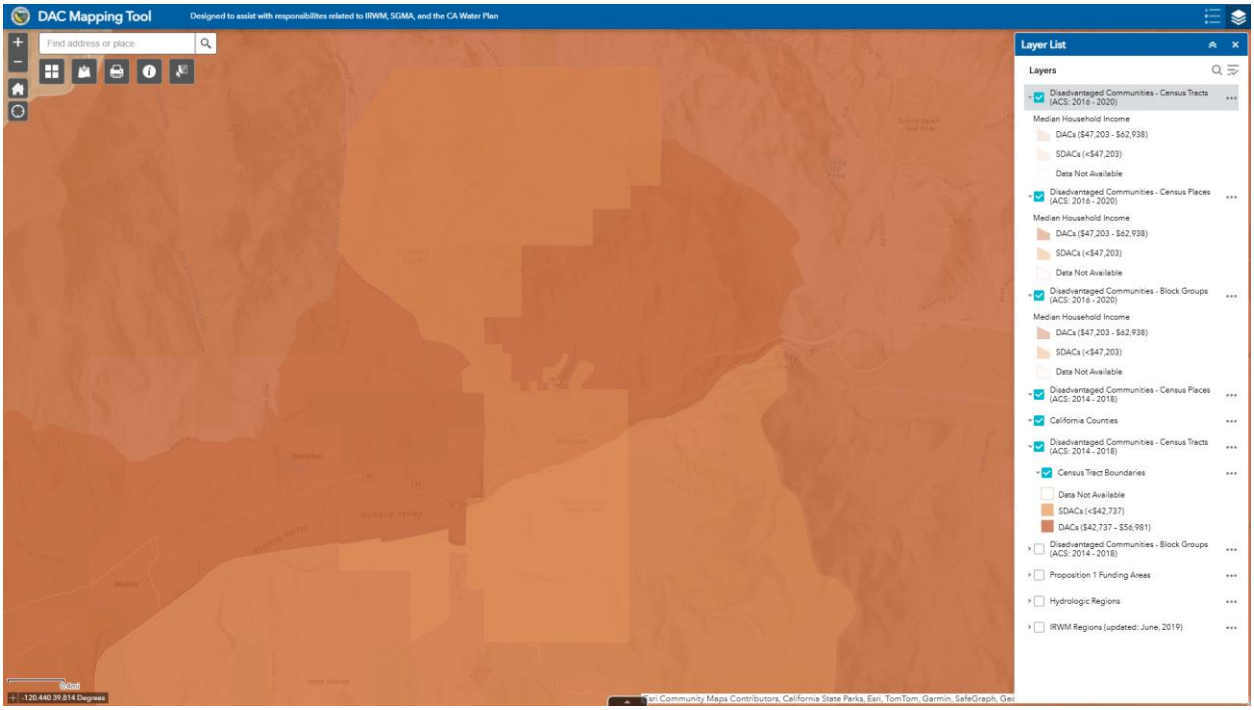



Source: CDC Social Vulnerability Index – map retrieved 12/16/2024
Level of Vulnerability Rating: **Faint Blue** – Low; **Light Blue** – Low/Medium; **Blue** – Medium/High; **Dark Blue** – High; **Grey Hatched** – No Data; **Grey** – Not Available

### *California DWR Disadvantaged Community Mapping Tool*

The State of California's Proposition 1 Disadvantaged Community (DAC) Involvement Program is designated to ensure the involvement of DACs as well as Economically Distressed Areas and Underrepresented Communities, which DWR collectively refers to as DACs. The Cal DWR definition for a Disadvantaged Community is a community with an annual median household income (MHI) that is less than 80% of the Statewide annual MHI (PRC Section 75005(g)), and those census geographies with an annual MHI less than 60% of the Statewide annual MHI are considered "Severely Disadvantaged Communities". Those areas in the City considered disadvantaged are shown in Figure A-8. As shown, much of the City falls in these DAC areas.

### *Figure A-8 City of Portola – Disadvantaged Areas*

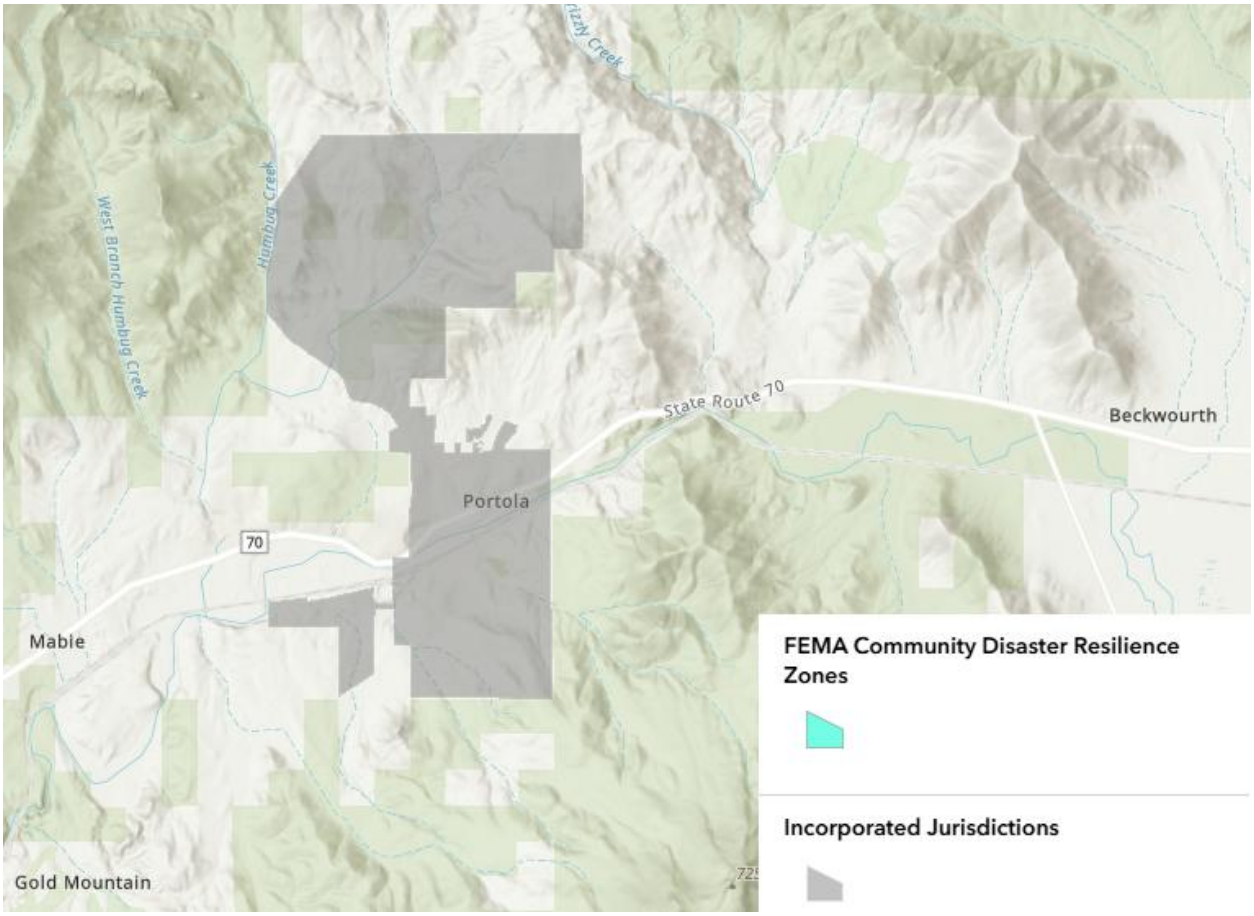



Source: Cal DWR DAC Mapping Tool – retrieved 12/16/2024

### *FEMA Community Disaster Resilience Zones*

Community Disaster Resilience Zones aim to build and strengthen community resilience across the nation by driving federal, public, and private resources to the most at-risk and in-need communities. The Community Disaster Resilience Zones Act uses FEMA's National Risk Index to identify the most at-risk and in-need communities to identify resilience zones. Designated zones will be prioritized for targeted federal support, such as increased cost-share for resilience and mitigation projects, lessening the financial burden on communities to perform resilience-related activities. On September 6, 2023, FEMA announced the initial 483 designations in all 50 states and the District of Columbia. Figure A-9 shows these zones in teal green. As shown, none of these areas lie in or near the City.

### *Figure A-9 City of Portola – FEMA Community Disaster Resilience Zones*




Source: FEMA. Map retrieved 12/16/2024

### *City Planning Team Input*

Since 2017, the Tax Credit Allocation Committee (TCAC) and California Department of Housing and Community Development (HCD) have developed annual maps of access to resources such as high-paying job opportunities; proficient schools; safe and clean neighborhoods; and other healthy economic, social, and environmental indicators to provide evidence-based research for policy recommendations. This effort has been dubbed "opportunity mapping" and is available to all jurisdictions to assess access to opportunities within their community.

Portola is considered a low-resource community. The area along State Route 70 is also considered a low-resource area. All of Portola is within a low-resource area, based on a composite score of economic, educational, and environmental factors that can perpetuate poverty and segregation, such as school proficiency, median income, and median housing prices. "Low-resource" areas score in the bottom 30.0 percent of census tracts and indicate a lack of access to positive outcomes and opportunities.

Special needs populations have increased vulnerability and may face unique challenges during disasters, including mobility issues, communication difficulties, and reliance on specialized equipment or services.

such as providing accessible evacuation routes, alternative communication methods, and specialized support services. Portola has focused on:

- Building Codes: Enforcing building codes that ensure accessibility for people with disabilities.
- Shelter Planning: Ensuring that shelters are accessible and equipped to meet the needs of special populations.
- Community Outreach: Conducting outreach and education programs to inform special populations about hazards and mitigation measures.

The City noted the following tables that discuss special populations in the City.

### *Table A-6 City of Portola – Persons with Disability by Employment Status*

| | Plumas | Portola | Unincorporated Area |
|---|---|---|---|
| Age 5-64, Employed Persons with a Disability | 340 | 47 | 293 |
| Age 5-64, Not Employed Persons with a Disability | 99 | 16 | 83 |
| Persons Age 65 Plus with a Disability | 950 | 190 | 760 |
| Total Persons with a Disability | 1,389 | 253 | 1,136 |

Source: https://data.census.gov/table/ACSDT5Y2021.C18120?q=C18120:%20EMPLOYMENT%20STATUS%20BY%20DISABILITY%20STATUS&g=160XX00US0658352

### *Table A-7 City of Portola – Persons with Disability by Disability Type*

| | Plumas County | Portola City | Unincorporated Area |
|---|---|---|---|
| Total Disabilities Tallied | 3,218 | 408 | 2,810 |
| Total Disabilities, Ages 5-64 | 1,389 | 253 | 1,136 |
| Hearing Difficulty | 211 | 20 | 191 |
| Vision Difficulty | 129 | 77 | 52 |
| Cognitive Difficulty | 648 | 149 | 499 |
| Ambulatory Difficulty | 611 | 81 | 530 |
| Self-Care Difficulty | 248 | 9 | 239 |
| Independent Living Difficulty | 442 | 102 | 340 |
| Total Disabilities, Ages 65 & Over | 1,700 | 129 | 1,571 |
| Hearing Difficulty | 619 | 42 | 577 |
| Vision Difficulty | 211 | 28 | 183 |
| Cognitive Difficulty | 396 | 64 | 332 |
| Ambulatory Difficulty | 1,150 | 79 | 1,071 |
| Self-Care Difficulty | 404 | 51 | 353 |

Source: ACS S1810 (2012-2016)

### *Table A-8 City of Portola – Homeless Needs*

| Facility Type | Homeless Needs | | |
|---|---|---|---|
| | Households with children | Households without children | Current Bed # |
| Emergency Shelter | 68 | 237 | 305 |
| Transitional Housing | 32 | 161 | 193 |

Source: https://files.hudexchange.info/reports/published/CoC_PopSub_CoC_CA-516-2022_CA_2022.pdf

*Note: Numbers are provided for the Redding/Shasta, Siskiyou, Lassen, Plumas, Del Norte, Modoc, Sierra Counties Continuum of Care for which Plumas County is a participating member. Numbers represent homeless needs for the total Continuum of Care area. Please supplement with local data sources for each jurisdiction in county.

### *Table A-9 City of Portola – Homeless Needs*

| Homeless Needs* | 2011 | 2022 | % Change |
|---|---|---|---|
| Total Homeless | 403 | 1432 | 255.3% |
| Total Sheltered | 255 | 498 | 95.3% |
| Total Unsheltered | 148 | 934 | 531.1% |
| Total Chronically Homeless | 62 | 317 | 411.3% |
| Total Chronically Sheltered | 26 | 79 | 204.0% |
| Total Chronically Unsheltered | 36 | 495 | 1,275.0% |

Source: https://files.hudexchange.info/reports/published/CoC_PopSub_CoC_CA-516-2022_CA_2022.pdf

*Note: Numbers are provided for the Redding/Shasta, Siskiyou, Lassen, Plumas, Del Norte, Modoc, Sierra Counties Continuum of Care for which Plumas County is a participating member. Numbers represent homeless needs for the total Continuum of Care area. Please supplement with local data sources for each jurisdiction in county.

### *City of Portola 2019-2024 Housing Element*

The City Planning Team noted that the City of Portola 2019-2024 Housing Element discusses special populations in the County. While the County Housing Element is discussed in the base plan and is very similar to Portola, the City has completed their own Housing Element with unique differences. Discussions for seniors, those with disabilities, developmental disabilities, people experiencing homelessness, large households, female headed households, and farmworkers were included. These are discussed below.

#### Seniors

According to the American Community Survey, of the City senior population (categorized as 65+ years), 165 individuals are owners of their homes while 82 individuals rent their residence.

#### Disabled Citizens

In the City of Portola, 238 persons, 11.01% of the total population (5 years and older) reports having a disability according to the American Community Survey (2012-2016). Of those with a disability between the ages of 6 and 65, 100% are employed. Seniors aged 65 and over comprise 76.89% of the people with disabilities.

### Homeless Persons

Staff of the City and the Plumas County Sheriff Department's estimate the number of chronically homeless persons living in Portola to be two males. The number of homeless persons varies primarily due to weather.

### Large Households

In the City of Portola, 4.7% of the owner households and 2.6% of the renter households are considered to be large households. In some circumstances, where the housing market does not meet large household housing needs, overcrowding can be a result of the lack of adequate housing. Overcrowding is not a significant problem in the City of Portola. A total of 2.38% of households in Portola are experiencing overcrowding; .84% of owners and 3.99% of renters.

### Female Headed Households

According to the American Community Survey 2016, there were 93 female-headed households in the City of Portola; 55 with children and 38 without children. Of these households, 14 households (15.05%) are under the poverty level. Of the 85 families with incomes that are below the poverty level, 16.47% of them are female-headed households.

### Structures

This section inventories the parcels (and associated structures) that make up the built environment of the City. The 2024 Plumas County Assessor's data and the associated parcel layer was used as the basis of this inventory. The methodology used to derive the number of total and improved parcels (i.e., those with an improved structure value) and land and improved property values (as well as content replacement values) follows the same methodology detailed in Section 4.2.1 of the Base Plan. This data should only be used as a guideline to overall values in the City, as the information has some limitations. The most significant limitations are created by Proposition 13. With respect to Proposition 13, instead of adjusting property values annually, the values are not adjusted or assessed at fair market value until a property transfer occurs. As a result, overall value information is most likely low and does not reflect current market value of properties within the City. It is also important to note, in the event of a disaster, it is often the value of the infrastructure or improvements to the land that is of concern or at risk. Generally, the land itself is not a loss. However, depending on the type of hazard and impact of any given hazard event, land values may be adversely affected; thus, land values are included as appropriate. Table A-10 shows the Plumas County Parcel/Assessor Data land and structure values and content replacement values (e.g., the values at risk) broken down by property use for the City.

*Table A-10 City of Portola – Total Value of Parcels and Structures by Property Use*

| Jurisdiction / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| City of Portola | | | | | | | |
| Agricultural | 2 | 1 | $536,231 | $1,400,712 | $0 | $1,400,712 | $3,337,655 |
| Commercial | 146 | 103 | $7,583,297 | $30,701,619 | $1,484,240 | $30,701,619 | $70,470,775 |

| Jurisdiction / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Federal Lands | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 34 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | $0 | $346,118 | $902,099 |
| Institutional | 10 | 8 | $224,898 | $5,469,562 | $147,200 | $5,469,562 | $11,311,222 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,389 | 906 | $29,280,690 | $113,448,396 | $283,632 | $56,724,198 | $199,736,916 |
| ROW/Utilities | 49 | 0 | $0 | $0 | $0 | $0 | $0 |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: 2024 Plumas County Parcel/Assessor Data

## Critical Facilities and Infrastructure

Beyond just the buildings and structures that comprise the built environment, it is important to identify the critical facilities and infrastructure that are critical for life safety and property protection. This is done for the City of Portola below.

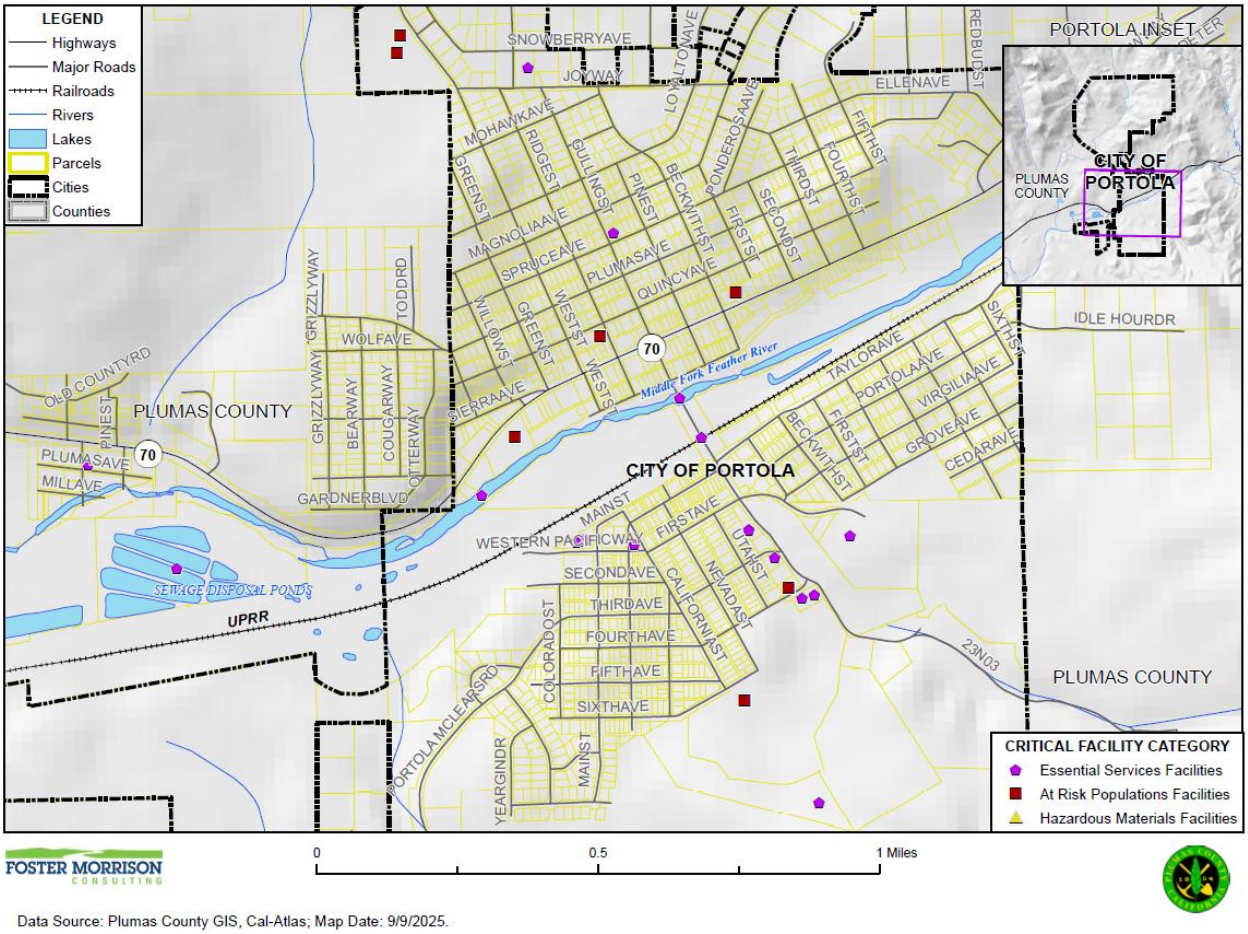
For purposes of this plan, a critical facility is defined as:

> ***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, as discussed in Section 4.3.1 of the Base Plan.

An inventory of critical facilities in the City of Portola from Plumas County GIS is shown on Figure A-10. Table A-11 gives summary information about the critical facilities in the City. Table A-12 details the facility categories and breaks them down by facility type. Details of critical facility definition, type, name, address, and jurisdiction by hazard zone are listed in Appendix F.

## *Figure A-10 City of Portola – Critical Facilities*




Data Source: Plumas County GIS, Cal-Atlas; Map Date: 9/9/2025.

## *Table A-11 City of Portola – Critical Facilities by Category*

| Jurisdiction / Critical Facility Category | Facility Count |
|---|---|
| **Portola** | |
| Essential Services Facilities | 16 |
| At Risk Populations Facilities | 8 |
| Hazardous Materials Facilities | 0 |
| **Portola Total** | **24** |

Source: Plumas County GIS

## *Table A-12 City of Portola – Critical Facilities by Category and Type*

| Jurisdiction / Critical Facility Category | Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| Essential Services Facilities | Emergency Medical | 1 |
| | Essential Government Operations | 3 |
| | Public Safety | 2 |

| Jurisdiction / Critical Facility Category | Critical Facility Type | Facility Count |
|---|---|---|
| | Public Utility Plant and Substation Facilities | 8 |
| | Transportation Lifeline Systems | 2 |
| | **Essential Services Facilities Total** | **16** |
| At Risk Populations Facilities | Designated Emergency Shelter | 1 |
| | Public Safety | 1 |
| | School | 6 |
| | **At Risk Populations Facilities Total** | **8** |
| **Portola Total** | | **24** |

Source: Plumas County GIS

## Community Lifelines

Assessing the vulnerability of the City of Portola 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 cities,

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 City'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. As such, specific information on these community lifelines in the City 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 City of Portola 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

The City contains a variety of natural resources. Natural resources are unique to each area, often provide an important function, and are difficult to replace. Should a natural disaster occur, these species, resources, and locations are at risk.

The City of Portola 2045 General Plan Conservation and Open Space element discusses natural resources in the City. It noted that Portola is currently a compact, rural community surrounded by open space and divided by the Feather River, a major open space feature. One of the most notable visual characteristics of the community is the sense of open space within and around the City. Protection of these features is fundamental to maintain the quality of life enjoyed by current residents. New development will inherently change some aspects of the open space resource, but through planning for the location and character of new development, the existing open space can be protected.

Access to open space is also very important. Recreation along the river and in the surrounding forest is a major attraction for residents and visitors. The General Plan serves to enhance the potential for access to the open space resources in and around the City. In Portola, open space includes lands that serve the following purposes:

- Open space for the preservation of natural resources. Such areas are required for the preservation of plant and animal life, including habitat for fish and wildlife species (particularly rare, endangered or threatened plant and animal species), areas required for ecological and other scientific study purposes, rivers, streams, bank of rivers and streams, wetlands, and watershed lands. In Portola, the primary open space resource area is the Feather River and its major tributaries.
- Outdoor recreation. This includes areas of outstanding scenic, historic, and cultural value, areas particularly suited for park and recreation purposes including access to the river and streams, and areas that serve as links between major recreation and open space reserves, including utility easements, stream- and riverbanks, trails, and scenic highway corridors.
- Public health and safety. This refers to areas requiring special management or regulation due to hazardous or special conditions, such as earthquake fault zones, unstable soil areas, floodplains, watersheds, areas presenting high fire risks, and areas required for the protection and enhancement of air quality. In Portola, such areas include the flood plains and steep slope areas.
- Preservation of scenic areas and vistas. Settled in a narrow valley, Portola is surrounded by mountain peaks that visually define the community. Much of the surrounding mountain area is in public lands and is not likely to be developed in a manner that will affect the views from Portola. However, there are scenic areas within the General Plan study area and vicinity that have the potential to be developed in the future.

The Feather River is a special open space resource that significantly helps define the character of Portola. Not only is it a strong visual presence, but the river also provides unique opportunities for recreation in the center of the City. Few communities have the advantage of a beautiful river running through the center of town with very few structures abutting and screening out the river. The south side of the river abuts the Union Pacific Railroad, and the land is held by the railroad. Therefore, the land is not accessible, but is relatively undisturbed by development. The relative lack of development along portions of the north side of the river provide unparalleled opportunities to maintain the visual dominance of the river while also providing exceptional opportunities for public use and access.

The river was dredged and straightened through Portola about the middle of the 1900s. The effect is a somewhat deeper and straighter channel than would otherwise exist. Restoration of the river to a more natural configuration with naturally occurring bars, shallows, rock outcrops, and pools would enhance the visual quality and the fisheries quality of the river. The adjacent floodplain along the north side of the river is flanked by stands of pines and a riparian strand that extends along the foot of the steep bluff that provides a view from Sierra Street to the river.

The river and its immediate environment were designated a Wild and Scenic River by Congress in 1968. Thus, the river is under the jurisdiction of the Plumas National Forest. Public Law 90-542 (October 2, 1968) declares that "...certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreation, geologic, fish and wildlife, historic, cultural, or other similar values shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations." The Act continues, "...the appropriate Secretary shall issue guidelines, specifying standards for local zoning ordinances, which are consistent with the purposes of this Act.

The standards specified in such guidelines shall have the object of (A) prohibiting new commercial or industrial uses other than commercial or industrial uses which are consistent with the purposes of the Act,

and (B) the protection of the bank lands by means of acreage, frontage, and setback requirements on development." In its current state the river is not easily accessible for recreation, either on the river or along its banks. Although it is one of the dominant visual features in the area, it is only occasionally actively used by residents or visitors.

Much of the area surrounding Portola is part of the Plumas National Forest. National forests are under federal management of the United States Forest Service. The Forest Service operates under many policies and principles related to management of forest lands, including recreation and fuels and fire management. Both aspects are highly important to public safety, quality of life provided to residents, attraction of visitors and the health of Portola's economy.

### *Wetlands and their Natural and Beneficial Functions*

Wetlands are habitats in which soils are intermittently or permanently saturated or inundated. Wetland habitats vary from rivers to seasonal ponding of alkaline flats and include swamps, bogs, marshes, vernal pools, and riparian woodlands. Wetlands are considered to be waters of the United States and are subject to the jurisdiction of the U.S. Army Corps of Engineers as well as the California Department of Fish and Wildlife (CDFW). Where the waters provide habitat for federally endangered species, the U.S. Fish and Wildlife Service may also have authority.

Wetlands are a valuable natural resource for communities providing beneficial impact to water quality, wildlife protection, recreation, and education, and play an important role in hazard mitigation. Wetlands provide drought relief in water-scarce areas where the relationship between water storage and streamflow regulation is vital and reduce flood peaks and slowly release floodwaters to downstream areas. When surface runoff is dampened, the erosive powers of the water are greatly diminished. Furthermore, the reduction in the velocity of inflowing water as it passes through a wetland helps remove sediment being transported by the water.

Wetlands are often found in floodplains and depressional areas of a watershed. Many wetlands receive and store floodwaters, thus slowing and reducing downstream flow. Wetlands perform a variety of ecosystem functions including food web support, habitat for insects and other invertebrates, fish and wildlife habitat, filtering of waterborne and dry-deposited anthropogenic pollutants, carbon storage, water flow regulation (e.g., flood abatement), groundwater recharge, and other human and economic benefits.

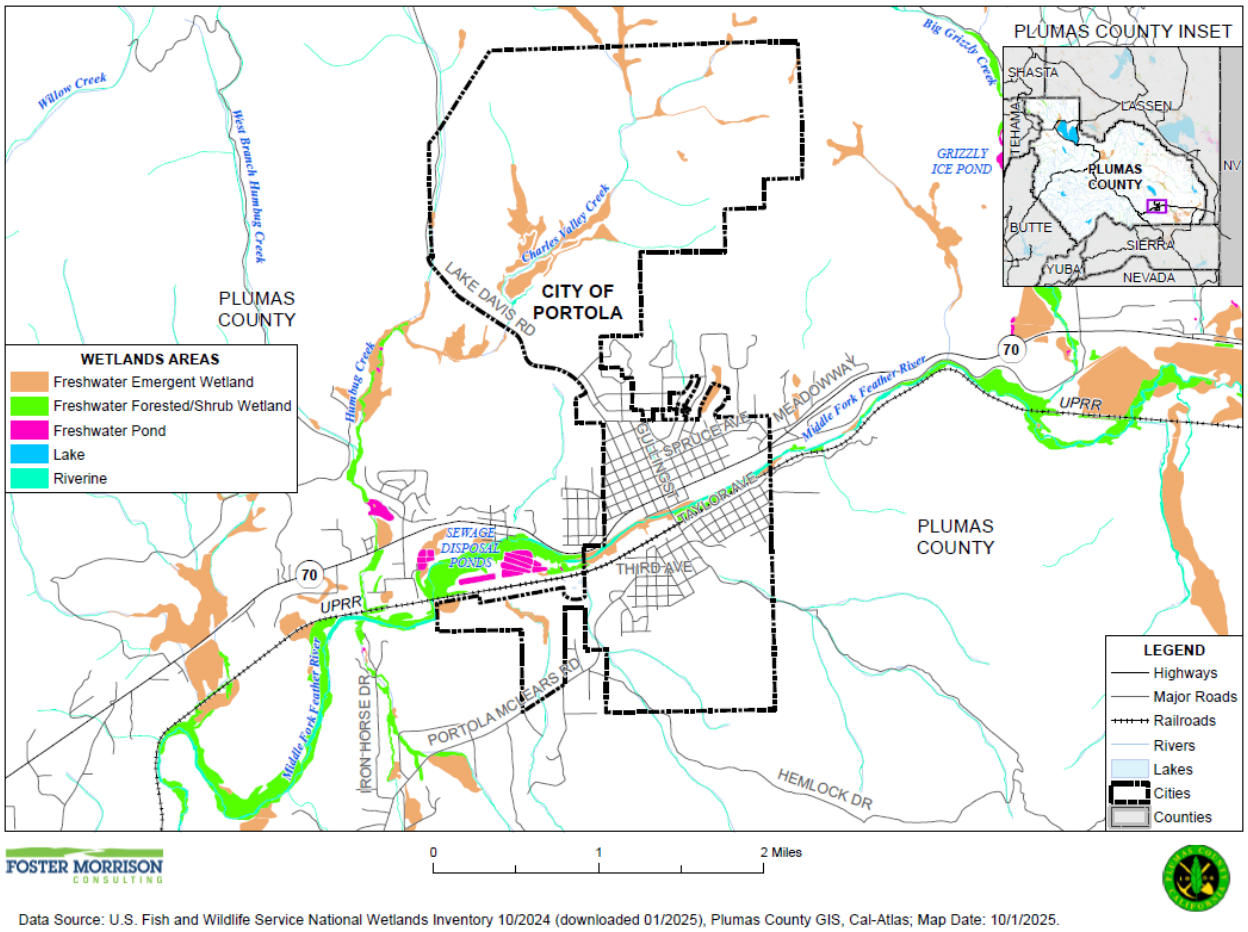
Wetlands, and other riparian and sensitive areas, provide habitat for insects and other invertebrates that are critical food sources to a variety of wildlife species, particularly birds. There are species that depend on these areas during all parts of their lifecycle for food, overwintering, and reproductive habitat. Other species use wetlands and riparian areas for one or two specific functions or parts of the lifecycle, most commonly for food resources. In addition, these areas produce substantial plant growth that serves as a food source to herbivores (wild and domesticated) and a secondary food source to carnivores.

Wetlands slow the flow of water through the vegetation and soil, and pollutants are often held in the soil. In addition, because the water is slowed, sediments tend to fall out, thus improving water quality and reducing turbidity downstream.

These natural floodplain functions associated with the natural or relatively undisturbed floodplain that moderates flooding, such as wetland areas, are critical for maintaining water quality, recharging groundwater, reducing erosion, redistributing sand and sediment, and providing fish and wildlife habitat. Preserving and protecting these areas and associated functions are a vital component of sound floodplain management practices for the City.

Wetlands in the City are shown in Figure A-11 and detailed in Table A-13.

### *Figure A-11 City of Portola – Wetlands Areas*




Data Source: U.S. Fish and Wildlife Service National Wetlands Inventory 10/2024 (downloaded 01/2025), Plumas County GIS, Cal-Atlas; Map Date: 10/1/2025.

### *Table A-13 City of Portola – Wetland Types and Acreages*

| Wetlands Area Type | Wetlands Count | Wetlands Area (in Acres) |
|---|---|---|
| Freshwater Emergent Wetland | 54 | 126.35 |
| Freshwater Forested/Shrub Wetland | 9 | 9.67 |
| Freshwater Pond | 1 | 0.18 |
| Lake | 0 | 0.0 |
| Riverine | 56 | 30.91 |
| Non-Wetland* | 1,643 | 3,324.21 |
| **City of Portola Total** | **1,763** | **3,491.32** |

Source: US Fish and Wildlife Service
*This category is all other "blank/no data" areas

### Historic and Cultural Resources

Historic and cultural resources are difficult to replace. Should a natural disaster occur, these properties and locations can be at risk. The City of Portola has a stock of historically significant homes, public buildings, and landmarks. The California Department of Parks and Recreation Office of Historic Preservation (OHP) was the primary source of information. OHP administers the National Register of Historic Places, the California Register of Historical Resources, California Historical Landmarks, and the California Points of Historical Interest programs. Each program has different eligibility criteria and procedural requirements. These requirements are detailed in Section 4.2.1 of the Base Plan. As shown in the Base Plan, there are no historic buildings in the City in the OHP Database.

It should be noted that these lists may not be complete, as they may not include those currently in the nomination process and not yet listed. Additionally, as defined by the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA), any property over 50 years of age is considered a historic resource and is potentially eligible for the National Register. Thus, in the event that the property is to be altered, or has been altered, as the result of a major federal action, the property must be evaluated under the guidelines set forth by CEQA and NEPA. Structural mitigation projects are considered alterations for the purpose of this regulation.

It was noted in the City of Portola General Plan 2045 Conservation and Open Space Element that the Humbug Valley and surrounding area was home to the Miwok Indians and early settlers. Consequently, the area is rich in potential cultural sites. The specific locations of such sites are not addressed in the General Plan and do not directly affect the location or character of land use.

## Economic Assets and Community Activities of Value

Assessing the vulnerability of the City of Portola to natural hazards and disasters also involves inventorying the economic assets and community activities of value in the City.

### Economic Assets

After a disaster, economic resiliency is one of the major drivers of a speedy recovery. Each community has specific economic drivers. These include:

- Primary Economic Sectors
- Major employers
- Commercial Centers

In the City of Portola, this includes the following:

- Core business and economic centers of city could be affected by hazard events
  - ✓ Highway 70 corridor & businesses
  - ✓ Commercial Street businesses

***Note***: This inventory of economic assets is only included in this overall asset inventory for the City. To limit redundancy, it is not discussed further in the hazard profiles and vulnerability assessments in Section A.4.3 below.

### Community Activities of Value

Inventorying economic assets in the City 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. Some areas rely on seasonal industries to sustain them throughout the year. Many of these activities also provide economic benefits to the City. A hazard event that cancels or shortens these can affect a community's livelihood and can make disaster recovery more difficult or prolonged. This includes activities such as:

- Festivals and Fairs
- Sporting Events
- Tourism
- Local Pools
- Local Splash Pools

The City noted the following community activities of value:

- Sierra Buttes Trail Stewardship Lost & Found Gravel Grinder event
- City events/ Chamber of Commerce events
  - ✓ Music in the Park
  - ✓ Christmas in Old Town
  - ✓ Railroad Days
- Western Pacific Railroad Museum and events

***Note***: This inventory of community activities of value only occurs in this overall asset inventory for the City. To limit redundancy, it is not discussed further in the hazard profiles and vulnerability assessments in Section A.4.3 below.

## *Growth and Development Trends*

As part of the planning process, the City 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.

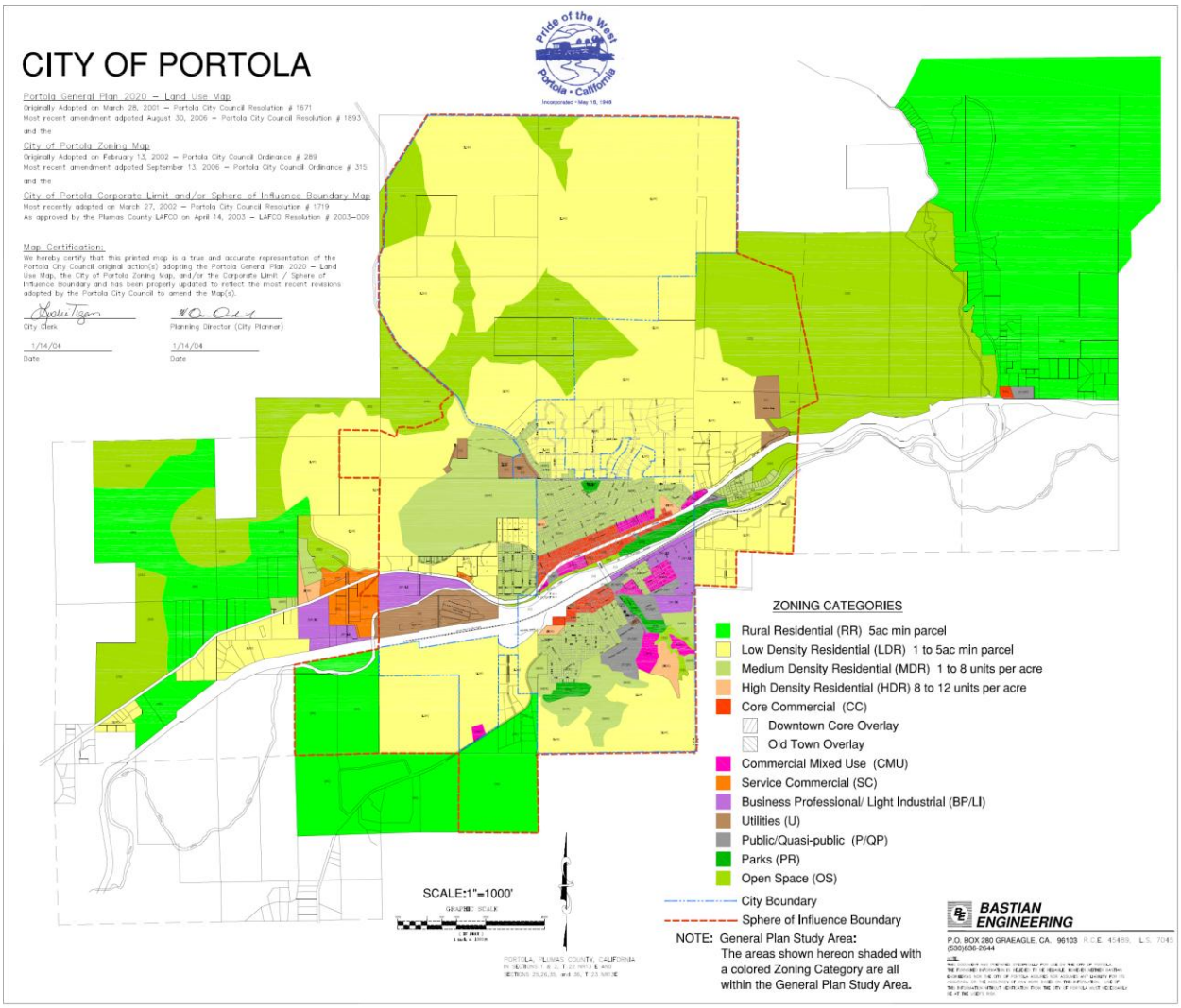
### Land Use

State planning law requires that a land use element of a general plan include a statement of the standard population density, building intensity, and allowed uses for the various land use designations in the plan (Government Code Section 65302(a)). The City's land use designations are generally described below and mapped on the Land Use Diagram (Figure A-12). The City of Portola Municipal Code provides detailed land use and development standards for development.

The Municipal Code works hand in hand with the City's General Plan Land Use Element. The purpose of the Land Use Element is to provide goals, policies, actions diagrams and standards to guide future land use decisions in the City of Portola. While all elements of the General Plan have equal weight under California law, in some respects this Element is the most far-reaching. It informs all other elements of the General Plan, shaping the future transportation network and the location of future housing sites, and influencing public facility requirements and park and recreation needs. It defines the City's future open space system and responds to natural resource conservation issues and safety hazards. It establishes the basic pattern of development in the City for the next 20-25 years, including land uses and densities, and presents the policies and actions to ensure that future development will enhance the quality of life for all City of Portola residents.

Future land use for the City of Portola from the City of Portola General Plan 2045 Land Use Element is shown on Figure A-12.

### *Figure A-12 City of Portola – Land Use Diagram*




Source: City of Portola General Plan 2045 Land Use Element

## Population Trends and Projections

There are no future City population projections. Plumas County as a whole is expected (by the California Department of Finance) to slowly shrink in population. As such, it is assumed that the City may see negative population growth as well.

## Development since 2019 Plan

Development has occurred in the City since the last plan. Some of this has occurred in hazard prone areas. The City Planning Department tracked total building permits issued since 2019 for the City. These are tracked by total development, property use type, and hazard risk area. These are shown in Table A-14 and Table A-15.

### *Table A-14 City of Portola – Total Development Since 2019*

| Property Use | 2020 | 2021 | 2022 | 2023 | 2024 |
|---|---|---|---|---|---|
| Residential | 0 | 0 | 0 | 0 | 0 |
| Commercial | 0 | 0 | 0 | 0 | 0 |
| Industrial | 0 | 0 | 0 | 0 | 0 |
| Other | 0 | 0 | 0 | 0 | 0 |
| **Total** | **0** | **0** | **0** | **0** | **0** |

Source: City of Portola Planning Department

### *Table A-15 City of Portola – Development in Hazard Areas since 2019*

| Property Use | 1% Annual Chance Flood | Levee Protected Area | Wildfire Risk Area[1] | Other |
|---|---|---|---|---|
| **Total** | 0 | 0 | 0 | 0 |

Source: City of Portola Planning Department

[1]Moderate or higher wildfire risk area

No development has occurred in the identified hazard areas, including the 1% annual chance floodplains and high wildfire risk areas. As such, there should not be a significant change in vulnerability of the City to identified priority hazards.

## Future Development Areas

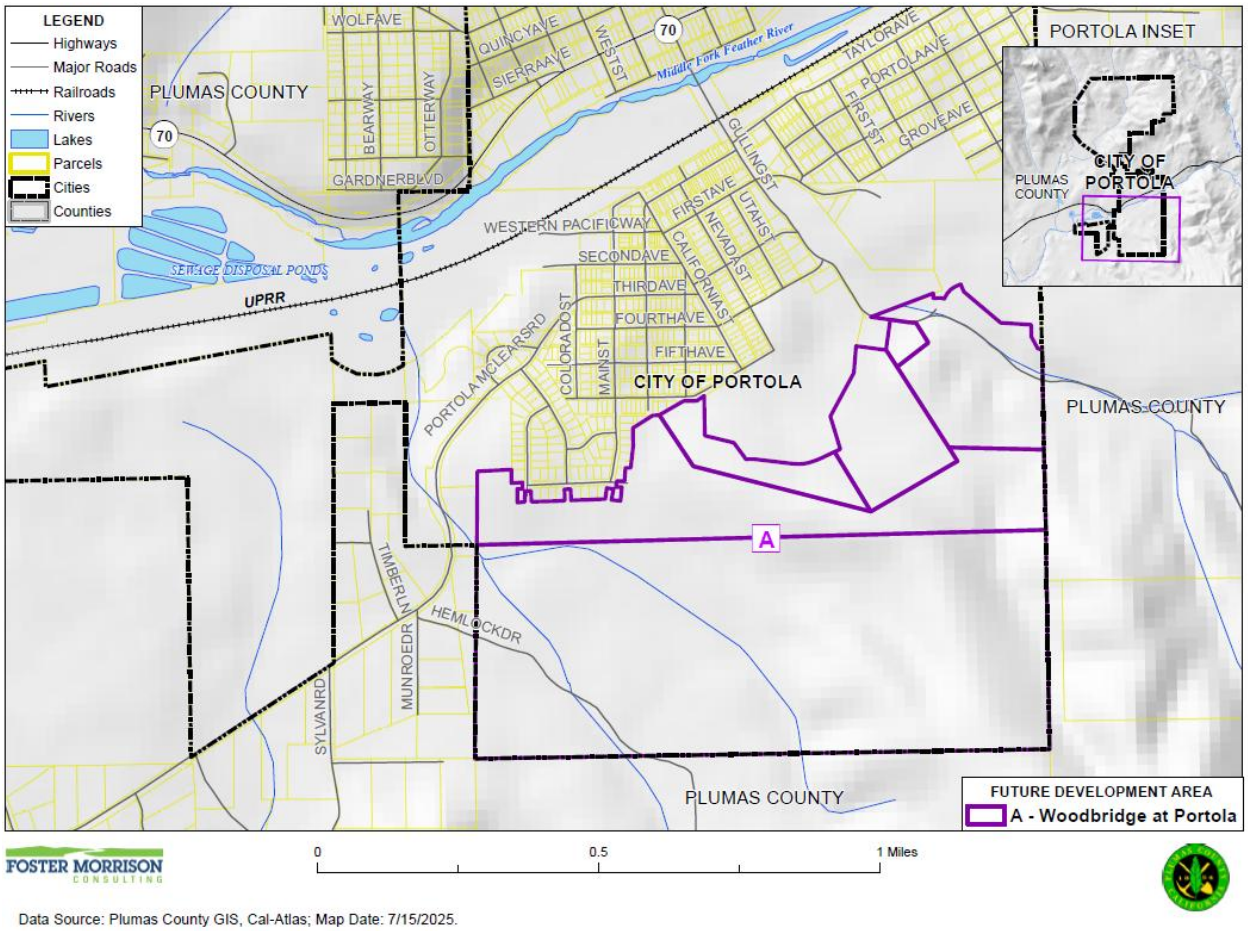
It is important to review future development plans for the City. Future development should be sited in areas that are away from known hazard risks. If this is not possible, mitigation should be done to ensure that future development is protected against future hazards.

### GIS Analysis

The City noted that an area known as Woodbridge at Portola is the only future development under consideration in the City over the next 5 years. It is 251.5 acres with 1,005 units planned. The City noted that it is not 'shovel ready' and that a Development Agreement will term in 2027. The Developer presented

during a City Council meeting on 04/09/2025 and is primarily looking to divest interest. Council Approved it annual review. These areas were provided by the City of Portola in GIS. Using GIS, these areas were mapped. This area is shown on Figure A-13, and detailed by parcels and acres in Table A-16.

### *Figure A-13 City of Portola – Future Development Areas*




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

### *Table A-16 City of Portola – Future Development Areas by Acres and Parcels*

| Future Development / Property Use | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Woodbridge at Portola, Inc.** | | | | | | |
| Woodbridge at Portola, Inc. Total | 6 | 398.52 | 6 | 398.52 | 0 | 398.52 |
| **Grand Total** | **6** | **398.52** | **6** | **398.52** | **0** | **398.52** |

Source: City of Portola

## A.4.2. Hazard Identification

The City of Portola identified the hazards that affect the City and summarized their location, extent, likelihood of future occurrence, potential magnitude, and significance specific to the City (see Table A-17). Those hazards identified as a high or medium significance in Table A-17 are considered priority hazards for mitigation planning. Those hazards that occur infrequently or have little or no impact in the City were determined to be of low significance and not considered a priority hazard. 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 City to focus resources where they are most needed.

### *Table A-17 City of Portola—Hazard Identification Assessment*

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

## A.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 City of Portola (as identified in the Significance column of Table A-17) and also includes a hazard profile and vulnerability assessment to the four primary hazards to the State of California: dam failure, earthquake, flood, and wildfire, regardless of the significance ranking by the City. 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 City 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 City 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 City 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:

- **Local Concerns** – This includes City provided information on how the City 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 A.4.1 above, with a few exceptions. This includes sections on: People and Populations; Structures; 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 fully covered in Section A.4.1 above.
- **Impacts** – A discussion on hazard impacts follows. Impacts describe how each hazard can affect the City and its assets. 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 be affected by the hazard is also included. This is addressed specifically for mapped hazards, and in more general terms for those hazards that are unmapped.

## 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 starting a wildfire. By stopping ignitions, it helps prevent wildfires from starting and spreading. According to PG&E, if ignitions occur, the size of fires are 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 City noted that there have been multiple instances of power outages with Liberty Utilities have been recorded due to severe weather events over the past couple of years. These events often lasted multiple days and vulnerable population have been affected greatly. This includes residents who need oxygen, medicine, etc.

## *Climate Change*

**Likelihood of Future Occurrence**–Likely
**Vulnerability**–Medium

### Hazard Profile

Climate change adaptation is a key priority of the State of California. The 2023 State of California Multi-Hazard Mitigation Plan noted that climate change is already affecting California. Sea levels have risen by as much as seven inches along the California coast over the last century, increasing erosion and pressure on the State's infrastructure, water supplies, and natural resources. The State has also seen increased average temperatures, more extreme hot days, fewer cold nights, a lengthening of the growing season, shifts in the water cycle with less winter precipitation falling as snow, and earlier runoff of both snowmelt and rainwater in the year. In addition to changes in average temperatures, sea level, and precipitation patterns, the intensity of extreme weather events is also changing.

California's Adaptation Planning Guide: Understanding Regional Characteristics (from 2017) has divided California into 11 different regions based on political boundaries, projected climate impacts, existing environmental setting, socioeconomic factors and regional designations. The City falls in the North Sierra Region. A map and climate projections for this region are shown in Section 4.3.7 of the Base Plan and include an increase in temperatures, moderate changes in rainfall, and increased risk to wildfire.

### Location and Extent

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

### Past Occurrences

#### *Disaster Declaration History*

Climate change has never been directly linked to any declared disasters.

#### *NCDC Events*

NCDC does not track climate change events.

#### *City of Portola Events*

The City Planning team noted that it seems to be getting hotter every year. There has been an increase of wildfire activity, and an increased potential for droughts.

## Vulnerability to Climate Change

The whole of the City is at some measure of vulnerability to climate change. The City Planning Team has concerns that the vulnerability of the City to climate change will continue to increase in the future. An assessment of a community's vulnerability to climate change begins with an understanding of local exposure to climate change. This is included in the Local Concerns section below followed by a discussion of the City's assets at risk, and impacts to this hazard.

### Local Concerns

The City 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 City noted that the increase in temperatures increases risk for almost all other hazards identified in this LHMP. Drought, wildfire, flooding, mudslides are all increased potentially by climate change.

In the past, this region relied on industries such as mining, timber production, and agriculture. Population growth in recent decades has shifted the region's economy to be driven by the provision of services, tourism, and second home development (Sierra Business Council, 2007). Today, the region's economy is primarily tourism-based. Climate change has the potential to disrupt many features that characterize the region, including ecosystem health, snowpack, and the tourist economy.

### Assets at Risk

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

#### *People and Populations*

Climate change affects people and populations within a community, especially those climate change issues related to increases in temperature over time. While all populations can be affected by temperature

extremes, populations particularly vulnerable include the very old and very young, medically fragile people, people without means of shelter (and air conditioning or heat) or transportation, people who are socially isolated and other vulnerable or underserved populations (as shown in the discussion in Section A.4.1). Acclimatization to extreme temperatures and other weather extremes may help reduce impacts from these extreme events, such as from heat waves, in the healthy general population but may not be sufficient to protect those with underlying medical conditions.

#### *Structures*

Climate change, on its own, does not generally impact structures. However, structures in areas of increased wildfire, flood, or other areas exacerbated by the effects of climate change would be at increased risk, as described throughout this LHMP. More information on how structures may be affected by climate change can be found in Section 4.3.7 of the Base Plan.

#### *Critical Facilities and Infrastructure*

As with structures, critical facilities and infrastructure in areas of increased wildfire, flood, or other areas due to the effects of climate change would be at increased risk. Climate change is expected to increase the vulnerability of critical facilities and infrastructure to many natural hazards.

#### *Natural, Historic, and Cultural Resources*

The rivers, streams, agricultural areas, and open space areas of the City supports rich biodiversity, including many special-status species and habitat areas. These are all at risk from the effects of climate change. In addition, if heat continues to contribute to changes in wildfire patterns, all areas (on land) of the City are at increased risk from fire – including natural, historic, and cultural resources. Furthermore, as climate change exacerbates the drought hazard, areas of wetlands in the City may be reduced or dry up temporarily, which could damage habitat areas for waterfowl and other species that depend on these areas.

### Impacts from Climate Change

The California APG: Understanding Regional Characteristics identified the following impacts specific to the North Sierra Region in which the City is part of:

- Increased temperatures
- Reduced precipitation
- Public health – heat and air pollution
- Reduced agricultural productivity (e.g., wine grapes)
- Reduced tourism

In addition to these sources, the 2023 State of California Hazard Mitigation Plan noted that according to California's Fourth Climate Change Assessment, the state will experience the following climate impacts:

- Annual average daily high temperatures are expected to rise by 2.7° F by 2040, 5.8°F by 2070, and 8.8°F by 2100 compared to observed and modeled historical conditions. These changes are statewide averages.
- Heat waves are projected to become longer, more intense, and more frequent.

- Warming temperatures are expected to increase soil moisture loss and lead to drier conditions. Summer dryness may become prolonged, with soil drying beginning earlier in the spring and lasting longer into the fall and winter.
- Droughts are likely to become more frequent and persistent through 2100.
- The strength of the most intense precipitation and storm events affecting California is expected to increase.
- Snowpack levels are projected to decline significantly by 2100 due to reduced snowfall and faster snowmelt.
- Marine layer clouds are projected to decrease.
- Extreme wildfires (i.e., fires larger than 24,710 acres) would occur 50 percent more frequently. The maximum area burned statewide may increase 178 percent by the end of the century.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the County 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

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 City include the following:

- As climate change continues to accelerate over time, climate related impacts to the City will continue to increase.
- Climate change can influence population growth in the City over time. While the City is expected to see limited growth, the City could see population fluctuations as a result of climate impacts relative to those experienced in other regions, and these fluctuations are expected to impact demand for housing and other development. While there are currently no formal studies of specific migration patterns expected to impact the City and larger Plumas County region, climate-induced migration was recognized within the UNFCCC Conference of Parties Paris Agreement of 2015 and is expected to be the focus of future studies. So while changes in population and population patterns are not expected to increase the impacts associated with this hazard, climate change may instead influence future population growth in the County.
- Land use planning should be proactive to address future hazard conditions. The increasing severity and frequency of storms and other weather events and natural hazards due to the changing climate should be taken into account while considering land use planning for the City. Ensuring that regulatory requirements, such as building codes, are updated and followed will help reduce future impacts to this hazard.

Future development considerations should be ongoing and proactive. Ensuring that comprehensive land use planning is conducted, regulatory requirements, such as building codes, are followed, and varying needs for different demographic groups with intersecting identities that reside within the County are considered can help to make for a more disaster resilient community.

## *Dam Failure*

**Likelihood of Future Occurrence**–Unlikely
**Vulnerability**–Extremely High

### Hazard Profile

Dams are manmade structures built for a variety of uses including flood protection, power generation, agriculture, water supply, and recreation. When dams are constructed for flood protection, they are usually engineered to withstand a flood with a computed risk of occurrence. For example, a dam may be designed to contain a flood at a location on a stream that has a certain probability of occurring in any given year. If prolonged periods of rainfall and flooding occur that exceed the design requirements, that structure may be overtopped or fail. Overtopping is the primary cause of earthen dam failure in the United States.

Dam failure is a natural disaster from two perspectives. First, the inundation from released waters resulting from dam failure is related to naturally occurring floodwaters. Second, a total dam failure would most probably happen as a consequence of the natural disaster triggering the event, such as an earthquake.

#### Location and Extent

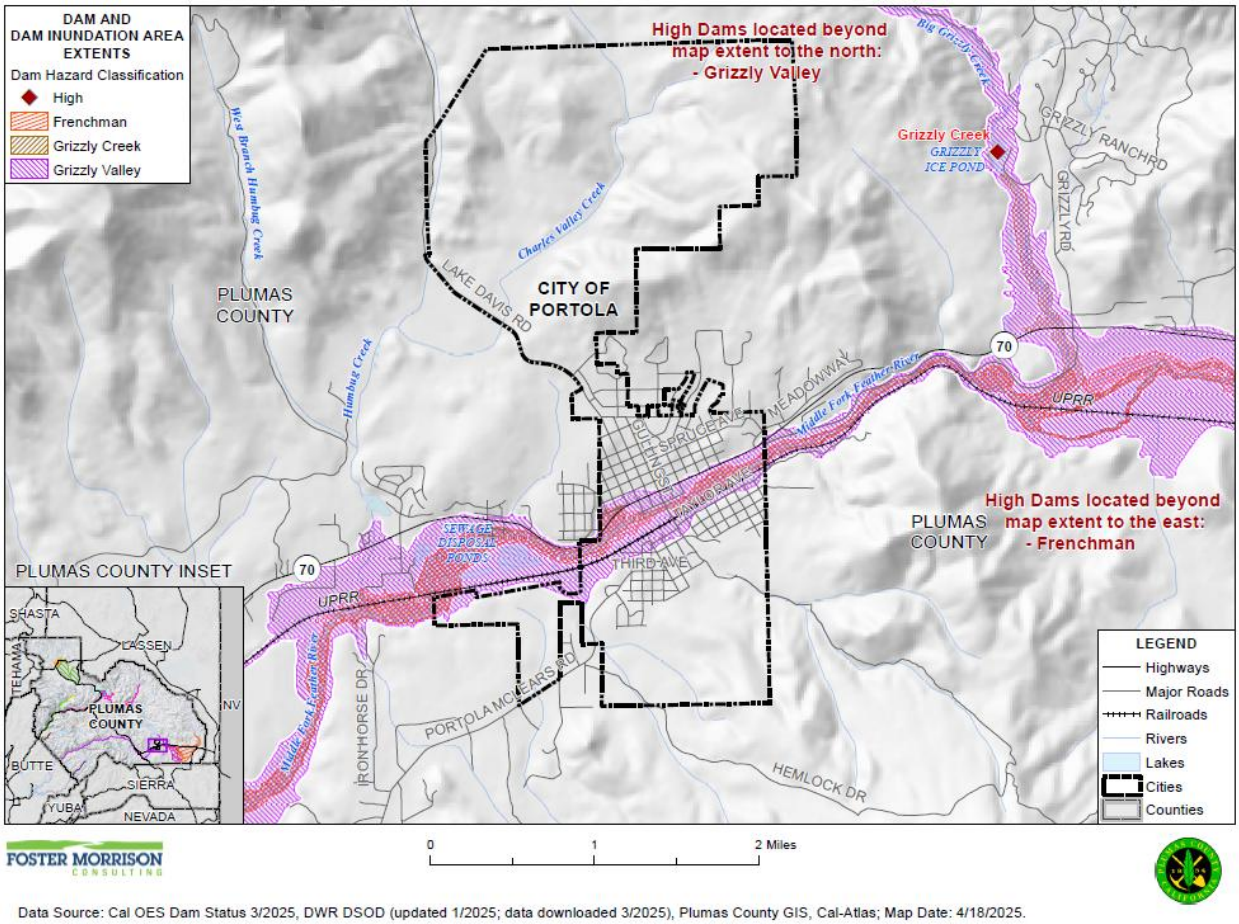
An inventory map of dams located within Plumas County was shown in Section 4.3.8 in the Base Plan. Dams with an inundation area within the City of Portola are shown on Figure A-14.

There is no scale with which to measure dam failure. However, FEMA and CA DWR Division of Safety of Dams (DSOD) assign hazard potential classifications to dams within the State that provides information on the potential impact should a dam fail. The following two factors are considered when assigning hazard ratings: existing land use and land use controls (zoning) downstream of the dam. FEMA categorizes the downstream hazard potential into three categories in increasing severity: Low, Significant, and High. DSOD adds a fourth category of Extremely High. Dams are classified in these four categories that identify the potential hazard to life and property. These were discussed in more detail in Section 4.3.8 of the Base Plan.

While a dam may fill slowly with runoff from winter storms, a dam break has a very quick speed of onset. The duration of dam failure is generally not long – only as long as it takes to empty the reservoir of water the dam held back. For dam overtopping, the speed of onset is somewhat slower than that of a dam break, and the duration is longer (as evidenced in the 2017 Oroville Dam spillway event in nearby Butte County). The City would be affected for as long as the flood waters from the dam failure took to drain downstream.

No mapped extremely high hazard dam inundation areas intersect the City. As such, only the geographic flood extents from the DSOD high hazard dam inundation areas are shown on Figure A-14, as well as in Table A-18.

*Figure A-14 City of Portola – High Hazard Dam Inundation Areas*




Data Source: Cal OES Dam Status 3/2025, DWR DSOD (updated 1/2025; data downloaded 3/2025), Plumas County GIS, Cal-Atlas; Map Date: 4/18/2025.

*Table A-18 City of Portola – Dam Inundation Areas Geographical Extents*

| Dam Inundation Area | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| Frenchman | 78 | 2.2% | 5 | 0.2% | 73 | 5.8% |
| Grizzly Creek | 61 | 1.7% | 4 | 0.2% | 57 | 4.5% |
| Grizzly Valley | 234 | 6.7% | 33 | 1.5% | 202 | 16.1% |

Source: Cal OES, DSOD, Plumas County GIS

## Past Occurrences

### *Disaster Declaration History*

There have been no state or federal disaster declarations for dam failure in Plumas County.

### *NCDC Events*

The NCDC does not contain any dam failure events for Plumas County.

### *City of Portola Events*

The City of Portola noted no past dam failure events.

### Climate Change and Dam Failure

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

The 2023 California State Hazard Mitigation Plan noted that modeling described in California's Fourth Climate Change Assessment projects less frequent but more extreme daily precipitation. Year-to-year precipitation will become more volatile, and the number of dry years will increase by mid-century. As the climate continues to warm, atmospheric rivers will carry more moisture, and extreme precipitation may increase. Climate model projections show a tendency for the northern part of the State to become wetter. Increases in both precipitation and heat causing snowmelt in areas upstream of dams could increase the potential for dam failure and uncontrolled releases in Plumas County and the City.

## Vulnerability to Dam Failure

The vulnerability of the City to dam failure flooding would vary depending on which dam fails and the nature and extent of the dam failure and associated flooding. An assessment of a community's vulnerability to dam failure begins with an understanding of local exposure to dam failure. This is included in the Local Concerns section below followed by a discussion of the City's Assets at Risk to this hazard.

### Local Concerns

The City 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 City noted that its greatest concern is with Lake Davis, which is impounded by the Grizzley Valley Dam. The City of Portola lies approximately 8 miles downstream of Lake Davis and the Grizzly Valley Dam. Lake Davis was built to provide recreation, create a water supply to the City of Portola, and to improve fish habitat. The Grizzly Valley Dam was completed in 1915 and the maximum surface elevation is 5,744 ft with a maximum storage volume of 195,000 acre-feet. If the dam were to fail catastrophically the flood surge would travel south down the Grizzly Valley Creek channel and reach the Middle Fork of the Feather River approximately 2.25 miles east of Portola. Because the Feather River flows to the west, structures along the Feather River at the eastern boundary of the City of Portola would be the first structures to be affected by the flood surge.

Dam inundation areas, as mapped by the Cal OES and DSOD, show the potential flood extent, given a complete and sudden dam failure at full capacity. Given its physical setting and proximity to the Grizzly Valley Dam, the City of Portola could be affected both by the immediate impacts of a flood wave, and long-term impacts if roads, buildings and bridges are destroyed. The flood wave has the potential to impact the South Gulling Street Bridge, which is the only connection between the south and north sides of the City. If

the bridge were adversely impacted, those people on the south side of the Middle Fork of the Feather River would be required to travel over 25 miles to return to the north side of Portola; those on the north side would not be able to reach the hospital in the event of a medical emergency. Based on records presented by the National Bridge Inventory, the bridge is considered scour critical.

The main channel of the Middle Fork of the Feather River runs fairly central to the flood plain. The relatively broad flood plain will help mitigate potential damage and limit destruction as it allows for some spreading of the flood wave, while continuing to help channelize the flow. Depending on flood levels, the railroad, a City well, and the sewage treatment plant could all be impacted by the event. Because of confidentiality concerns on behalf of the Division of Safety of Dams, specific concerns will have to be reviewed by the City and cannot be represented herein.

The City noted that, as developments continue in the future, it will be ensured that development is properly planned and not within flood risk areas.

### Assets at Risk

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

#### *People and Populations*

All people and populations located in dam inundation areas are vulnerable to dam failure. Certain vulnerable populations may be at increased risk to dam failure, especially during a large event with minimal advance notice. These vulnerable populations may include: the unsheltered, those with limited mobility, and those that lack the resources to leave the area.

City residents that live in these dam inundation areas are often 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. To further evaluate the impact to the City of Portola's residential populations located in these hazard areas, a separate analysis was performed to determine residential populations in the dam inundation areas. The DSOD dam inundation areas were overlayed on the parcel layer. Those residential parcel polygons that intersect the dam inundation areas were counted and multiplied by the Census Bureau average household factors for the City of Portola – 2.29. This is shown in Table A-19. As shown, Frenchman, Grizzley Creek, and Grizzley Valley dams have inundation areas that intersect residential parcels in the City.

*Table A-19 City of Portola – Improved Residential Parcels and Population by Dam Inundation Area*

| Dam Inundation Area | City of Portola | |
|---|---|---|
| | Improved Residential Parcels | Population |
| **Extremely High Hazard Dams** | | |
| Lake Almanor | 0 | 0 |

| Dam Inundation Area | City of Portola | |
|---|---|---|
| | Improved Residential Parcels | Population |
| **High Hazard Dams** | | |
| Antelope | 0 | 0 |
| Bidwell Lake | 0 | 0 |
| Bucks Diversion | 0 | 0 |
| Bucks Storage | 0 | 0 |
| Butt Valley | 0 | 0 |
| Caribou Afterbay | 0 | 0 |
| Chester Diversion | 0 | 0 |
| Cresta | 0 | 0 |
| Eureka | 0 | 0 |
| Frenchman | 13 | 30 |
| Grizzly Creek | 12 | 27 |
| Grizzly Forebay | 0 | 0 |
| Grizzly Valley | 82 | 188 |
| Indian Ole (Lassen County) | 0 | 0 |
| Little Grass Valley | 0 | 0 |
| Rock Creek | 0 | 0 |
| Silver Lake | 0 | 0 |

Source: Cal OES, DSOD, Plumas County 2024 Parcel/Assessor Data, US Census Bureau American Community Survey 2023 Household Size Estimates.

The City noted that the Critical Facilities and Infrastructure section below includes the facilities used by At-Risk populations that are threatened by this hazard. While this is not specific to what special populations reside in the City, it does speak to facilities that area used to serve (portions) of this population.

### *Structures*

Most structures in the City have some measure of risk to dam failure. Dam failure flooding can affect the built environment of the City. Structures in dam inundation areas are at risk and depending on flood depths, can range from slight damage to totally inundated. Analysis by extremely high hazard and high hazard dam follows.

A GIS based analysis was used to determine the possible impacts of dam inundation flooding on parcels and structures within the City of Portola. The methodology described in Section 4.3.8 of the Base Plan was followed in determining City parcels and structures at risk to dam failure. Parcel counts, land and improved values (i.e., those with a structure improvement on the parcel), estimated content replacement values, and total values that fall within dam inundation areas in the City are presented below by hazard classification and by dam. The results are presented in Table A-20 below for the dams that affect the City.

### *Table A-20 City of Portola – Count and Value of Parcels and Structures in Dam Inundation Area by Property Use*

| Dam Inundation Area/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Frenchman** | | | | | | | |
| Agricultural | 15 | 8 | $1,263,758 | $3,012,093 | $11,385 | $3,012,093 | $7,299,329 |
| Commercial | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Federal Lands | 9 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 2 | 1 | $6,510 | $147,552 | $0 | $147,552 | $301,614 |
| Institutional | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Recreational | 35 | 13 | $1,141,203 | $970,440 | $5,280 | $485,220 | $2,602,143 |
| Residential | 7 | 0 | $0 | $0 | $0 | $0 | $0 |
| ROW/Utilities | 69 | 22 | $2,411,471 | $4,130,085 | $16,665 | $3,644,865 | $10,203,086 |
| **Total** | **15** | **8** | **$1,263,758** | **$3,012,093** | **$11,385** | **$3,012,093** | **$7,299,329** |
| **Grizzly Creek** | | | | | | | |
| Agricultural | 11 | 6 | $929,543 | $2,508,418 | $11,385 | $2,508,418 | $5,957,764 |
| Commercial | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Federal Lands | 9 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 2 | 1 | $6,510 | $147,552 | $0 | $147,552 | $301,614 |
| Institutional | 1 | | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Recreational | 33 | 12 | $1,118,586 | $856,872 | $5,280 | $428,436 | $2,409,174 |
| Residential | 7 | 0 | $0 | $0 | $0 | $0 | $0 |
| ROW/Utilities | 63 | 19 | $2,054,639 | $3,512,842 | $16,665 | $3,084,406 | $8,668,552 |
| **Total** | **11** | **6** | **$929,543** | **$2,508,418** | **$11,385** | **$2,508,418** | **$5,957,764** |
| **Grizzly Valley** | | | | | | | |
| Agricultural | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Commercial | 106 | 74 | $5,108,031 | $13,277,078 | $99,195 | $13,277,078 | $31,761,382 |
| Federal Lands | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 12 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 9 | 3 | $318,150 | $230,745 | $0 | $346,118 | $895,013 |
| Institutional | 5 | 4 | $149,379 | $3,698,377 | $147,200 | $3,698,377 | $7,693,333 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 0 | 0 | $0 | $0 | $0 | $0 | $0 |

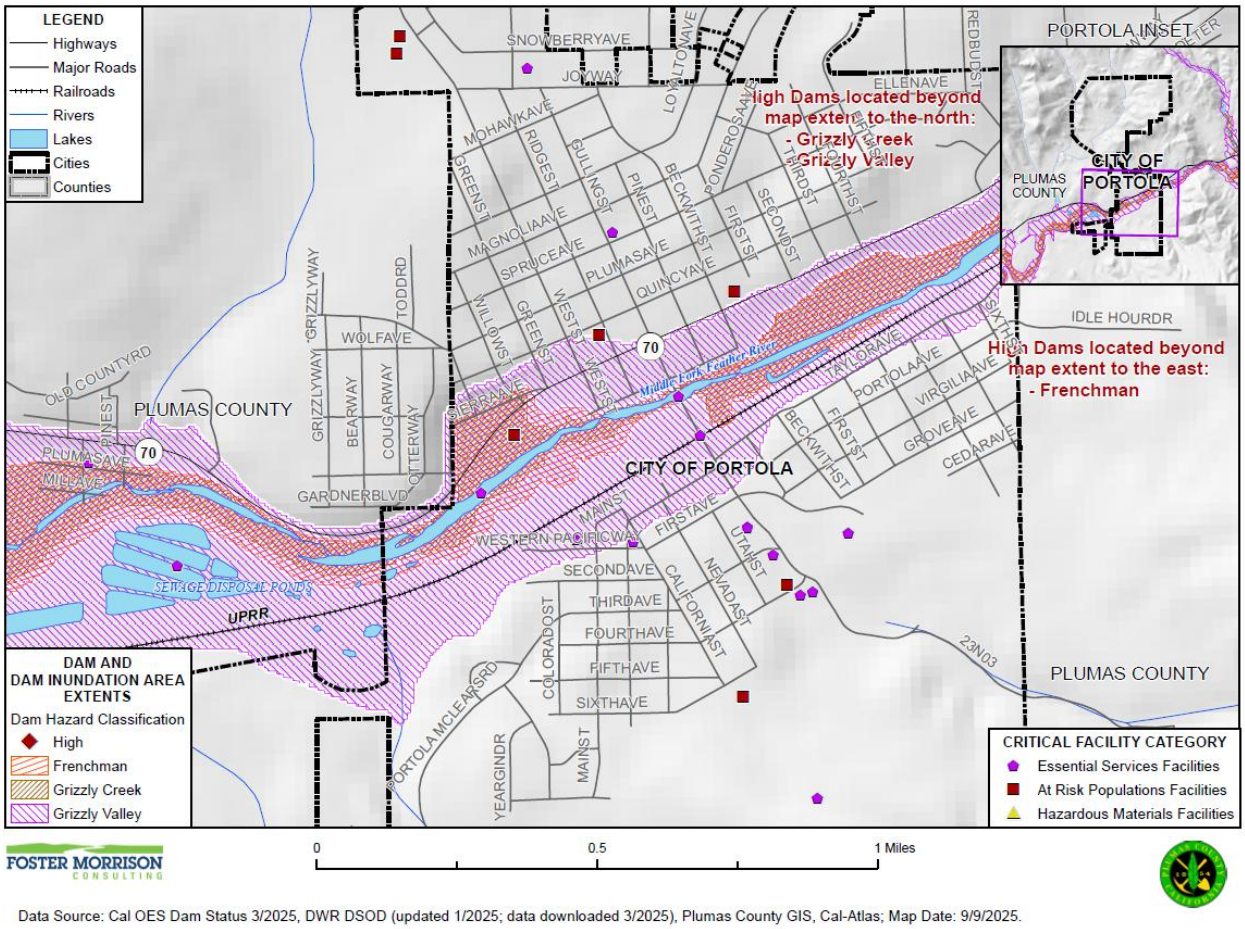
| Dam Inundation Area/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Residential | 137 | 82 | $3,361,074 | $9,268,058 | $160,960 | $4,634,029 | $17,424,121 |
| ROW/Utilities | 17 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Total** | **288** | **163** | **$8,936,653** | **$26,474,258** | **$407,355** | **$21,955,602** | **$57,773,868** |

Source: DSOD, Plumas County 2024 Parcel/Assessor Data

### *Critical Facilities and Infrastructure*

Dam failure flooding present a threat to critical facilities and infrastructure. The following analysis discusses critical facilities and infrastructure. A separate analysis was performed on the critical facility inventory in the City to determine which critical facilities fall into each Cal OES/DSOD dam inundation area. This was done separately for both extremely high hazard and high hazard dam inundation areas. Using GIS, the extremely high hazard dam inundation areas were overlayed on the critical facility GIS layer. There are no extremely high hazard dam inundation areas that intersect the City; as such, no maps or tabular analysis is shown. There are high hazard dams that affect the City. These is shown on Figure A-15. Table A-21 details which critical facilities fall in the high hazard dam inundation areas. Details of critical facility categories, type, name, and address by extremely high and high hazard dam inundation area are listed in Appendix F.

## *Figure A-15 City of Portola – Critical Facilities in High Hazard Dam Inundation Areas*

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Data Source: Cal OES Dam Status 3/2025, DWR DSOD (updated 1/2025; data downloaded 3/2025), Plumas County GIS, Cal-Atlas; Map Date: 9/9/2025.

Extremely High dam inundations are not in proximity to the CFs; no map developed.

## *Table A-21 City of Portola – Critical Facilities by Category in High Hazard Dam Inundation Areas*

| Jurisdiction / High Hazard Dam Inundation Area | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| High Hazard Dam Inundation Area | Essential Services Facilities | |
| | Essential Government Operations | 1 |
| | Public Utility Plant and Substation Facilities | 4 |
| | Transportation Lifeline Systems | 2 |
| | Essential Services Facilities Total | 7 |
| | At Risk Populations Facilities | |
| | Public Safety | 1 |
| | At Risk Populations Facilities Total | 1 |
| | **High Hazard Dam Inundation Area Total** | **8** |
| Outside of High Hazard Dam Inundation Area | Essential Services Facilities | |

| Jurisdiction / High Hazard Dam Inundation Area | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| | Emergency Medical | 1 |
| | Essential Government Operations | 2 |
| | Public Safety | 2 |
| | Public Utility Plant and Substation Facilities | 4 |
| | Essential Services Facilities Total | 9 |
| | At Risk Populations Facilities | |
| | Designated Emergency Shelter | 1 |
| | School | 6 |
| | At Risk Populations Facilities Total | 7 |
| | **Outside of High Hazard Dam Inundation Area Total** | **16** |
| **Portola Total** | | **24** |

Source: Cal OES/DSOD, City of Portola

### *Natural, Historic, and Cultural Resources*

A major dam failure event and associated flooding could have a devastating impact on the City. Large flood events can affect all natural, historic, and cultural resources that lie in the dam inundation areas. There are a number of ways floodwaters associated with a dam failure event 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 levées 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 these structures within the inundated 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 dam failure flood events.

### Impacts from Dam Failure

Impacts to the City from dam failure flooding could be extensive and widespread and include loss of life and injury, flooding and damage to property and structures, damage to critical facilities and infrastructure, loss of natural resources, and all other flood related impacts. Levees within the City and surrounding areas may also be damaged or destroyed contributing to the flood waters. Additionally, mass evacuations may be necessary and compounded by impacts to transportation systems and infrastructure. Economic losses to the City and Plumas County Planning Area can also be significant.

Other impacts associated with dam failure include landslides, bank erosion, and destruction of habitat. Dam failures can cause downstream flooding and can transport large volumes of sediment and debris and contaminants from the floodwaters. Other environmental impacts can include contamination from septic system failures and releases of contaminants from hazardous materials facilities, contamination of potable

water supplies; changes in configurations of streams; loss of wildlife habitats; and degradation of wetlands. A large dam failure event could have significant and catastrophic impacts.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City may be affected in the future by climate change (which was discussed in the Climate Change and Dam Failure 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 this for the City include the following:

- Climate change is likely to exacerbate future rain and storm conditions and associated impacts and vulnerability of the City to dam failure.
- Population in the City is expected to shrink along with the larger County; however, additional growth within the dam inundation areas of the City would place additional populations at risk to dam failure. Additional population growth would likely bring continued diversity to the City. Vulnerable population groups could face disproportionate effects from a dam failure and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. Locating new development, structures, and critical facilities and infrastructure within or near areas of dam failure risk may put additional development at risk. However, City building codes are in effect to partially reduce this risk and should be updated as necessary to continue to address future dam failure conditions. Thus, depending on the location of new development and adherence to protective building codes, changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard.

### Future Development

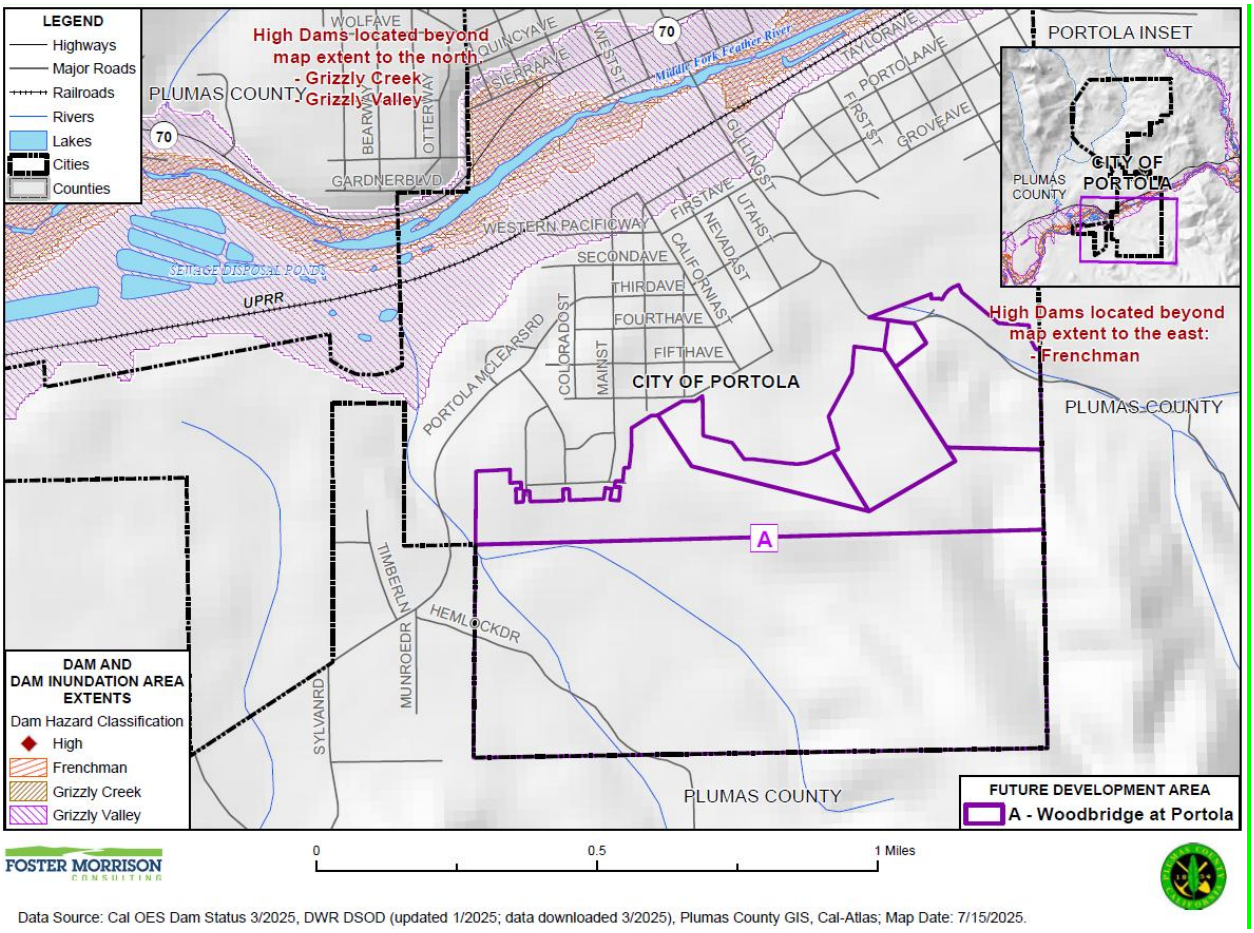
Future dam failure events may occur in the City. Given the high number of affected parcels and structures, future development in the City, could be affected by dam failures and associated flooding. Siting of future development areas should take dam failure flooding into account. As the City continues to develop, the population will continue to grow and become more diverse. Changing migration patterns will fluctuate the vulnerability of the City and the vulnerable populations such as AFN, unhoused, the elderly, and very young may feel the effects of this disaster disproportionately.

Future development areas and their vulnerability to dam failure are discussed further in the below GIS analysis.

### *GIS Analysis*

The City provided a future development area which was used as the basis for the inventory of future development for the City. This area were mapped in GIS. Utilizing the future development area spatial layer, the parcel polygon data was intersected to determine the future development areas within each mapped dam inundation area. No facilities intersect extremely high hazard dam inundation areas; as such no maps or tabular analysis are presented. Figure A-16 shows the locations of the future development area overlayed on the high hazard dam inundation areas. These lie outside of the mapped dam inundation areas; as such, no tabular analysis is presented.

### *Figure A-16 City of Portola – Future Development Areas in High Hazard Dam Inundation Areas*




Data Source: Cal OES Dam Status 3/2025, DWR DSOD (updated 1/2025; data downloaded 3/2025), Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

## *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 specific impacts of drought in the City of Portola and the Plumas County Planning Area 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 City. 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 City that provides relief during extreme heat days.

### Location and Extent

Drought and water shortage are regional phenomenon. The whole of the City 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 City are shown in Section 4.3.9 of the Base Plan.

## Past Occurrences

### *Disaster Declaration History*

There have been 1 state and 1 federal disaster declarations for Plumas County. This can be seen in Table A-22. Additionally, there have been 13 USDA Secretarial Disaster Declarations from drought in the County.

### *Table A-22 Plumas County –State and Federal Drought Disaster Declarations 1950-2025*

| Disaster Type | State Declarations | | Federal Declarations | |
|---|---|---|---|---|
| | Count | Years | Count | Years |
| Drought | 1 | 2014 | 1 | 1997 |

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 City.

### *City of Portola Events*

Based on historical information, the occurrence of drought in California, including the City of Portola, 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. Drought has occurred in the past and will occur in the future.

## 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 City 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 City, 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 City of Portola 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 City 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 City's Assets at Risk to this hazard.

### Local Concerns

The City 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 City of Portola is not likely to be highly affected by a drought due to its proximity to the headwaters of a major river (Middle Fork Feather River). The large, high elevation drainage area for the City of Portola historically receives abundant precipitation and, even in years of below average precipitation, snowpack, groundwater storage, and access to the Lake Davis Reservoir are sufficient to provide reliable sources of water for household use. Indirect impacts could include reduction in the limited agricultural productivity for surrounding areas and related economic impacts

The City is slightly concerned with reduced water supply from Willow Springs. Most of the City's water is supplied by Willow Springs, although there is a backup supply of water through Lake Davis. There have been minor impact to all recreational facilities in the City (parks, etc.). It is important to the City to ensure a reliable water supply through existing sources. In addition, drought hazards exacerbate the wildfire hazard. The highest priority is the protection of critical facilities (such as the water treatment plan) to mitigate effects of drought.

### Assets at Risk

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

#### *People and Populations*

The people and populations of the City are not directly affected by drought; 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 City may be vulnerability to drought and water shortage issues.

Water quality can be impacted causing health problems, especially to vulnerable populations. Drought and water shortage can lead to an increase in wildfires threatening City residents. Water shortages can have an effect on all of the population in the City, but often have a greater effect on the unhoused and other vulnerable populations that may be unable to access clean drinking water during shortages. During periods of drought as the costs of water usage may increase, especially during mandated conservation times, those who are economically disadvantaged may be unable to afford the increased costs of potable water.

#### *Structures*

Structures have a limited vulnerability to drought and water shortage. It is the secondary hazard of drought (wildfire) which causes risks to structures. Drought can also stress trees, causing die off. These trees may fall on structures adjacent to them.

#### *Critical Facilities and Infrastructure*

Most 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 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 critical facilities and infrastructure. Sufficient water supply for firefighting can also be an issue. 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.

#### *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 City are at risk to drought impacts and a reduction in water supply. These trees provide a wealth of social and environmental benefits to City 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 City.

### Impacts from Drought and Water Shortage

The vulnerability of the City to drought is City-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 turf losses and cause tree die off within the City.

Other qualitative impacts associated with drought in the City 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 City 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

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 City of Portola include the following:

- Climate change is likely to exacerbate future drought conditions and associated impacts and vulnerability of the City to drought and water shortage.
- Future population growth should be considered as having more or less people in a community affects the overall hazard vulnerability to the City. Population in the City and larger County is expected to shrink. According to the HMPC, the City has access to large quantities of water. However, any future population growth in the City will add additional pressure to water companies during periods of drought and water shortage. Water companies will need to continue to plan for and add infrastructure capacity for population growth. If the population grows, the nature and makeup of populations will shift and change along with it. Vulnerable and underserved populations, such as those with low incomes and the unhoused that might not always have access to clean water, will need to be considered as future development continues, since they may experience a disproportionate impact from drought and water shortage. Potential population growth will be a challenge not only with regard to the City's water access for agricultural production, but state- and nation-wide with regard to food production. Should the City see a growth in population, it will increase the vulnerability and impacts to the City from this hazard.
- Land use planning should be proactive to address future hazard conditions. As the City continues to grow, more cropland may be taken out of production to provide housing to accommodate for population growth. As the areas adjacent to the City's agricultural lands are reduced, it seems likely that there would be less of a competing demand for water. However, more development will also require an increase in water supply and associated infrastructure. Changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard depending on where and how this future growth occurs.

Future development in the City is currently not expected. The mapped future development areas are not in process of being built. Should those go forward, the City and surrounding water agencies will need to plan for this additional growth.

## *Earthquake*

**Likelihood of Future Occurrence**–Likely(minor)/ Unlikely (major)
**Vulnerability**–High

### Hazard Profile

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

#### Location and Extent

Since earthquakes are regional events, the whole of the City is at risk to earthquake. The City of Portola, Plumas County, and surrounding areas have some level of risk from seismic and geologic hazards. Faults in and around the City were shown in Section 4.3.10 of the Base Plan. These include the Almanor Fault, Butt Creek Fault Zone, and the Mohawk Valley Fault traverse the County. The Indian Valley Fault is also considered an active fault located within the County. Additionally, the Honey Lake and Fort Sage Faults are two active faults located east of the County. A significant seismic event on any of these major faults could cause damage in the City of Portola.

The amount of energy released during an earthquake is usually expressed as a magnitude and is measured directly from the earthquake as recorded on seismographs. An earthquake's magnitude is expressed in whole numbers and decimals (e.g., 6.8). Seismologists have developed several magnitude scales, as discussed in Section 4.3.10 of the Base Plan.

Another measure of earthquake severity is intensity. Intensity is an expression of the amount of shaking at any given location on the ground surface. Seismic shaking is typically the greatest cause of losses to structures during earthquakes. The City is located in an area where earthquakes of some magnitude occur, so both magnitude and intensity of earthquakes are expected to remain moderate. Seismic shaking maps for the area in Section 4.3.10 of the Base Plan show Plumas County and the City fall within a low to moderate shake risk.

### Past Occurrences

#### *Disaster Declaration History*

There has been no state or federal disaster declarations in Plumas County from earthquake.

#### *NCDC Events*

The NCDC does not track earthquake events.

#### *City of Portola Events*

The City noted the following events:

- There was an earthquake near the City of Portola that occurred **prior to 1931** (as could be recalled) and was estimated as a magnitude 4 earthquake.
- The nearest earthquake above magnitude 6.0 also occurred **prior to 1931** (as could be recalled) and was centered about 15 miles southeast of the City.
- **June 10, 2001** – a 5.5 earthquake was felt. It was centered in Portola. The County Courthouse was checked for cracks.
- **Since 2019** – The City noted that various small seismic events have occurred since 2019 that triggered alerts on cell phones.

There are no records of significant earthquakes (M > 6.5, caused loss of life, or caused more than $200,000) within close proximity to the City of Portola.

### Climate Change and Earthquake

Climate change is unlikely to increase earthquake frequency or strength. More information on future impacts can be found in the Future Conditions/Future Development section of the Vulnerability Assessment below.

## Vulnerability to Earthquake

The combination of plate tectonics and associated California coastal mountain range building geology generates earthquakes as a result of the periodic release of tectonic stresses Earthquake vulnerability is primarily based on population and the built environment. Urban areas in high seismic hazard zones are the most vulnerable, while uninhabited areas are less vulnerable. The primary impacts of concern are life safety and property damage. Although several faults are in and near the Plumas County Planning Area, seismic hazard mapping indicates that the City has low to moderate seismic hazard potential. There is the potential for the City and Plumas County Planning Area to be subject to some level of moderate seismic shaking. Some degree of structural damage due to stronger seismic shaking could be expected.

The whole of the City is at some measure of vulnerability to earthquake. An assessment of a community's vulnerability to earthquakes begins with an understanding of local exposure to earthquakes. This is included in the Local Concerns section below. After that section, assets at risk are discussed.

### Local Concerns

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

In addition, there is concern around potential damage to infrastructure, specifically the already compromised Gulling Street Bridge. Rehabilitation of this bridge is of importance to the City. During a shake event, water and sewer infrastructure is at risk during events. There have been past reports of an increase in minor leaks after seismic events have occurred throughout the City. Secondary hazards, such as fire, can also present a significant risk to the community. Old heating systems, broken gas lines, old wooden structures can all become both a risk and a hazard if fire is triggered during a seismic event.

### Assets at Risk

Many assets in the City are at risk to ground shaking. Assets at risk from earthquake include people and populations; structures; critical facilities and infrastructure; and natural, historic, and cultural resources. These are discussed in the following sections.

#### *People and Populations*

All people and populations are at risk from earthquake shaking. Those at heightened risk include:

- The unsheltered
- Infants and children under age five and their caregivers
- Elderly (65 and older)
- Individuals with disabilities
- Individuals dependent on medical equipment
- Individuals with impaired mobility

The greatest risk to people and populations from earthquake is death and injury. More information on people and populations at risk to earthquake shaking events can be seen in the Hazus scenarios developed for this LHMP (Great Valley Fault 6.53, Hat Creek/McArthur/Mayfield 7.29, Honey Lake 7.03, Warm Springs Valley 6.92). More information on the Hazus scenarios and how the County is affected is included in Section 4.3.10 of the Base Plan.

#### *Structures*

All structures in the City are vulnerable to earthquakes, depending on the severity and location of the event. The Hazus scenarios conducted for the entire Plumas County Planning Area show how structures may be affected.

### *Critical Facilities and Infrastructure*

Earthquake and its related hazards present risks to the City. Earthquakes can damage critical facilities and infrastructure that provide vital services to the City. Damage to critical facilities from the Hazus earthquake scenarios for the Plumas County Planning Area, including the City of Portola, are presented in the Hazus analysis in Section 4.3.10 of the Base Plan.

### *Natural, Historic, and Cultural Resources*

The 2023 State Hazard Mitigation Plan noted that environmental problems from earthquakes can be numerous. It is possible for earthquakes to reroute streams, which can change the water quality, possibly damaging habitat and feeding areas. Streams fed by groundwater and/or springs may dry up because of changes in underlying geology. Another threat to the environment from earthquakes is the potential release of hazardous materials. Historical and cultural resources are at risk, often due to their age and construction types. The Hazus scenarios in Section 4.3.10 of the Base Plan and included below are relatively silent on the vulnerability to natural, historic, and cultural resources, but impacts to these resources could be long lasting.

### Impacts from Earthquake

Earthquakes can strike without warning and cause dramatic changes to the landscape of an area that can have devastating impacts on the built environment. The greatest impact is to life safety of the City of Portola residents and visitors. Other impacts to the City could include damages to infrastructure such as roads, bridges, and dams; damages and loss of services to utilities and critical infrastructure, including those related to gas, power, water, wastewater and communication systems; damages to structures and other development; and possible loss of life and injuries.

Earthquakes can also cause failure of dams, levees, and reservoirs. Facilities and land downslope from dams or water reservoirs or behind levees might be subject to flooding, if the dams, reservoirs, or levees fail as a result of an earthquake. The City has locations with significant flood risk that include facilities downslope from dams or reservoirs that could be affected by a significant earthquake event.

Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and
- Negative impact on commercial and residential property values

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City 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

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 City of Portola include the following:

- Climate change is likely to have no effect on future earthquake conditions and associated impacts and vulnerability of the City.
- Population in the City of Portola is expected to shrink. If that were to reverse, any additional growth in the City would place additional populations at risk to earthquake. Additional population growth would likely bring continued diversity to the City. Vulnerable population groups could face disproportionate effects from an earthquake and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. However, City building codes are in effect to reduce structure damage, including damage to critical facilities and infrastructure, and should be updated as necessary to continue to address future earthquake conditions. Depending on the location of new development and adherence to protective building codes, changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard.

Although new growth and development corridors would fall in the area affected by earthquake, given the limited chance of major earthquake and the building codes in effect, development in areas prone to earthquakes will continue to occur. The City enforces the state building code, which mandates construction techniques that minimize seismic hazards. Future development in the City is subject to these building codes and land use planning.

## *Flood: 1%/0.2% Annual Chance*

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

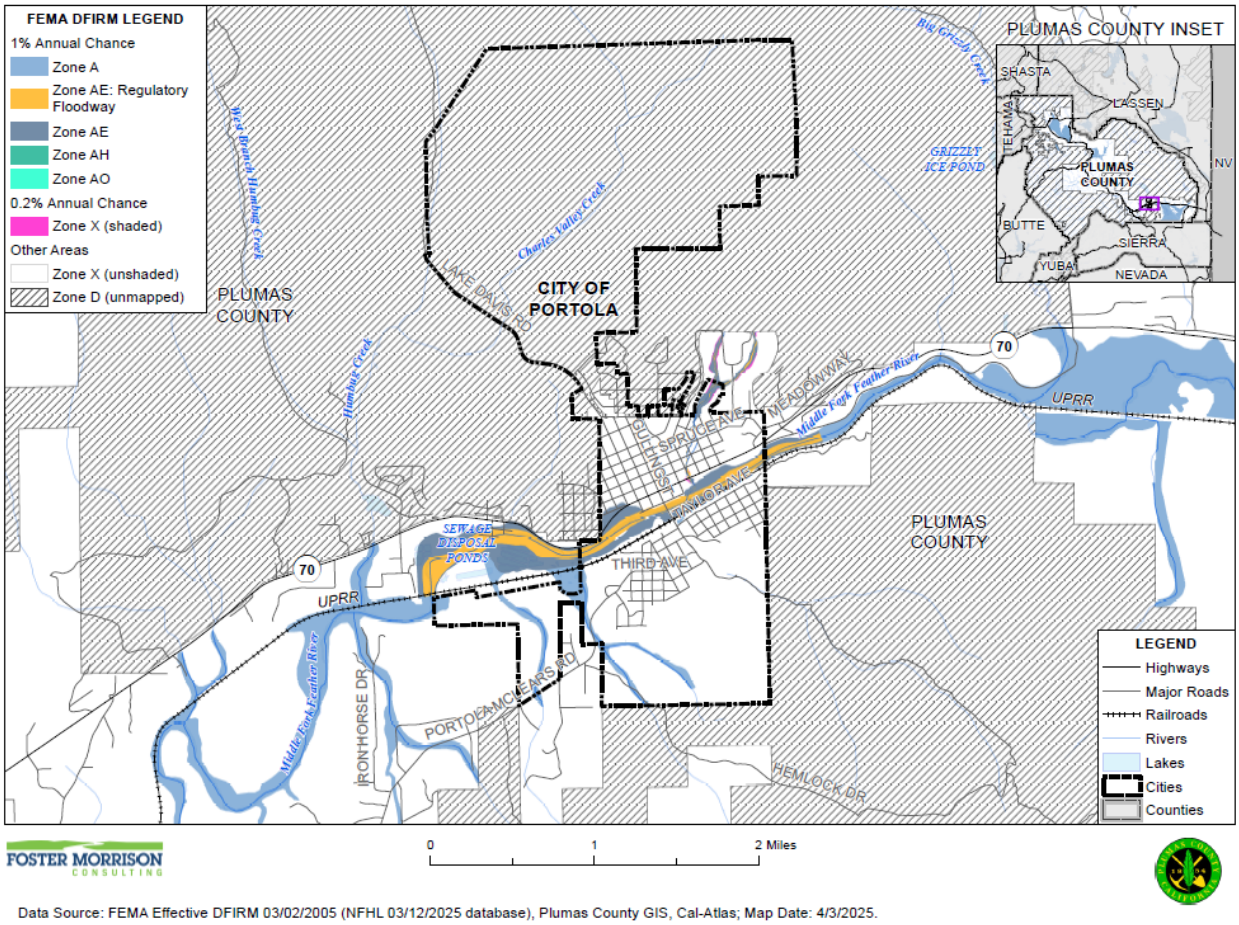
### Hazard Profile

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 City and have caused damage in the past. Flooding can be a significant problem in the City. Historically, the City has been at risk to flooding primarily during the winter and spring months when river systems in the City swell with heavy rainfall and snowmelt runoff. The City 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 located throughout the Plumas County Planning Area and the City of Portola. Occasionally, extended heavy rains result in floodwaters that exceed normal high-water boundaries and cause damage. Flooding has occurred both within the 1% and 0.2% annual chance floodplains and in other localized areas in the City.

## Location and Extent

The City of Portola has areas located in the 1% and 0.2% annual chance flood zones. This is seen in Figure A-17.

### *Figure A-17 City of Portola – FEMA DFIRM Flood Zones*




Data Source: FEMA Effective DFIRM 03/02/2005 (NFHL 03/12/2025 database), Plumas County GIS, Cal-Atlas; Map Date: 4/3/2025.

Table A-23 details the DFIRM mapped flood zones located within the City.

### *Table A-23 City of Portola– DFIRM Flood Hazard Zones*

| Flood Zone | Description | Present in City of Portola |
|---|---|---|
| A | 1% annual chance flooding: No base flood elevations provided | X |
| AE | 1% annual chance flooding: Base flood elevations provided | X |
| AE Regulatory Floodway | 1% annual chance flood: Regulatory floodway; Base flood elevations provided | X |
| AH | 1% annual chance flood areas of shallow flooding between one to three feet deep. Regulatory floodway; Base flood elevations provided | |

| Flood Zone | Description | Present in City of Portola |
|---|---|---|
| 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 |
| X (unshaded) | No 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 City vary, depending on the nature and extent of a flood event; specific depths are unknown. Flood durations in the City tend to be short to medium term, or until either the storm drainage system can catch up or flood waters move downstream. Flooding in the City tends to have a shorter speed of onset, due to the amount of water that flows through the City.

Geographical flood extents for the City from the FEMA DFIRMs are shown in Table A-24.

### *Table A-24 City of Portola – Geographical DFIRM Flood Zone Extents*

| Flood Zone | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| 1% Annual Chance Flood Hazard | 168 | 4.80% | 10 | 0.47% | 157 | 12.54% |
| 0.2% Annual Chance Flood Hazard | 1 | 0.02% | 0.1 | 0.01% | 1 | 0.06% |
| Other Areas | 3,323 | 95.17% | 2,226.8 | 99.53% | 1,096 | 87.40% |
| **Grand Total** | **3,491** | **100.00%** | **2,237** | **100.00%** | **1,254** | **100.00%** |

Source: FEMA DFIRM 03/02/2005

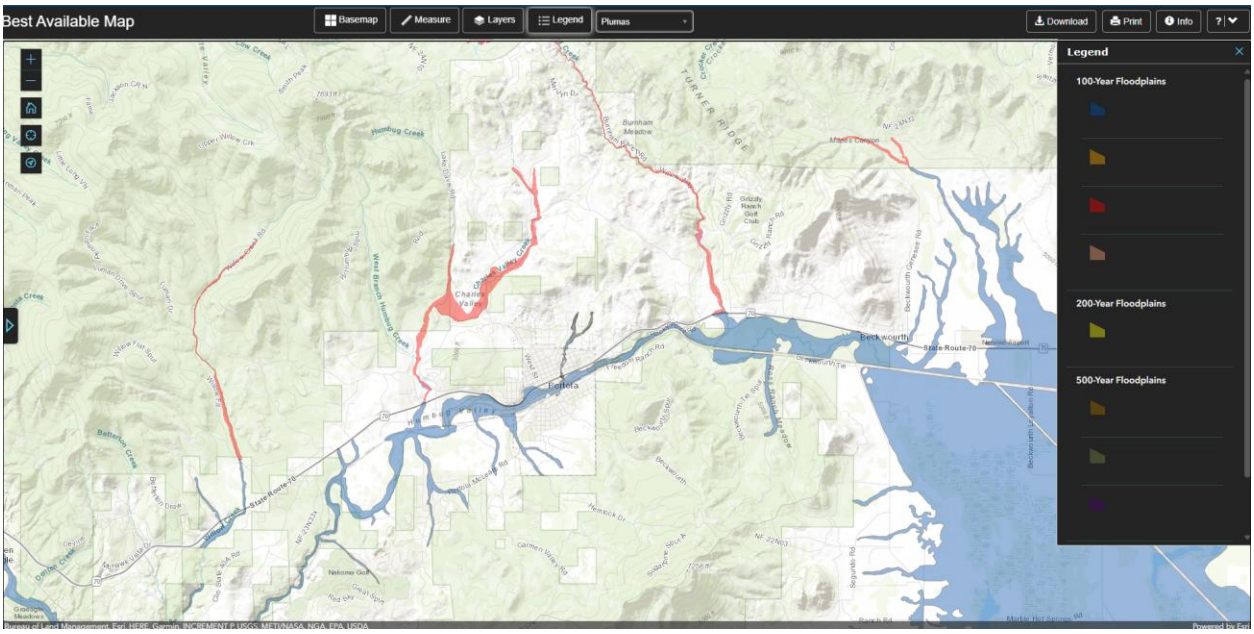
### *California Department of Water Resources Best Available Maps (BAM)*

The FEMA regulatory maps provide just one perspective on flood risks in the City. Senate Bill 5 (SB 5), enacted in 2007, authorized the California DWR to develop the Best Available Maps (BAM) displaying 100- and 200-year floodplains for areas located within the Nevada-San Joaquin (SAC-SJ) Valley watershed. This effort was completed by DWR in 2008. DWR has expanded the BAM to cover all counties in the State and to include 500-year floodplains.

Different than the FEMA DFIRMs which have been prepared to support the NFIP and reflect only the 100-year event risk, the BAMs are provided for informational purposes and are intended to reflect current 100-, 200- (as applicable), and 500-year event risks using the best available data. The 100-year floodplain limits on the BAM are a composite of multiple 100-year floodplain mapping sources. It is intended to show all currently identified areas at risk for a 100-year flood event, including FEMA's 100-year floodplains. The BAM are comprised of different engineering studies performed by FEMA, Corps, and DWR for assessment of potential 100-, 200-, and 500-year floodplain areas. These studies are used for different planning and/or regulatory applications, and for each flood frequency may use varied analytical and quality control criteria depending on the study type requirements. The value in the BAMs is that they provide a bigger picture

view of potential flood risk to the City than that provided in the FEMA DFIRMs. The BAM map for the City of Portola is shown in Figure A-18.

### *Figure A-18 City of Portola – Best Available Map*




Source: California DWR

Legend explanation: **Blue** - FEMA 100-Year, **Orange** – Local 100-Year (developed from local agencies), **Red** – DWR 100-year (Awareness floodplains identify the 100-year flood hazard areas using approximate assessment procedures.), **Pink** – USACE 100-Year (2002 Sac and San Joaquin River Basins Comp Study), **Yellow** – USACE 200-Year (2002 Sac and San Joaquin River Basins Comp Study), **Tan** – FEMA 500-Year, Grey – Local 500-Year (developed from local agencies), **Purple** – USACE 500-Year (2002 Sac and San Joaquin River Basins Comp Study).

## Past Occurrences

### *Disaster Declaration History*

A list of state and federal disaster declarations for Plumas County from flooding is shown on Table A-25. These events also likely affected the City to some degree.

### *Table A-25 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. These events most likely had some impact on the City.

### *City of Portola Events*

The City noted that the following events had affects and damages to the City:

Records from NOAA's nearest gauging station on the Middle Fork of the Feather River indicate that the "action stage" of 7 feet has been exceeded regularly. Records also indicate that the "flood stage" of 8.5 feet was most recently reached on 3/17/2011 with a flood stage of 9.03 feet. Figure A-19 also indicates FEMA Flood Zones within and immediately around the City limits. Table 4 presents those historic flood events which have exceeded the "action stage" within the period of record. Inserted with these historical events are characterizations of what those flood levels mean to the community.

***Figure A-19 City of Portola – Downstream from Gage Location with a Flood Stage of 9'***

Source: City of Portola

***Table A-26 City of Portola – Measured Flood Levels & Dates (Sorted by Height above Action Stage)***

| Event | Height Above Action Stage | Date |
|---|---|---|
| 1 | 10.62 ft | 01/21/1969 |
| 11' (8,400 cfs) Major Event - Record flooding of homes, businesses, structures, roads, railroads, and bridges from Beckwourth to Sloat California, including Portola. Before the gage record, this level was exceeded during the flood events of 2/21/1927, 3/26/1928, 4/6/1952, 12/23/1955, 2/1/1963, and 12/24/1964. | | |
| 2 | 10.07 ft | 03/27/1971 |
| 10.5' (7,640 cfs) Major Event - Near record flooding with significant damage to roads, railroads, homes, businesses and structures along river with significant damage. | | |

| Event | Height Above Action Stage | Date |
|---|---|---|
| 3 | 9.56 ft | 01/14/1980 |
| 10' (6,450 cfs) Moderate Event - Flooding of lowlands, structures, and roads from Beckwourth to Sloat, including Portola. Sleepy Pines Motel and other low structures along river in Portola flood. Evacuation of homes on south end of West Street likely to begin. Sewage ponds in Portola may exceed capacity and may need to release to river. River near foundation of Veterans Hall in Portola. | | |
| 4 | 9.11 ft | 01/25/1980 |
| 9.5' (5,600 cfs) Moderate Event - Flooding of lowlands, roads, and low-lying structures in reach from Beckwourth to Sloat California, including Portola. In Portola, Sleepy Pines Motel on CA Hwy 70 begins to experience some minor flooding. Water near bottom of large propane tanks along Hwy 70. South end of West Street floods. River encroaches within about a foot of the Veterans' Hall foundation and some low homes along river. | | |
| 5 | 9.03 ft | 3/17/2011 |
| 9' (4,800 cfs) Minor Event - Flooding of lowlands, rural roads, agricultural areas, and some low structures between Beckwourth and Sloat California, including Portola. In Portola water encroaches within CA Hwy 70 road surface. Water level is nearing the Sleepy Pines Motel and is just below the propane tanks on Hwy 70. The south end of West Street floods. | | |
| 6 | 8.17 ft | 03/31/1974 |
| 8.5' (4,100 cfs) Flood Stage - Some minor lowland flooding in reach between Beckwourth and Sloat California, including Portola. | | |
| 7 | 7.74 ft | 03/27/1975 |
| 8' (3,440 cfs) – Minor Event - Some areas of minor out of bank flow in reach between Beckwourth and Sloat California, including Portola. | | |
| 8 | 7.73 ft | 01/17/1978 |
| 7.5' (2,850 cfs) Action Stage Event - Some areas of very minor out of bank flow in reach between Beckwourth and Sloat, California. No incidents reported for Portola | | |
| 9 | 7.32 ft | 01/18/1973 |
| 7.5' (2,850 cfs) Action Stage Event - Some areas of very minor out of bank flow in reach between Beckwourth and Sloat, California. No incidents reported for Portola | | |

Source: http://water.weather.gov/ahps2/hydrograph.php?wfo=rev&gage=mftc1

The State of California issued the California Severe Winter Storms, Straight-line Winds, Flooding, Landslides, and Mudslides Disaster Declaration (DR-4699-CA) on 04/03/2023 for incident period 02/21/2023 through 07/10/2023. The City of Portola issued a Proclamation proclaiming existence of a local emergency on 03/08/2023. The severely undermined condition was first documented in the 9/26/2023 Underwater Dive Inspection (UWI) Report, which occurred after the disaster. During the event period starting February 21st, 2023 through July 10th, 2023, the State of California experienced a series of atmospheric river events that brought heavy rains and high winds. The heavy rains saturated the ground, caused severe flooding throughout the State of California. Loss of topsoil, parking lot gravel, infield and batting cage surfaces occurred.

### 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 City 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 City of Portola. 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 City'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 City. As waterways grow in size from local drainages, so grows the threat of flood and dimensions of the threat.

The whole of the City 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 City's Assets at Risk to this hazard.

#### Local Concerns

The City 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.

Due to its physical setting straddling the Middle Fork of the Feather River, and being confined in a river canyon, the City of Portola is at significant risk for flood damage, especially in low lying areas along the river. Historically floods have been a result of either "cloudburst storms" or general rainstorms. Cloudburst storms are unpredictable, high intensity storms of relatively short duration (<6 hours) which produce short duration peak flows and relatively small runoff volumes. General rainstorms are longer duration storms which produce large runoff volumes. The impacts of these storms can be exacerbated when the rainfall occurs over frozen ground or existing snowpack (Plumas County, California Flood Insurance Study). Burn areas can also exacerbate flooding conditions due to increased runoff and debris-laden flows.

Recent evaluations of the Gulling Street Bridge (2010, National Bridge Inventory, NBI Structure Number 09C0130) indicates that the bridge is scour critical. A specific study would be required to identify the risk and present specific recommendations for mitigation. In addition to the Gulling Street Bridge being in the flood plain, a municipal water well and some of Portola's housing are also located in the flood plain. Finally, the City is concerned with damage to river walk and West End Park, damage to recreation areas including City baseball fields, and localized street flooding due to undersized culverts. Ensuring development is not in flood risk areas or properly planned to mitigate this hazard is of importance to the City.

### Assets at Risk

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

#### *People and Populations*

All people and populations 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 unsheltered, those with limited mobility, and those that lack the resources to leave the area.

City residents that live in the 1% and 0.2% annual chance floodplains are often 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. To further evaluate the impact to the City of Portola's residential population residing within these hazard areas, the DFIRM flood zones were overlayed on the parcel layer. Those residential parcels that intersect the flood zones were counted and multiplied by the 2023 Census Bureau average household factors for the City of Portola – 2.29. According to this analysis, there is a total population of 82 and 0 residents of the City at risk to flooding in the 1% and 0.2% annual chance floodplains, respectively. This is shown in Table A-27.

*Table A-27 City of Portola – Improved Residential Parcels and Population by Summary FEMA DFIRM Flood Zone*

| Jurisdiction | 1% Annual Chance | | 0.2% Annual Chance | |
|---|---|---|---|---|
| | Improved Residential Parcels | Population at Risk | Improved Residential Parcels | Population at Risk |
| City of Portola | 36 | 82 | 0 | 0 |

Source: FEMA DFIRM 03/02/2005, Plumas County 2024 Parcel/Assessor Data, US Census Bureau American Community Survey 2023 Household Size Estimates.

The City noted that the Critical Facilities and Infrastructure section below includes the facilities used by At-Risk populations that are threatened by this hazard. While this is not specific to what special populations reside in the City, it does speak to facilities that area used to serve (portions) of this population.

#### *Structures*

Certain structures in the City are at risk of DFIRM flooding and primarily include those structures located within the 1% and 0.2% annual chance floodplains. GIS was used to determine the possible impacts of flooding on parcels and structures within the City of Portola. The methodology described in Section 4.3.11 of the Base Plan was followed in determining structures and values at risk to the 1% (100-year) and 0.2% (500-year) annual chance flood event. Table A-28 is a summary table for the City of Portola. Parcel counts, land and improved values (i.e., those with a structure improvement on the parcel), estimated content replacement values, and total values in the City are shown for the 1% and 0.2% annual chance flood zones, as well as for those properties that fall outside of the mapped FEMA DFIRM flood zones. Table A-29

breaks down Table A-28 and shows the same analysis further broken out by detailed FEMA flood zone and property use.

### *Table A-28 City of Portola – Count and Value of Parcels and Structures in Summary DFIRM Flood Zone*

| Flood Zone | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| 1% Annual Chance Flood Hazard | 136 | 50 | $5,846,857 | $23,227,628 | $1,322,526 | $20,717,340 | $51,114,351 |
| 0.2% Annual Chance Flood Hazard | 2 | 1 | $137,332 | $374,544 | $0 | $374,544 | $886,420 |
| Other Areas | 1,505 | 970 | $31,966,182 | $127,648,862 | $592,546 | $73,550,325 | $233,757,915 |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: FEMA DFIRM 03/02/2005, Plumas County 2024 Parcel/Assessor Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

### *Table A-29 City of Portola – Count and Values of Parcels and Structures by Detailed DFIRM Flood Zone and Property Use*

| Flood Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **1% Annual Chance Flood Hazard** | | | | | | | |
| **Zone A** | | | | | | | |
| Residential | 10 | 1 | $1,607,108 | $266,607 | $91,460 | $133,304 | $2,098,479 |
| ROW/Utilities | 2 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Zone A Total** | **12** | **1** | **$1,607,108** | **$266,607** | **$91,460** | **$133,304** | **$2,098,479** |
| **Zone AE** | | | | | | | |
| Commercial | 15 | 9 | $1,175,806 | $3,112,199 | $11,385 | $3,112,199 | $7,411,589 |
| Government | 2 | 0 | $0 | $0 | $0 | $0 | $0 |
| Institutional | 1 | 1 | $6,510 | $147,552 | $0 | $147,552 | $301,614 |
| Residential | 37 | 20 | $634,510 | $1,939,439 | $5,280 | $969,720 | $3,548,949 |
| ROW/Utilities | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Zone AE Total** | **56** | **30** | **$1,816,826** | **$5,199,190** | **$16,665** | **$4,229,471** | **$11,262,152** |
| **Zone AE: Regulatory Floodway** | | | | | | | |
| Commercial | 8 | 4 | $1,441,811 | $14,947,300 | $1,214,401 | $14,947,300 | $32,550,812 |
| Government | 7 | 0 | $0 | $0 | $0 | $0 | $0 |

| Flood Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Institutional | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 41 | 15 | $981,112 | $2,814,531 | $0 | $1,407,266 | $5,202,909 |
| ROW/Utilities | 10 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Zone AE: Regulatory Floodway Total** | **68** | **19** | **$2,422,923** | **$17,761,831** | **$1,214,401** | **$16,354,566** | **$37,753,721** |
| **1% Annual Chance Flood Hazard Total** | **136** | **50** | **$5,846,857** | **$23,227,628** | **$1,322,526** | **$20,717,340** | **$51,114,351** |
| **0.2% Annual Chance Flood Hazard** | | | | | | | |
| **Zone X (shaded)** | | | | | | | |
| Commercial | 2 | 1 | $137,332 | $374,544 | $0 | $374,544 | $886,420 |
| **Zone X (shaded) Total** | **2** | **1** | **$137,332** | **$374,544** | $0 | **$374,544** | **$886,420** |
| **0.2% Annual Chance Flood Hazard Total** | **2** | **1** | **$137,332** | **$374,544** | **$0** | **$374,544** | **$886,420** |
| **Other Areas** | | | | | | | |
| **Zone X (unshaded)** | | | | | | | |
| Commercial | 121 | 89 | $4,828,348 | $12,267,576 | $258,454 | $12,267,576 | $29,621,954 |
| Government | 25 | | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | $0 | $346,118 | $902,099 |
| Institutional | 8 | 7 | $218,388 | $5,322,010 | $147,200 | $5,322,010 | $11,009,608 |
| Miscellaneous | 1 | | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,270 | 849 | $24,596,595 | $104,058,761 | $186,892 | $52,029,381 | $180,871,629 |
| ROW/Utilities | 35 | | $0 | $0 | $0 | $0 | $0 |
| **Zone X (unshaded) Total** | **1,471** | **948** | **$29,968,586** | **$121,879,092** | **$592,546** | **$69,965,084** | **$222,405,308** |
| **Zone D (unmapped)** | | | | | | | |
| Agricultural | 2 | 1 | $536,231 | $1,400,712 | $0 | $1,400,712 | $3,337,655 |
| Residential | 31 | 21 | $1,461,365 | $4,369,058 | $0 | $2,184,529 | $8,014,952 |
| ROW/Utilities | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Zone D (unmapped) Total** | **34** | **22** | **$1,997,596** | **$5,769,770** | **$0** | **$3,585,241** | **$11,352,607** |
| **Other Areas Total** | **1,505** | **970** | **$31,966,182** | **$127,648,862** | **$592,546** | **$73,550,325** | **$233,757,915** |

| Flood Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: FEMA DFIRM 03/02/2005, Plumas County 2024 Parcel/Assessor Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

Table A-30 summarizes Table A-29 and shows City of Portola loss estimates and improved values at risk by FEMA 1% and 0.2% annual chance flood zones. According to Table A-29 and Table A-30, the City of Portola has 50 parcels and $45.3 million of structure and contents values or values in the 1% annual chance flood zone, and 1 improved parcel and $749,088 million of structure and contents values in the 0.2% annual chance flood zone. These values can be refined a step further. Applying the 20 percent damage factor as previously described in Section 4.3.11 of the Base Plan, there is a 1% chance in any given year of a flood event causing $9 million in damage and a 0.2% chance in any given year of a flood event causing $149,918 in damage in the City of Portola. The loss ratio of 0.179% indicates that flood losses for the 1% annual chance flood and 0.003% for the 0.2% annual chanced flood would be minor and the City would be able recover relatively quickly.

### *Table A-30 City of Portola – Flood Loss Estimates*

| Flood Zone | Total Parcel Count | Imp. Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value | Loss Estimate | Loss Ratio |
|---|---|---|---|---|---|---|---|---|---|
| 1% Annual Chance Flood Hazard | 136 | 50 | $5,846,857 | $23,227,628 | $1,322,526 | $20,717,340 | $45,267,494 | $9,053,499 | 0.179% |
| 0.2% Annual Chance Flood Hazard | 2 | 1 | $137,332 | $374,544 | $0 | $374,544 | $749,088 | $149,818 | 0.003% |
| **Total** | **138** | **51** | **$5,984,189** | **$23,602,172** | **$1,322,526** | **$21,091,884** | **$46,016,582** | **$9,203,317** | **0.182%** |

Source: FEMA DFIRM 03/02/2005, Plumas County 2024 Parcel/Assessor Data

*With respect to improve parcels within the floodplain, the actual structures on the parcels may not be located within the actual floodplain, may be elevated and or otherwise outside of the identified flood zone

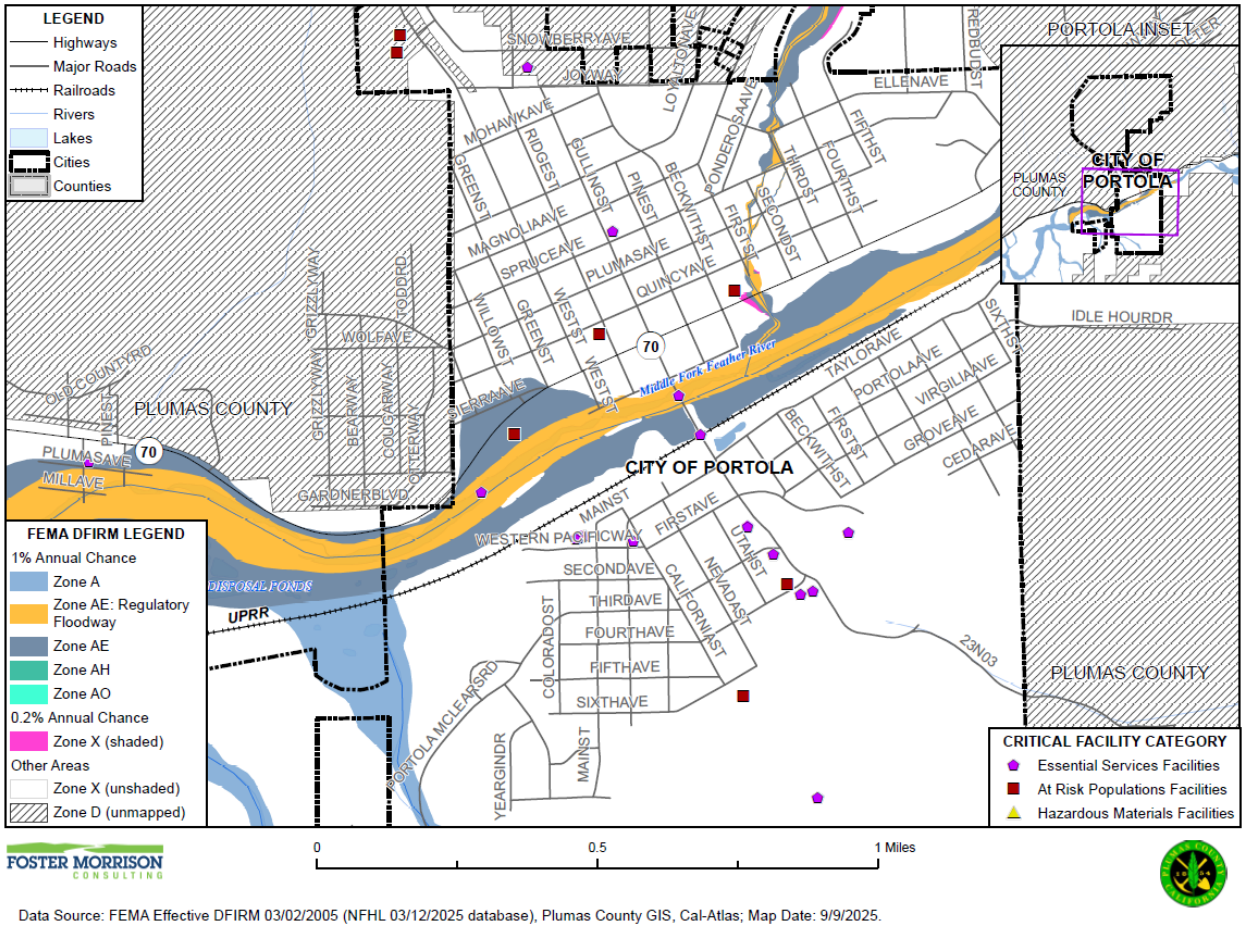
**This parcel count only includes those parcels in the 0.2% annual chance flood zone, exclusive of the 1% annual chance flood zone. The 0.2% annual chance flood, in actuality, also includes all parcels in the 1% annual chance flood zone.

### *Critical Facilities and Infrastructure*

1% and 0.2% annual chance flooding present a threat to critical facilities and infrastructure. The following analysis discusses critical facilities and infrastructure. A separate analysis was performed on the critical facility inventory in the City to determine which critical facilities fall into each FEMA DFIRM flood zone. Using GIS, the FEMA DFIRM flood zones were overlayed on the critical facility GIS layer. This is shown

on Figure A-26 for the FEMA DFIRM flood zones. Table A-63 details which critical facilities fall in which FEMA DFIRM flood zones. Details of critical facility categories, type, name, and address by FEMA DFIRM flood zones are listed in Appendix F.

### *Figure A-20 City of Portola – Critical Facilities in FEMA DFIRM Flood Zones*




Data Source: FEMA Effective DFIRM 03/02/2005 (NFHL 03/12/2025 database), Plumas County GIS, Cal-Atlas; Map Date: 9/9/2025.

### *Table A-31 City of Portola – Critical Facilities by Category in FEMA DFIRM Flood Zones*

| Jurisdiction / Flood Zone | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| **1% Annual Chance Flood Hazard** | | |
| Zone AE: Regulatory Floodway | **Essential Services Facilities** | |
| | Public Utility Plant and Substation Facilities | 1 |
| | Transportation Lifeline Systems | 1 |
| | **Essential Services Facilities Total** | **2** |
| | **At Risk Populations Facilities** | |
| | Public Safety | 1 |
| | **At Risk Populations Facilities Total** | **1** |

| Jurisdiction / Flood Zone | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| | **Zone AE: Regulatory Floodway Total** | **3** |
| **1% Annual Chance Flood Hazard Total** | | **3** |
| **Other Areas** | | |
| Zone X (unshaded) | **Essential Services Facilities** | |
| | Emergency Medical | 1 |
| | Essential Government Operations | 3 |
| | Public Safety | 2 |
| | Public Utility Plant and Substation Facilities | 6 |
| | Transportation Lifeline Systems | 1 |
| | **Essential Services Facilities Total** | **13** |
| | **At Risk Populations Facilities** | |
| | Designated Emergency Shelter | 1 |
| | School | 3 |
| | At Risk Populations Facilities Total | 4 |
| | **Zone X (unshaded) Total** | **17** |
| Zone D (unmapped) | **Essential Services Facilities** | |
| | Public Utility Plant and Substation Facilities | 1 |
| | **Essential Services Facilities Total** | **1** |
| | **At Risk Populations Facilities** | |
| | School | 3 |
| | **At Risk Populations Facilities Total** | **3** |
| | **Zone D (unmapped) Total** | **4** |
| **Other Areas Total** | | **21** |
| **Portola Total** | | **24** |

Source: FEMA DFIRM 03/02/2005, City of Portola

### *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 A-17 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. Public schools may also be required to close or be placed on a delayed start schedule. 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 that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and
- Negative impact on commercial and residential property values

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City 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.

#### *Insurance Coverage, Claims Paid, and Repetitive Losses*

Standard property insurance does not include flood coverage because of the relatively high risk. The National Flood Insurance Program (NFIP) provides flood insurance to residents in those communities that participate in the NFIP. Federal financial assistance requires the purchase of flood insurance for structures located within a 100-year floodplain – a requirement that affects nearly all mortgages financed through commercial lending institutions. Flood insurance is also recommended for all structures protected by levees, even if not mapped within a floodplain.

The City of Portola joined the National Flood Insurance Program (NFIP) as an emergency entrant of April 14, 1975 and as a regular entrant on July 18, 1985. The City does not participate in CRS program. NFIP

data indicates that as of December 2, 2024, there were two flood insurance policies in force in the City with $514,000 of coverage. Both policies were for single family homes were residential (single-family homes). One was in an A Zone, and one was in B, C, and X zones. There have been five historical claims for flood losses totaling $37,720.02. NFIP data further indicates that there are no repetitive loss (RL) and no severe repetitive loss (SRL) buildings in the City of Portola. There have been one substantial damage claims since 1978 in the City.

Based on this analysis of insurance coverage, the City has values at risk to the 1% annual chance and greater floods. Of the 36 improved parcels within the 1% annual chance flood zone, 2 of those parcels maintain flood insurance. This can be seen on Table A-32.

***Table A-32 City of Portola – Percentage of Policy Holders to Improved Parcels in the 1% Annual Chance Floodplain***

| Jurisdiction | Improved Parcels in SFHA (1% Annual Chance) Floodplain* | Insurance Policies in the SFHA (1% Annual Chance) Floodplain | Percentage of 1% Annual Chance Floodplain Parcels Currently Insured |
|---|---|---|---|
| City of Portola | 36 | 2 | 5.5% |

Source: FEMA DFIRM 03/02/2005, Plumas County 2024 Parcel/Assessor Data, NFIP CIS data.

## 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 City of Portola include the following:

- Climate change is likely to exacerbate future flood conditions and associated impacts and vulnerability of the County to 1% and 0.2% annual chance flooding.
- Future population growth should be considered, as having more or less people in a community affects the overall hazard vulnerability to the City. Population in the City of Portola is expected to shrink with the rest of the County. If this were to change, additional growth within the 1% and 0.2% annual chance floodplains would place additional populations at risk to flood. Additional population growth would likely bring continued diversity to the County. Vulnerable population groups could face disproportionate effects from flooding and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. Locating new development, structures and critical facilities and infrastructure within or near areas of flood risk may put additional development at risk. However, City building codes and the City's floodplain ordinance are in effect to reduce this risk and should be updated as necessary to continue to address future flood conditions.

### Future Development

The potential for flooding may increase as floodwaters are channeled due to land development. Such changes can exacerbate flooding problems inside and outside of natural floodplains by altering or confining natural drainage channels. Floodplain modeling and master planning should be based on built out property use to ensure that all new development remains safe from future flooding. While local floodplain management, stormwater management, and water quality regulations and policies address these changes on a site-by-site basis, their cumulative effects can have a negative impact on the overall floodplain.

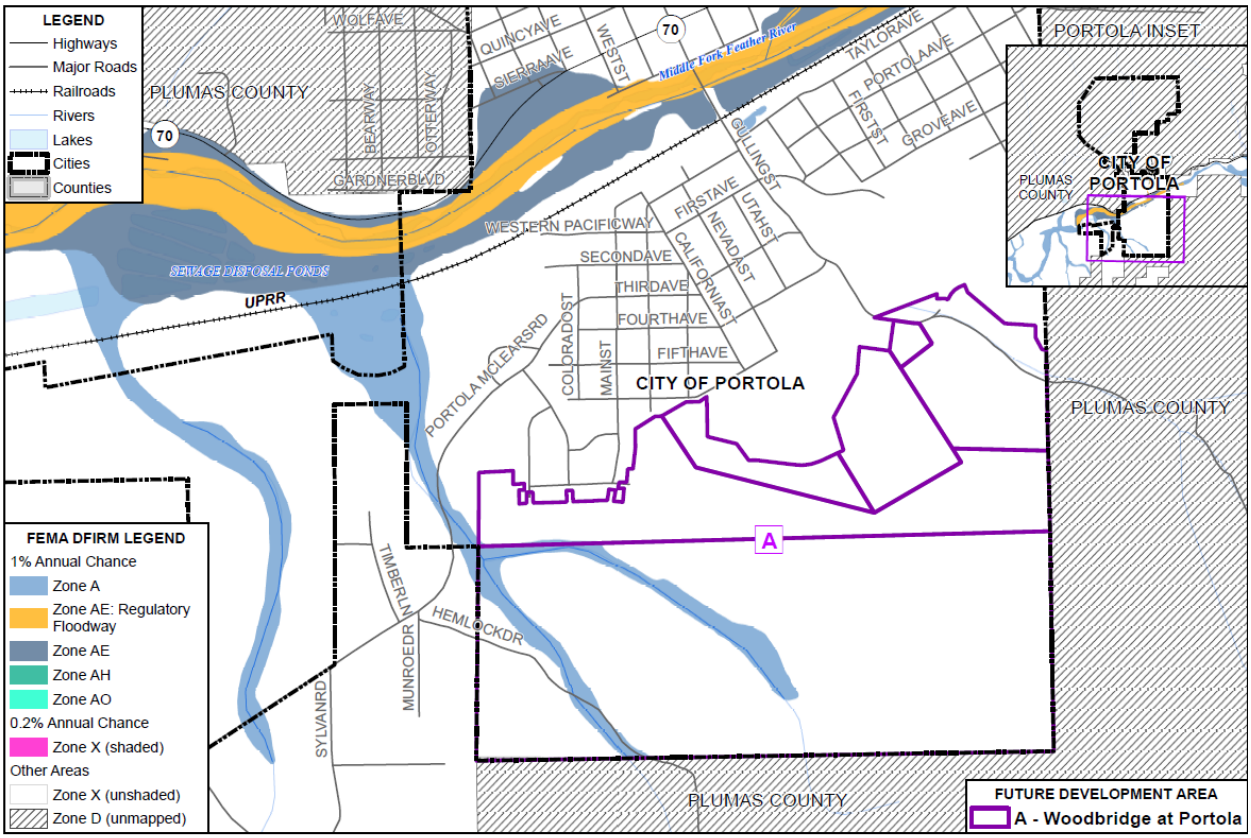
The City enforces its floodplain management ordinance. The City's floodplain ordinance should be updated to ensure new development within floodplains is adequately protected. More detail on the specifics of the floodplain ordinance can be found in the Capability section below.

Future development areas and their vulnerability to 1% and 0.2% annual chance flood are discussed further in the below GIS analysis.

### GIS Analysis

The City provided a future development area which was used as the basis for the inventory of future development for the City. This area were mapped in GIS. Utilizing the future development area spatial layer, the parcel polygon data was intersected to determine the future development areas within each DFIRM flood zone. Figure A-21 shows the locations of the future development area overlayed on the DFIRM flood zones. Table A-33 shows which flood zones the future development area lies in. As shown, portions of two parcels fall in the 1% annual chance flood zone.

*Figure A-21 City of Portola – Future Development Areas in 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 A-33 City of Portola – Future Development Parcels and Acres in FEMA DFIRM Flood Zones*

| Future Development / Flood Zones | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Woodbridge at Portola, Inc.** | | | | | | |
| **1% Annual Chance Flood Hazard** | | | | | | |
| Zone A | 2 | 0 | 2 | 321.76 | 0 | 321.76 |
| **1% Annual Chance Flood Hazard Total** | **2** | **0** | **2** | **321.76** | **0** | **321.76** |
| **Other Areas** | | | | | | |
| Zone X (unshaded) | 4 | 0 | 4 | 76.76 | 0 | 76.76 |
| **Other Areas Total** | **4** | **0** | **4** | **76.76** | **0** | **76.76** |

| Future Development / Flood Zones | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| | | | | | | |
| **Grand Total** | **6** | **0** | **6** | **398.52** | **0** | **398.52** |

Source: FEMA 03/02/2005 DFIRM, City of Portola

## *Flood: Localized Stormwater Flooding*

**Likelihood of Future Occurrence**–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 City 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 City of Portola is subject to localized flooding throughout the City. This is discussed in Table A-34 below. Flood extents are usually measured in areas affected, velocity of flooding, and depths of flooding. Expected flood depths in the City vary by location. Flood durations in the City 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 City 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 from localized floods. There would most likely have been localized flood events during the disaster declarations from flood 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.

##### *City of Portola Events*

The City noted that localized flood event past occurrences are discussed in the Flood:1%/0.2% Annual Chance Flood section above. Localized flooding is an annual occurrence at areas in the City.

### 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 flood. More information on future impacts to the City 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 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 City 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 City. 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 City are minor, localized flood events that are more of a nuisance than a disaster.

Many areas of the City 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 City's Assets at Risk to this hazard.

### Local Concerns

The City 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 City has been affected by flooding of streams and creeks occurring during heavy rain and storm (including atmospheric river) events. Additional development in the City 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 City. The lack of or inadequate drainage infrastructure in the City contributes to localized flooding issues. Of concern to the City is future developments. Ensuring the developments are not in flood risk areas or properly planned.

The City tracks localized flooding areas. Affected localized flood areas identified by the City of Portola are summarized in Table A-34.

*Table A-34 City of Portola – List of Localized Flooding Problem Areas*

| Road/Location Name | Flooding | Pavement Deterioration | Washout | High Water | Landslide/ Mudslide | Debris | Downed Trees |
|---|---|---|---|---|---|---|---|
| Riverwalk/Disc Golf Course | Yes | Yes | Yes | Yes | Yes | Yes | Yes |

| Road/Location Name | Flooding | Pavement Deterioration | Washout | High Water | Landslide/ Mudslide | Debris | Downed Trees |
|---|---|---|---|---|---|---|---|
| Riverside & Gulling | Yes | Yes | Yes | Yes | No | Yes | No |
| Taylor & Gulling | Yes | Yes | Yes | Yes | No | Yes | No |
| Rock & Sierra | Yes | Yes | Yes | Yes | No | Yes | No |
| Highway 70 | Yes | Yes | Yes | Yes | No | Yes | No |

Source: City of Portola

### Assets at Risk

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

#### *People and Populations*

People and populations (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 people to travel throughout the City.

#### *Structures*

Structures in areas with localized flooding can be affected if floodwaters intrude into the structure. Structures in low lying areas, or those with basements 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.

#### *Critical Facilities and Infrastructure*

Localized flooding, while often more of a nuisance, can cause damage to critical facilities and infrastructure during a heavy rain and storm event. Any facility that experiences localized flooding can be impacted. Utilities and other critical infrastructure can all be affected, causing interruptions in service until repairs can be made. For example, water and wastewater systems can be vulnerable to heavy rains and flood events. Rainfall creates a high water table, surging streams and creeks, and saturates soil. Infiltration of stormwater into water and wastewater systems may occur and presents a threat to public health and safety, when the infrastructure is no longer able to meet operational needs and local demands. Other critical facilities such as roads, bridges and other transportation facilities can also experience localized flooding causing road closures and other impacts until storm waters recede. This can result in extended road closures requiring alternate routes.

### *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 parks and green spaces are designed to take overflow water and release it into the underlying soils and natural areas. Wetlands areas in the City 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 infrastructure. Objects can also be buried or destroyed through sediment deposition. Floodwaters can break utility lines and interrupt services. Standing water can cause damage to crops, roads, and foundations. Other problems connected with flooding and stormwater runoff include erosion, sedimentation, degradation of water quality, losses of environmental resources, and certain health hazards.

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 City 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

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 City of Portola include the following:

- Climate change is likely to exacerbate future heavy rain conditions and associated impacts and vulnerability of the City to localized flood.
- Population in the City of Portola is expected to shrink with the larger County. If this were to change, additional population growth would likely bring continued diversity to the City. This can also impact the vulnerable populations, like low-income individuals and households living in areas that are typically more hazardous. Vulnerable population groups such as low-income individuals and households living in flood prone areas could face disproportionate effects from localized flood and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability

of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.

- Land use planning should be proactive to address future hazard conditions. Development in more urban areas causes an increase in peak flow and stormwater runoff. Such growth will consume previously undeveloped acres, and the impacts may overwhelm existing drainage and flood control facilities. Locating new development, structures and critical facilities and infrastructure within or near areas of localized flooding risk may put additional development at risk. However, City building codes are in effect to reduce this risk and should be updated as necessary to continue to address future localized flood conditions. Depending on the location of new development and adherence to protective building codes, changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard.

The City will need to be proactive to ensure that increased development has proper siting and drainage for stormwaters. These considerations will also aid the vulnerable populations within the City, since these groups face a disproportionate impact from hazards. The risk of localized flooding to future development can also be minimized by accurate recordkeeping of repetitive localized storm activity. Mitigating the root causes of the localized stormwater flooding will reduce future risks of losses.

## *Hazardous Material Transportation*

**Likelihood of Future Occurrence**–Likely
**Vulnerability**–Medium

### Hazard Profile

According to the Environmental Protection Agency (EPA), a hazardous material is any item or agent (biological, chemical, physical) which has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Hazardous materials can be present in any form; gas, solid, or liquid. Environmental or atmospheric conditions can influence hazardous materials if they are uncontained.

The U.S. Occupational Safety and Health Administration's (OSHA) definition of hazardous material includes any substance or chemical which is a "health hazard" or "physical hazard," including: chemicals which are carcinogens, toxic agents, irritants, corrosives, sensitizers; agents which act on the hematopoietic system; agents which damage the lungs, skin, eyes, or mucous membranes; chemicals which are combustible, explosive, flammable, oxidizers, pyrophoric, unstable-reactive or water-reactive; and chemicals which in the course of normal handling, use, or storage may produce or release dusts, gases, fumes, vapors, mists or smoke which may have any of the previously mentioned characteristics.

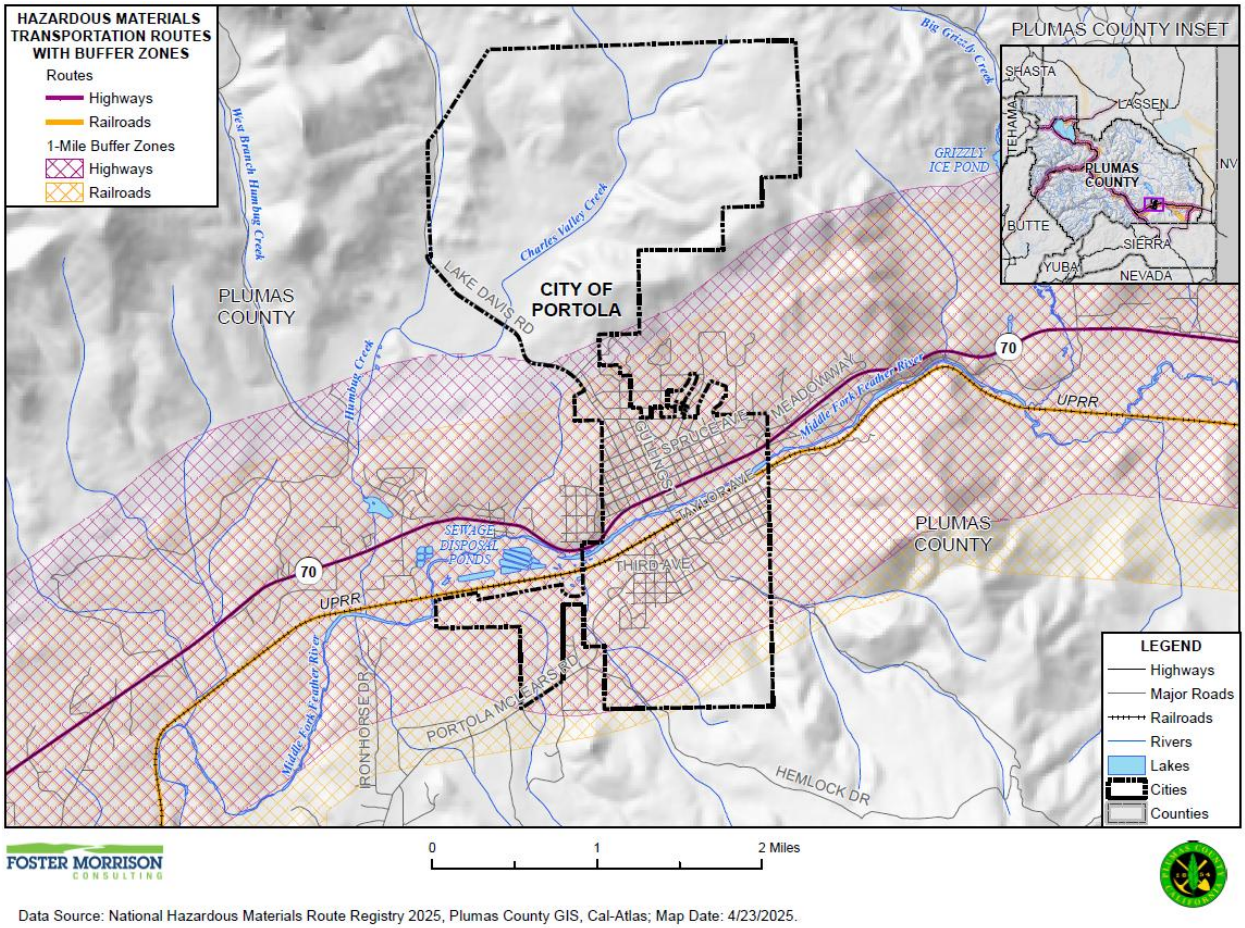
The EPA incorporates the OSHA definition and adds any item or chemical which can cause harm to people, plants, or animals when released by spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. The EPA maintains a list of 366 chemicals that are considered extremely hazardous substances (EHS). This list was developed under the Superfund Amendments and Reauthorization Act. The presence of EHSs in amounts in excess of a threshold planning quantity requires that certain emergency planning activities be conducted.

A release or spill of bulk hazardous materials could result in fire, explosion, toxic cloud or direct contamination of water, people, and property. The effects may involve a local area or many square miles. Health problems may be immediate, such as corrosive effects on skin and lungs, or be gradual, such as the development of cancer from a carcinogen. Damage to property could range from immediate destruction by explosion to permanent contamination by a persistent hazardous material.

### Location and Extent

In Plumas County there are multiple hazardous materials transportation routes. State Roads 36, 49, 70, 89, and 147 are all hazardous materials routes. The Union Pacific, BNSF, Quincy Railroad, and Almanor Railroad are railroad hazardous materials. Of these, SR 70 and the Union Pacific Railroad run through Portola. Figure A-22 shows the hazardous materials transportation corridors (for roadways and rail) in the City as well as the one-mile buffer zone (on each side of the corridor for a two-mile total buffer) used for this analysis as detailed further in the methodology below. Geographic hazardous materials buffer zones for the City are detailed by highway in Table A-35 and by railroad in Table A-36.

***Figure A-22 City of Portola – Hazardous Materials Highway and Railroad Routes and Buffer Zones***




Data Source: National Hazardous Materials Route Registry 2025, Plumas County GIS, Cal-Atlas; Map Date: 4/23/2025.

https://www.google.com/maps/d/viewer?mid=1Yyz6yA9I9I5DQ5Gb2U1X7f_8enM&hl=en_US&ll=40.06685558595711%2C-120.77095846290442&z=10

### *Table A-35 City of Portola – Geographical Extent of Hazardous Materials Transportation Buffer Zones for Highways*

| Hazardous Materials Routes / Property Use | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Highway 70** | | | | | | |
| Agricultural | 10 | 0.3% | 10 | 0.5% | 0 | 0.0% |
| Commercial | 41 | 1.2% | 25 | 1.1% | 16 | 1.3% |
| Federal Lands | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Government | 129 | 3.7% | 0 | 0.0% | 129 | 10.3% |
| Industrial | 9 | 0.3% | 1 | 0.1% | 8 | 0.6% |
| Institutional | 23 | 0.7% | 5 | 0.2% | 19 | 1.5% |
| Miscellaneous | 7 | 0.2% | 0 | 0.0% | 7 | 0.5% |
| Recreational | 2 | 0.1% | 0 | 0.0% | 2 | 0.1% |
| Residential | 974 | 27.9% | 263 | 11.7% | 711 | 56.7% |
| ROW/Utilities | 162 | 4.6% | 0 | 0.0% | 162 | 12.9% |

Source: National Hazardous Materials Routes Registry (2025)

### *Table A-36 City of Portola – Geographical Extent of Hazardous Materials Transportation Buffer Zones for Railroads*

| Hazardous Materials Routes / Property Use | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **UP / BNSF** | | | | | | |
| Agricultural | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Commercial | 41 | 1.2% | 25 | 1.1% | 16 | 1.3% |
| Federal Lands | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Government | 129 | 3.7% | 0 | 0.0% | 129 | 10.3% |
| Industrial | 9 | 0.3% | 1 | 0.1% | 8 | 0.6% |
| Institutional | 23 | 0.7% | 5 | 0.2% | 19 | 1.5% |
| Miscellaneous | 7 | 0.2% | 0 | 0.0% | 7 | 0.5% |
| Recreational | 2 | 0.1% | 0 | 0.0% | 2 | 0.1% |
| Residential | 1,031 | 29.5% | 248 | 11.1% | 783 | 62.4% |
| ROW/Utilities | 161 | 4.6% | 0 | 0.0% | 161 | 12.8% |

Source: National Hazardous Materials Routes Registry (2025)

### Past Occurrences

#### *Disaster Declaration History*

There have been no federal or state disaster declarations for hazardous materials in the County.

#### *NCDC Events*

The NCDC does not track hazardous materials events.

#### *Pipeline and Hazardous Materials Safety Administration Events*

The USDOT Pipeline and Hazardous Materials Safety Administration's (PHMSA) Office of Hazardous Materials Safety performs a range of functions to support the safe transport of hazardous materials. One of these functions is the tracking of hazardous materials incidents in the United States. The database was searched for hazardous materials incidents in the County. A summary of rail and highway incidents since 1970 in the Plumas County Planning Area are shown in Section 4.3.13. 11 separate events were contained in the database. None of these were known to affect the City.

#### *City of Portola Events*

The City noted no past events of hazardous materials transportation where damages occurred.

### Climate Change and Hazardous Materials

Climate change is unlikely to affect hazardous materials transportation incidents.

## Vulnerability to Hazardous Materials Transportation

It is often quite difficult to quantify the potential losses from human-caused hazards. While the facilities themselves have a tangible dollar value, loss from a human-caused hazard often inflicts an even greater toll on a community, both economically and emotionally. The impact to identified values will vary from event to event and depend on the type, location, and nature of a specific hazardous material incident. The most significant impact from hazardous materials transport is life safety. Given the difficulty in quantifying the losses associated with technological hazards, this section focuses on analyzing key Planning Area values relative to the hazardous materials transportation corridors identified above.

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

### Local Concerns

The City 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 City is concerned that the Highway 70 corridor and the railroad runs through the middle of city. A15 County Road may also see the transport of hazardous materials. Should a spill on any of these routes occur, much of the City would be in a possible evacuation zone. The City plans to pursue an emergency response plan in conjunction with the County in the future.

### Assets at Risk

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

#### *People and Populations*

All populations are at some vulnerability to a hazardous materials transportation release. Certain vulnerable populations are at the greatest risk to the effects of hazardous materials. Vulnerable populations include:

- The unsheltered
- Those with breathing difficulties or other underlying health conditions
- Infants and children under age five and their caregivers
- Elderly (65 and older)
- Individuals with disabilities
- Individuals dependent on medical equipment
- Individuals who work, exercise, or physically train outdoors
- Individuals with impaired mobility

To determine the overall populations at risk from a transportation-related hazardous materials release within identified transportation corridors, an analysis was performed using GIS to determine the residential population that resides within the two-mile buffer zone of the highway and railroad corridors. Using GIS, the buffered corridor was overlaid on the improved residential parcel and structure data and results tabulated for the Planning Area, as found in Table A-37. Those residential parcel polygons that intersect the buffered corridor were counted and multiplied by the 2023 Census Bureau average household factors for Portola – 2.29. According to the analysis, there are 2,075 residents in the City in the hazardous materials buffer zones associated with the hazardous materials transportation routes and potentially at risk.

*Table A-37 Plumas County Planning Area–Improved Residential Parcels and Populations at Risk in Hazardous Materials Buffer Zones*

| Jurisdiction | Improved Residential Parcels | Population at Risk |
|---|---|---|
| City of Portola | 906 | 2,075 |

Source: National Hazardous Materials Routes Registry (2025), Plumas County 2024 Parcel/Assessor's Data, 2023 US Census American Community Survey Average Household Size – City of Portola (2.29).

#### *Structures*

Structures in the City have some measure of risk to hazardous materials which can affect the built environment of the City. During a hazardous materials transportation spill, it is generally the people that are at risk to the effects of the spill. During a spill, buildings, property, and their values are at a lessor risk;

however, given the location and breadth of hazardous materials routes in the City, an analysis is performed here. The methodology described in Section 4.3.13 of the Base Plan was followed in determining structures and values at risk to the hazardous materials buffer zones. Analysis results for Portola are summarized in Table A-38. This analysis is broken down in in Table A-39 for highways and in Table A-40 for railroads. These tables summarize by total parcel counts, improved parcel (structure) counts, and their improved and land values and the estimated contents replacement values based on the CRV factors detailed in Section 4.2.1 of the Base Plan.

### *Table A-38 City of Portola – Count and Value of Parcels in All (Railroad and Highway) Hazardous Materials Transportation Buffer Zone by Jurisdiction*

| Hazardous Materials Routes | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Hazardous Materials Route | 1,642 | 1,021 | $37,943,783 | $151,251,034 | $1,915,072 | $94,642,209 | $285,752,098 |
| Not in a Hazardous Materials Route | 1 | 0 | $6,588 | $0 | $0 | $0 | $6,588 |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: National Hazardous Materials Routes Registry (2025), Plumas County 2024 Parcel/Assessor's Data,

### *Table A-39 City of Portola – Count and Value of Parcels in Highway Hazardous Materials Transportation Buffer Zone by Route and Property Use*

| Hazardous Materials Routes/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Hazardous Materials Route** | | | | | | | |
| Agricultural | 1 | 1 | $529,643 | $1,400,712 | $0 | $1,400,712 | $3,331,067 |
| Commercial | 146 | 103 | $7,583,297 | $30,701,619 | $1,484,240 | $30,701,619 | $70,470,775 |
| Federal Lands | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 34 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | $0 | $346,118 | $902,099 |
| Institutional | 10 | 8 | $224,898 | $5,469,562 | $147,200 | $5,469,562 | $11,311,222 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,389 | 906 | $29,280,690 | $113,448,396 | $283,632 | $56,724,198 | $199,736,916 |
| ROW/Utilities | 49 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Hazardous Materials Route Total** | **1,642** | **1,021** | **$37,943,783** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,752,098** |

| Hazardous Materials Routes/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Not in a Hazardous Materials Route** | | | | | | | |
| Agricultural | 1 | 0 | $6,588 | $0 | $0 | $0 | $6,588 |
| Commercial | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Federal Lands | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Institutional | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Recreational | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| ROW/Utilities | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Not in a Hazardous Materials Route Total** | **1** | **0** | **$6,588** | **$0** | **$0** | **$0** | **$6,588** |
| | | | | | | | |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: National Hazardous Materials Routes Registry (2025), Plumas County 2024 Parcel/Assessor's Data
To avoid duplication of parcel count, the parcels located in areas where multiple haz-mat route buffers overlap were assigned the route grouping listed above.

### *Table A-40 City of Portola – Count and Value of Parcels in Railroad Hazardous Materials Transportation Buffer Zone by Route and Property Use*

| Hazardous Materials Routes/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Highway 70** | | | | | | | |
| Agricultural | 1 | 1 | $529,643 | $1,400,712 | $0 | $1,400,712 | $3,331,067 |
| Commercial | 146 | 103 | $7,583,297 | $30,701,619 | $1,484,240 | $30,701,619 | $70,470,775 |
| Federal Lands | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| Government | 34 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | | $346,118 | $902,099 |
| Institutional | 10 | 8 | $224,898 | $5,469,562 | $147,200 | $5,469,562 | $11,311,222 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,389 | 906 | $29,280,690 | $113,448,396 | $283,632 | $56,724,198 | $199,736,916 |
| ROW/Utilities | 49 | 0 | $0 | $0 | $0 | $0 | $0 |

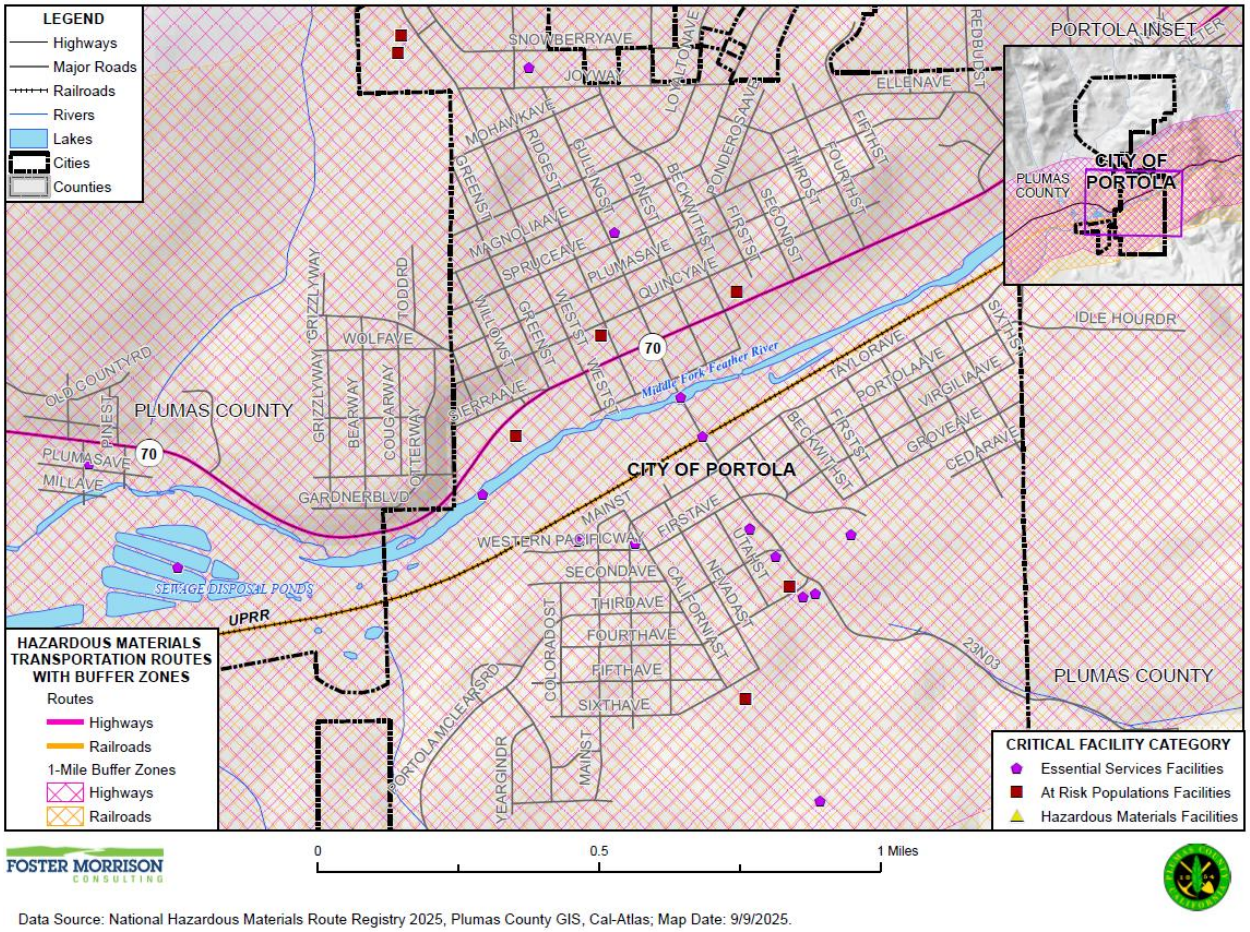
| Hazardous Materials Routes/ Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Highway 70 Total** | **1,642** | **1,021** | **$37,943,783** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,752,098** |

Source: National Hazardous Materials Routes Registry (2025), Plumas County 2024 Parcel/Assessor's Data
To avoid duplication of parcel count, the parcels located in areas where multiple haz-mat route buffers overlap were assigned the route grouping listed above.

### *Critical Facilities and Infrastructure*

Hazardous materials transport present a threat to critical facilities and infrastructure. The following analysis discusses critical facilities and infrastructure. A separate analysis was performed on the critical facility inventory in the City to determine which critical facilities fall into a highway or railroad hazardous materials buffer zones. Using GIS, the hazardous materials buffer zones were overlayed on the critical facility GIS layer. This is shown on Figure A-23 for the hazardous materials buffer zones. Table A-41 details which critical facilities fall in which hazardous materials buffer for highways, while Table A-42 details which critical facilities fall in the hazardous materials buffer zones for rail lines.. Details of critical facility categories, type, name, and address by hazardous materials buffer are listed in Appendix F.

### *Figure A-23 City of Portola – Critical Facilities in Hazardous Materials Buffer Zones*




Data Source: National Hazardous Materials Route Registry 2025, Plumas County GIS, Cal-Atlas; Map Date: 9/9/2025.

### *Table A-41 City of Portola – Critical Facilities by Category in Highway Hazardous Materials Buffer Zones*

| Jurisdiction / Hazardous Materials Routes | Critical Facility Category / Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| Highway 70 | **Essential Services Facilities** | |
| | Emergency Medical | 1 |
| | Essential Government Operations | 3 |
| | Public Safety | 2 |
| | Public Utility Plant and Substation Facilities | 8 |
| | Transportation Lifeline Systems | 2 |
| | **Essential Services Facilities Total** | **16** |
| | **At Risk Populations Facilities** | |
| | Designated Emergency Shelter | 1 |
| | Public Safety | 1 |
| | School | 6 |
| | **At Risk Populations Facilities Total** | **8** |
| | **Highway 70 Total** | **24** |
| **Portola Total** | | **24** |

Source: National Hazardous Materials Routes Registry (2025), City of Portola

### *Table A-42 City of Portola – Critical Facilities by Category in Railroad Hazardous Materials Buffer Zones*

| Jurisdiction / Hazardous Materials Routes | Critical Facility Category / Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| UP/BNSF | **Essential Services Facilities** | |
| | Emergency Medical | 1 |
| | Essential Government Operations | 3 |
| | Public Safety | 2 |
| | Public Utility Plant and Substation Facilities | 8 |
| | Transportation Lifeline Systems | 2 |
| | **Essential Services Facilities Total** | **16** |
| | **At Risk Populations Facilities** | |
| | Designated Emergency Shelter | 1 |
| | Public Safety | 1 |
| | School | 6 |

| Jurisdiction / Hazardous Materials Routes | Critical Facility Category / Critical Facility Type | Facility Count |
|---|---|---|
| | **At Risk Populations Facilities Total** | **8** |
| | **Highway 70 Total** | **24** |
| **Portola Total** | | **24** |

Source: National Hazardous Materials Routes Registry (2025), City of Portola

### *Natural, Historic, and Cultural Resources*

Any natural, historic, or cultural resource that falls in the buffer zone shown on Figure A-22 has some measure of vulnerability. If a release caused a fire, it could affect historic and cultural resources in the City. Natural resources can be more greatly affected by a hazardous materials spill. Clean up of a spill into a natural resource (such as a creek, stream, or river) may be difficult to complete. Hazardous releases can significantly harm wildlife and habitat areas. The contamination also can make its way up the food chain, affecting the food supply. Open water and wetland environments experience significant exposure to hazardous materials events, which may result in further loss of ecosystem functions.

### Impacts from Hazardous Materials Transportation

Impacts from hazardous materials transportation incidents vary by location and severity of any given event and will likely only affect certain areas of the City during specific times. Based on the risk assessment, it a hazardous materials transportation release could have potential adverse impacts to affected areas of the City as described below. However, the majority releases in the City are minor, localized events that are more of a nuisance than a disaster. Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Contaminated water supplies
- Contaminated buildings
- Soil contamination that results in mass die-off of vegetation
- Fire and explosions
- Public health impacts
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure and services;
- Damage to roads/bridges resulting in loss of mobility;
- Business closures and significant economic impact (jobs, sales, tax revenue) to the community;
- Negative impact on commercial and residential property values; and
- Impact on the overall mental health of the community.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City 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

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 City include the following:

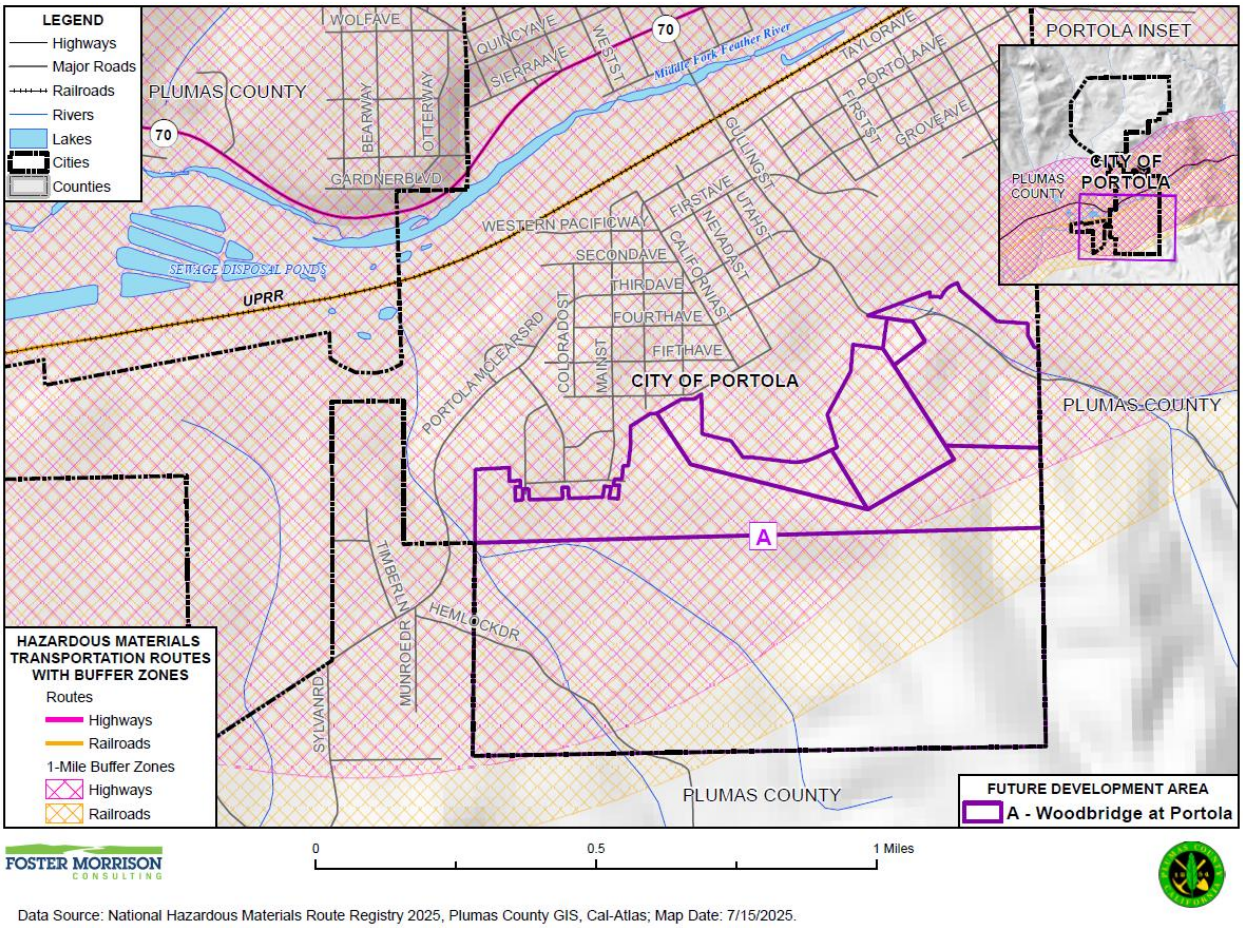
- Climate change is unlikely to exacerbate future hazardous material transportation events and associated impacts and vulnerability of the City.
- Population in City is expected to decrease. Vulnerable population groups could face disproportionate effects from a hazardous materials release and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. However, it is difficult to locate development outside of the hazardous materials buffer zones, due to the location of rail lines and highways in the City. Building codes do not account for hazardous materials spills or incidents.

Development will continue to happen within hazardous materials transportation corridors due to the large area within the City located within these corridors. Those who choose to develop in these areas should be made aware of the risks associated with living within close proximity to a hazardous materials transportation route. Future development areas and their vulnerability to hazardous materials transport are discussed further in the below GIS analysis.

### GIS Analysis

The City provided a future development area which was used as the basis for the inventory of future development for the City. This area were mapped in GIS. Utilizing the future development area spatial layer, the parcel polygon data was intersected to determine the future development areas within both the highway and railroad hazardous material buffer zones. Figure A-24 shows the locations of the future development area overlayed on the hazardous materials buffer zones. As shown in Table A-43, portions of all of these parcels fall in the hazardous material buffer zones from both highways and railroads.

*Figure A-24 City of Portola – Future Development Areas in Highway and Railroad Hazardous Materials Buffer Zones*




Data Source: National Hazardous Materials Route Registry 2025, Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

*Table A-43 City of Portola – Future Development Parcels and Acres in Highway and Railroad Hazardous Materials Buffer Zones*

| Future Development / Hazardous Material Transport Route | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Woodbridge at Portola, Inc.** | | | | | | |
| **Highways** | | | | | | |
| Highway 70 | 6 | 0 | 6 | 398.52 | 0 | 398.52 |
| **Highways Total** | **6** | **0** | **6** | **398.52** | **0** | **398.52** |
| **Railroads** | | | | | | |
| UP/BNSF | 6 | 0 | 6 | 398.52 | 0 | 398.52 |
| **Railroad Total** | **6** | **0** | **6** | **398.52** | **0** | **398.52** |

Source: CalTrans, City of Portola

## *Landslide, Mudslide, and Debris Flow*

**Likelihood of Future Occurrence**–Occasional
**Vulnerability**–Medium

### Hazard Profile

Like its earthquake-generating faults, California's mountainous terrain is a consequence of dynamic geologic processes in operation as the North American Plate grinds past the Pacific Plate. According to the CGS, a landslide is a general term for a variety of mass-movement processes that generate a down-slope movement of mud, soil, rock, and/or vegetation. Landslides are classified into many different types based on form and type of movement. They range from slow-moving rotational slumps and earth flows, which can slowly distress structures but are less threatening to personal safety, to fast-moving rock avalanches and debris flows that are a serious threat to structures and have been responsible for most fatalities during landslide events. For the purposes of this LHMP Update, the term landslide includes mudslides, debris flows, and rockfalls that tend to occur suddenly; as well as hillside erosion, which is a similar process that tends to occur on smaller scales and more gradually but can exacerbate landslide events.

Landslides, debris flows and mudslides are closely related to flooding, as both processes are related to precipitation, runoff, and the saturation of ground by water. In addition, landslides, mud flows, and debris flows can occur on small, steep stream channels and are often mistaken for floods. However, landslide events may be much more destructive than floods because of their higher densities, high debris loads, and high velocities.

Soil erosion is another common form of soil instability. Erosion is a function of soil type, slope, rainfall intensity, and groundcover. It accounts for a loss in many dollars of valuable soil, is aesthetically displeasing, and often induces even greater rates of erosion and sedimentation. Sedimentation is simply the accumulation of soil as a result of erosion. Construction activities often contribute greatly to erosion and sedimentation. Besides being a pollutant in its own right, sediment acts as a transport medium for other pollutants, especially nutrients, pesticides, and heavy metals, which adhere to the eroded soil particles. As the sediment drains into watercourses, the combination of these pollutants adversely affects water quality.

Natural conditions that contribute to landslide, mudslides, debris flows, hillside and streambank erosion, include the following:

- Degree of slope
- Water (heavy rain, river flows, or wave action)
- Unconsolidated soil or soft rock and sediments
- Lack of vegetation (no stabilizing root structure)
- Previous wildfires and other forest disturbances (discussed in the Wildfire section below)
- Road building, excavation, and grading
- Earthquake

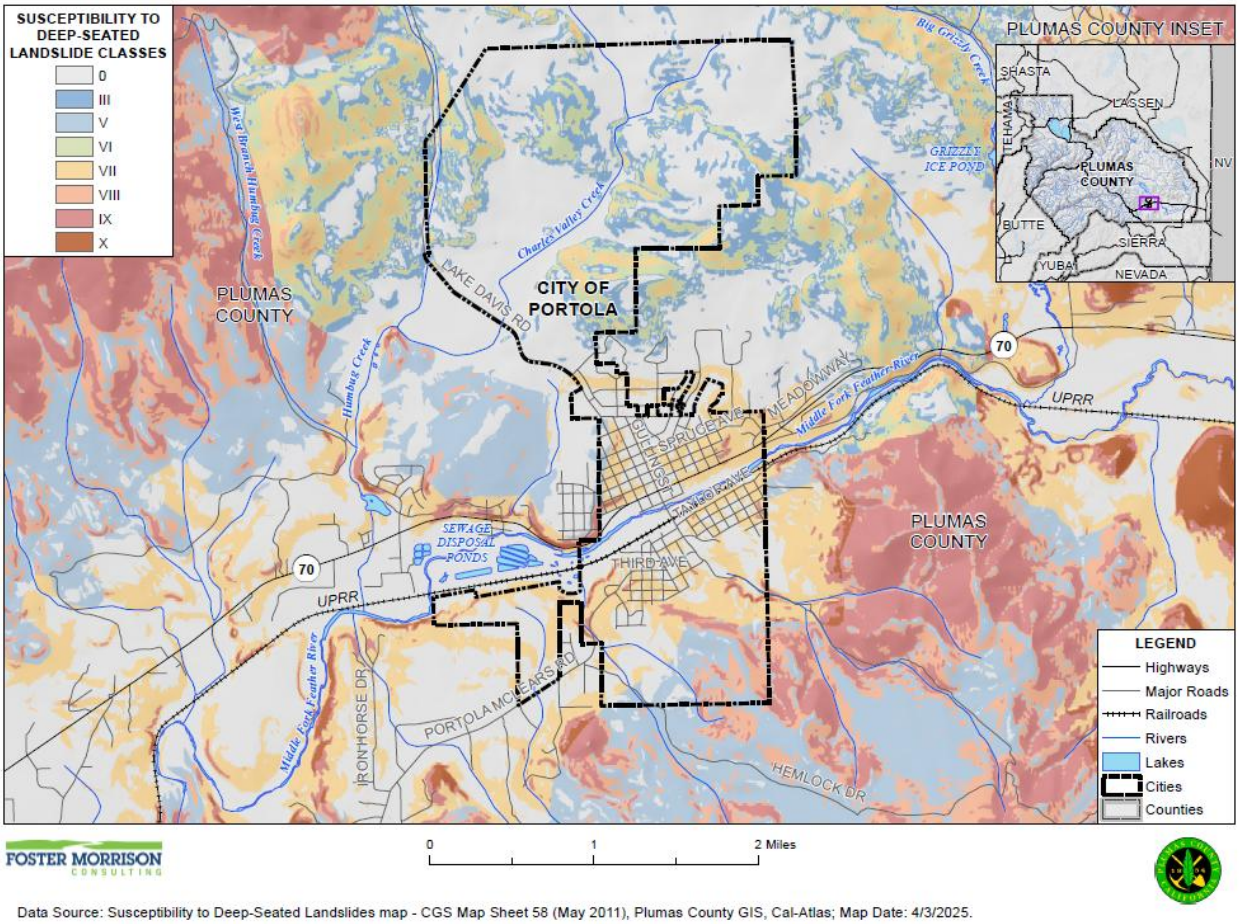
The 2023 California State Hazard Mitigation Plan noted that more than one third of California is mountainous terrain that generally trends parallel to the coast, forming a barrier that captures moisture from offshore storms originating in the Gulf of Alaska and Mexico. Steep topography, weak rocks, heavy winter rains, and occasional earthquakes all lead to slope failures more frequently than would otherwise occur under gravity alone. This is true in the sloped areas bordering the City where the topography is characterized by rolling hills and ridges.

### Location and Extent

Landslides can occur in areas with steep slopes and weak soils. It can also occur in areas where erosion has previously occurred. Both winter storms (precipitation-induced) and earthquake triggered landslides tend to occur in or near places that have experienced previous landslides. However, landslides may also occur in other locations over time. Landslides may also occur in fire burn scar areas.

Figure A-25 shows the CGS areas at susceptible to deep-seated landslides. The legend on Figure A-25 shows the susceptibility scale (from 0-X with 0 being the least and X being the most susceptible) that the CGS uses to show the susceptibility of landslides. It is a primarily a combination of slope class and rock strength. Geographic extents of these classes are shown on Table A-44. According to the 2023 State Hazard Mitigation Plan, the susceptibility classes were further categorized into Very High (susceptibility class X) and High (susceptibility classes VII, VIII, & IX) for exposure analysis. The rest of the classes were not categorized. CGS mapping indicates that the portions of the City and surrounding area are at high to very high susceptibility areas for landslides. This can be seen in the darker orange and red colors. The speed of onset of landslide is often short, especially in past landslide areas as well as in post-wildfire burn scar areas, but it can also take years for a slope to fail. Landslide duration is usually short, though digging out and repairing landslide areas can take some time.

## *Figure A-25 City of Portola – Susceptibility to Deep-Seated Landslides*




FOSTER MORRISON CONSULTING

Data Source: Susceptibility to Deep-Seated Landslides map - CGS Map Sheet 58 (May 2011), Plumas County GIS, Cal-Atlas; Map Date: 4/3/2025.

## *Table A-44 City of Portola – Susceptibility to Deep-Seated Landslide Geographical Extents by Class*

| Deep Seated Landslide Class | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| 0 | 2,001 | 57% | 1,372 | 61% | 629 | 50% |
| III | 402 | 12% | 402 | 18% | 0.5 | 0.04% |
| V | 116 | 3% | 5 | 0.2% | 111 | 9% |
| VI | 248 | 7% | 248 | 11% | - | |
| VII | 598 | 17% | 204 | 9% | 394 | 31% |
| VIII | 60 | 2% | 1 | 0.03% | 59 | 5% |
| IX | 59 | 2% | 4 | 0.2% | 55 | 4% |
| X | 6 | 0.2% | 1 | 0.1% | 5 | 0.4% |
| **Grand Total** | **3,491** | **100%** | **2,237** | **100%** | **1,254** | **100%** |

Source: CGS

### Past Occurrences

#### *Disaster Declarations*

There have been no disaster declarations associated with solely landslides in Plumas County; however, as shown in Table A-45, there have been 9 state and 10 federal disaster declarations for flood which included landslides as a component.

*Table A-45 Plumas County – Federal and State Disaster Declarations Summary 1950-2025*

| Disaster Type | State Declarations | | Federal Declarations | |
|---|---|---|---|---|
| | Count | Years | Count | Years |
| Flood (events that included landslide) | 9 | 1995 (twice), 2006 (twice), 2017 (twice), 2019, 2023 (twice) | 10 | 1995 (twice), 2006 (twice), 2017 (twice), 2019, 2023 (three) |

Source: Cal OES, FEMA. Retrieved March 2025.

#### *NCDC Events*

The NCDC contains 21 records for landslides or debris flows in Plumas County since 1993. These were not known to affect the City.

#### *City of Portola Past Occurrences*

The City noted no past occurrences since the 2019 LHMP was completed.

### Climate Change and Landslide and Debris Flows

According to the 2021 CAS (as well as the 2024 Draft CAS), climate change may result in precipitation extremes (i.e., wetter wet periods and drier dry periods). More information on precipitation increases can be found in Section 4.3.4 of the Base Plan. While total average annual rainfall may decrease only slightly, rainfall is predicted to occur in fewer, more intense precipitation events. The combination of a generally drier climate in the future, which will increase the chance of drought and wildfires, and the occasional extreme downpour is likely to cause more mudslides, landslides, and debris flows.

## Vulnerability from Landslide

Portions of the City are at some measure of vulnerability to landslide. This is true when atmospheric river or heavy rain and storm events occur. An assessment of a community's vulnerability to landslide begins with an understanding of local exposure to landslide. This is included in the Local Concerns section below followed by a discussion of the City's Assets at Risk to this hazard.

### Local Concerns

The City 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 City noted that Highway 70 is of concern for landslide. If the highway were affected, means of ingress and egress for the city would be impacted, especially during an emergency situation. Evacuation would become more challenging and emergency response could be delayed or stopped completely.

### Assets at Risk

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

#### *People and Populations*

All populations located within areas of landslide susceptibility, especially in the High to Very High hazard areas (i.e., Classes VII to X) are at some vulnerability to landslide. This includes those people residing in these landslide potential areas as well as those that might reside or work within the landslide run out areas. People residing in these areas may also be cut off from transportation routes if roads and streets providing a means of ingress and egress are impacted. Certain vulnerable populations may be at greater risk due to the often sudden onset of a landslide event and include: the unsheltered, those with limited mobility, and those that lack the resources to leave the area.

City residents that live in the High and Very High landslide susceptibility areas are often the most vulnerable, but those who live in in the landslide run out areas (which are not mapped) are also 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. To further evaluate the impact to the City's residential population residing within these hazard areas, an analysis was conducted of those who physically reside in the mapped landslide susceptibility areas. The CGS Susceptibility to Deep-Seated Landslide maps were overlayed on the parcel layer and linked to the assessor data. Those residential parcel polygons that intersect the High or Very High risk areas (Class VII or higher) were counted and multiplied by the 2023 Census Bureau average household factors for Portola – 2.29. Analysis results are shown in Table A-46. According to this analysis, there is a total population of 1,297 residents of the City at high or very high risk to landslides.

***Table A-46 City of Portola – Improved Residential Parcels and Population in Susceptibility to Deep-Seated Landslides - Classes VII, VIII, IX, and X***

| Deep Seated Landslide Class/Jurisdiction | Improved Residential Parcels | Population at Risk |
|---|---|---|
| **Class VII** | | |
| City of Portola | 513 | 1,175 |
| **Class VIII** | | |
| City of Portola | 0 | 0 |
| **Class IX** | | |
| City of Portola | 44 | 101 |
| **Class X** | | |
| City of Portola | 9 | 21 |

Source: CGS, Plumas County 2024 Parcel/Assessor Data, US Census Bureau American Community Survey 2023 Household Size Estimates.

The City noted that the Critical Facilities and Infrastructure section below includes the facilities used by At-Risk populations that are threatened by this hazard. While this is not specific to what special populations reside in the City, it does speak to facilities that area used to serve (portions) of this population.

### *Structures*

Landslides can affect the built environment of the City and those structures located within the High to Very High hazard areas (i.e., Classes VII to X) are especially vulnerable, as are the structures located within the landslide run out areas. The CGS Deep-Seated Landslide layer was overlaid with the City parcel (structure) layer in GIS and linked to the assessor data. The mapped landslide susceptibility areas are shown on Figure A-25. Table A-47 summarizes parcel counts, land and improved values (i.e., those with a structure improvement on the parcel), estimated content replacement values, and total values in the City for landslide susceptibility areas. Table A-48 shows the same analysis further broken out by property use.

### *Table A-47 City of Portola – Count and Value of Parcels and Structures Susceptible to Deep-Seated Landslide Classes*

| Susceptibility to Deep-Seated Landslide Class | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| 0 | 540 | 395 | $12,942,889 | $49,148,720 | $53,696 | $29,001,715 | $91,147,020 |
| III | 2 | 0 | $56,463 | $0 | $0 | $0 | $56,463 |
| V | 22 | 10 | $560,793 | $2,627,044 | $0 | $2,241,074 | $5,428,911 |
| VI | 1 | 1 | $21,106 | $2,429 | $0 | $1,215 | $24,750 |
| VII | 940 | 557 | $19,519,134 | $86,443,389 | $1,678,026 | $55,910,625 | $163,551,174 |
| VIII | 2 | 1 | $529,643 | $1,400,712 | $0 | $1,400,712 | $3,331,067 |
| IX | 105 | 48 | $2,773,597 | $6,470,686 | $35,120 | $3,507,842 | $12,787,245 |
| X | 31 | 9 | $1,546,746 | $5,158,054 | $148,230 | $2,579,027 | $9,432,057 |
| Not in a Landslide Class | 0 | 0 | $0 | $0 | $0 | $0 | $0 |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | $1,915,072 | **$94,642,209** | **$285,758,686** |

Source: CGS, Plumas County 2024 Parcel/Assessor Data

*Table A-48 City of Portola – Count and Value of Parcels and Structures in Deep-Seated Landslide Classes by Property Use*

| Susceptibility to Deep-Seated Landslide Class / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **0** | | | | | | | |
| Commercial | 89 | 65 | $3,465,499 | $8,854,710 | $45,566 | $8,854,710 | $21,220,485 |
| Government | 13 | 0 | $0 | $0 | $0 | $0 | $0 |
| Institutional | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Miscellaneous | 1 | 0 | $19 | $0 | $0 | $0 | $19 |
| Residential | 434 | 330 | $9,477,371 | $40,294,010 | $8,130 | $20,147,005 | $69,926,516 |
| ROW/Utilities | 2 | 0 | $0 | $0 | $0 | $0 | $0 |
| **0 Total** | **540** | **395** | **$12,942,889** | **$49,148,720** | **$53,696** | **$29,001,715** | **$91,147,020** |
| **III** | | | | | | | |
| Agricultural | 1 | 0 | $6,588 | $0 | $0 | $0 | $6,588 |
| Residential | 1 | 0 | $49,875 | $0 | $0 | $0 | $49,875 |
| **III Total** | **2** | **0** | **$56,463** | **$0** | **$0** | **$0** | **$56,463** |
| **V** | | | | | | | |
| Commercial | 1 | 1 | $234,257 | $1,855,104 | $0 | $1,855,104 | $3,944,465 |
| Government | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 20 | 9 | $326,536 | $771,940 | $0 | $385,970 | $1,484,446 |
| **V Total** | **22** | **10** | **$560,793** | **$2,627,044** | **$0** | **$2,241,074** | **$5,428,911** |
| **VI** | | | | | | | |
| Residential | 1 | 1 | $21,106 | $2,429 | $0 | $1,215 | $24,750 |
| **VI Total** | **1** | **1** | **$21,106** | **$2,429** | **$0** | **$1,215** | **$24,750** |
| **VII** | | | | | | | |
| Commercial | 49 | 34 | $3,462,174 | $19,594,360 | $1,427,289 | $19,594,360 | $44,078,183 |
| Government | 17 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | $0 | $346,118 | $902,099 |
| Institutional | 8 | 7 | $218,388 | $5,322,010 | $147,200 | $5,322,010 | $11,009,608 |
| Miscellaneous | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 824 | 513 | $15,513,336 | $61,296,274 | $103,537 | $30,648,137 | $107,561,284 |
| ROW/Utilities | 30 | 0 | $0 | $0 | $0 | $0 | $0 |
| **VII Total** | **940** | **557** | **$19,519,134** | **$86,443,389** | **$1,678,026** | **$55,910,625** | **$163,551,174** |

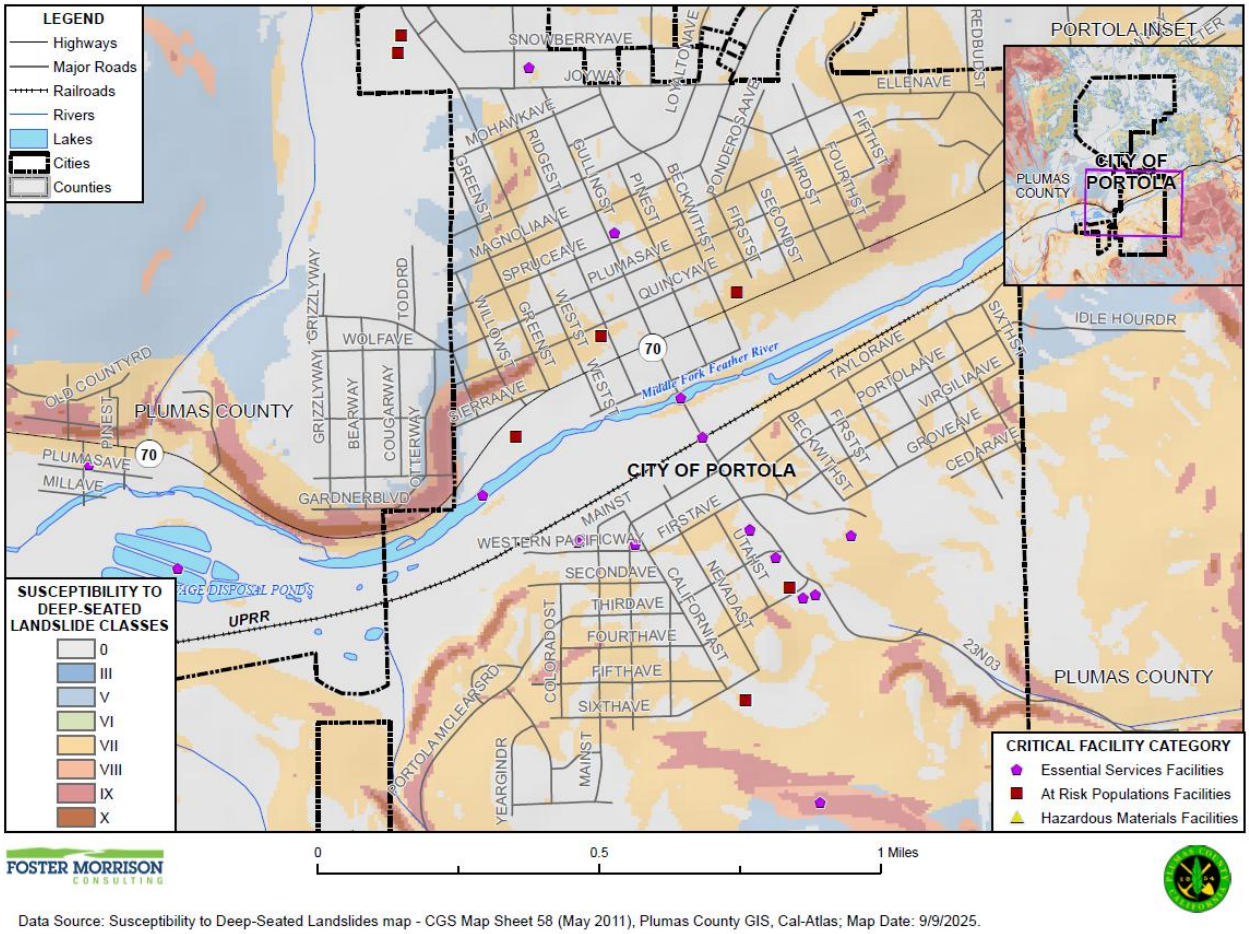
| Susceptibility to Deep-Seated Landslide Class / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **VIII** | | | | | | | |
| Agricultural | 1 | 1 | $529,643 | $1,400,712 | $0 | $1,400,712 | $3,331,067 |
| ROW/Utilities | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| **VIII Total** | **2** | **1** | **$529,643** | **$1,400,712** | **$0** | **$1,400,712** | **$3,331,067** |
| **IX** | | | | | | | |
| Commercial | 5 | 3 | $386,280 | $397,445 | $11,385 | $397,445 | $1,192,555 |
| Government | 2 | 0 | $0 | $0 | $0 | $0 | $0 |
| Institutional | 1 | 1 | $6,510 | $147,552 | $0 | $147,552 | $301,614 |
| Residential | 85 | 44 | $2,380,807 | $5,925,689 | $23,735 | $2,962,845 | $11,293,076 |
| ROW/Utilities | 12 | 0 | $0 | $0 | $0 | $0 | $0 |
| **IX Total** | **105** | **48** | **$2,773,597** | **$6,470,686** | **$35,120** | **$3,507,842** | **$12,787,245** |
| **X** | | | | | | | |
| Commercial | 2 | 0 | $35,087 | $0 | $0 | $0 | $35,087 |
| Government | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 24 | 9 | $1,511,659 | $5,158,054 | $148,230 | $2,579,027 | $9,396,970 |
| ROW/Utilities | 4 | 0 | $0 | $0 | $0 | $0 | $0 |
| **X Total** | **31** | **9** | **$1,546,746** | **$5,158,054** | **$148,230** | **$2,579,027** | **$9,432,057** |
| | | | | | | | |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: CGS, Plumas County 2024 Parcel/Assessor Data

### *Critical Facilities and Infrastructure*

Landslides present a threat to both critical facilities and infrastructure. The following analysis discusses critical facilities and infrastructure. A separate analysis was performed on the critical facility inventory in the City to determine which critical facilities fall into each deep-seated landslide classes. Using GIS, the deep-seated landslide classes were overlayed on the critical facility GIS layer. This is shown on Figure A-26 for the deep-seated landslide classes. Table A-49 summarizes Table A-50 details which critical facilities fall in which landslide class. Details of critical facility categories, type, name, and address by deep-seated landslide class are listed in Appendix F.

*Figure A-26 City of Portola – Critical Facilities in Deep-Seated Landslide Classes*




Data Source: Susceptibility to Deep-Seated Landslides map - CGS Map Sheet 58 (May 2011), Plumas County GIS, Cal-Atlas; Map Date: 9/9/2025.

*Table A-49 City of Portola– Critical Facilities by Category in Deep-Seated Landslide Classes*

| Jurisdiction / Susceptibility to Deep-Seated Landslide Class | Critical Facility Category | Facility Count |
|---|---|---|
| **Portola** | | |
| 0 | Essential Services Facilities | 14 |
| | At Risk Populations Facilities | 5 |
| | Hazardous Materials Facilities | 0 |
| | **0 Total** | **19** |
| VII | Essential Services Facilities | 1 |
| | At Risk Populations Facilities | 3 |
| | Hazardous Materials Facilities | 0 |
| | **VII Total** | **4** |
| IX | Essential Services Facilities | 1 |
| | At Risk Populations Facilities | 0 |
| | Hazardous Materials Facilities | 0 |

| Jurisdiction / Susceptibility to Deep-Seated Landslide Class | Critical Facility Category | Facility Count |
|---|---|---|
| | **IX Total** | **1** |
| **Portola Total** | | **24** |

Source: CGS, City of Portola

### *Table A-50 City of Portola – Critical Facilities by Category and Type in Deep-Seated Landslide Classes*

| Jurisdiction / Susceptibility to Deep-Seated Landslide Class | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| 0 | **Essential Services Facilities** | |
| | Essential Government Operations | 3 |
| | Public Safety | 2 |
| | Public Utility Plant and Substation Facilities | 7 |
| | Transportation Lifeline Systems | 2 |
| | **Essential Services Facilities Total** | **14** |
| | **At Risk Populations Facilities** | |
| | Public Safety | 1 |
| | School | 4 |
| | **At Risk Populations Facilities Total** | **5** |
| | **0 Total** | **19** |
| VII | **Essential Services Facilities** | |
| | Emergency Medical | 1 |
| | **Essential Services Facilities Total** | **1** |
| | At Risk Populations Facilities | |
| | Designated Emergency Shelter | 1 |
| | School | 2 |
| | **At Risk Populations Facilities Total** | **3** |
| | **VII Total** | **4** |
| IX | **Essential Services Facilities** | |
| | Public Utility Plant and Substation Facilities | 1 |
| | **Essential Services Facilities Total** | **1** |
| | **IX Total** | **1** |
| **Portola Total** | | **24** |

Source: CGS, City of Portola

### *Natural, Historic, and Cultural Resources*

Landslides can affect natural, historic, and cultural resources that lie in the landslide area, or the landslide run out area. Landslides can destroy large tracts of forest and open space areas, destroy wildlife habitat,

and remove productive soils and vegetation from slopes. It can also fill in waterways, impact water quality, and potentially affect flooding potential. Natural resources that fall in the High or Very High susceptibility areas shown on Figure A-25 would be most vulnerable, as well as those in the run-out areas. As shown on the map, this would include a relatively small area of the developed area of the City.

### Impacts from Landslide

Any type of landslide may result in damages or complete destruction of buildings in their path, as well as deaths and injuries. Landslides can cause road blockages by depositing debris on road surfaces or road damage if the road surface itself slides downhill. Utility lines and pipes are also prone to breakage in slide areas. Large landslides can collapse into water bodies, causing seiches. Landslides can relocate river channels. Landslides and debris flows can also impact water quality and the storage capacity of surface water reservoirs used to store potable water.

Landslides, debris flows, and mud flows impacts vary by location and severity of any given event and will likely only affect certain areas of the City susceptible to landslide. Based on the risk assessment, there is limited potential for significant landslides to occur in the City. Most, but not all, of the historic landslides in the City have been minor, localized events that are more of a nuisance than a disaster. Impacts that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and
- Negative impact on commercial and residential property values

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City 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 City include the following:

- Climate change is likely to exacerbate future landslide, mudslide, and debris flow conditions and associated impacts and vulnerability of the City to landslide.

- Population in the City is expected to shrink with the rest of the County. If this were to change, additional growth within the areas at risk to deep-seated landslides in the City would place additional populations at risk. Additional population growth would likely bring continued diversity to the City. Vulnerable population groups could face disproportionate effects from a landslide and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. Locating new development, structures and critical facilities and infrastructure within or near areas of landslide risk may put additional development at risk. However, City building codes are in effect to reduce this risk and should be updated as necessary to continue to address future wildfire conditions. It should be noted that most of the growth in the City is occurring in areas outside the landslide risk areas. Thus, depending on the location of new development and adherence to protective building codes, changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard.

### Future Development

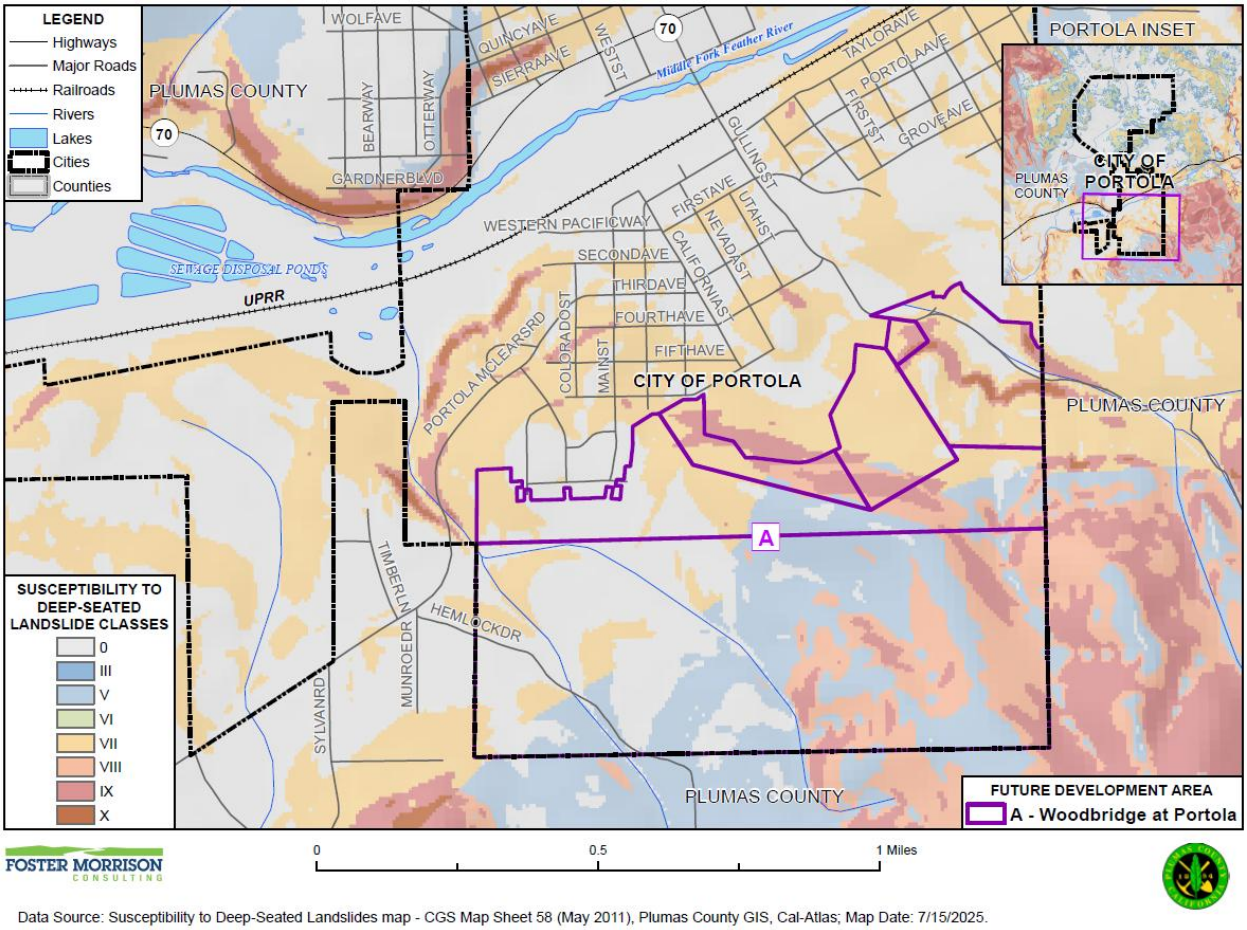
Additional growth and development within moderate or higher deep-seated landslide susceptibility classes in the City would place additional values at risk to landslide. More vulnerable populations may experience a disproportionate impact from landslide, and this should be considered as development continues.

Future development areas and their vulnerability to landslides are discussed further in the below GIS analysis.

#### *GIS Analysis*

The City provided a future development area which was used as the basis for the inventory of future development for the City. This area were mapped in GIS. Utilizing the future development area spatial layer, the parcel polygon data was intersected to determine the future development areas within each deep-seated landslide class. Figure A-27 shows the locations of the future development area overlayed on the deep-seated landslide classes. These lie inside in the IX and X deep-seated landslide class, as shown in Table A-51.

*Figure A-27 City of Portola – Future Development Areas in Deep-Seated Landslide Classes*




Data Source: Susceptibility to Deep-Seated Landslides map - CGS Map Sheet 58 (May 2011), Plumas County GIS, Cal-Atlas; Map Date: 7/15/2025.

*Table A-51 City of Portola – Future Development Parcels and Acres in Deep-Seated Landslide Classes*

| Future Development / Susceptibility to Deep-Seated Landslide Class | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Woodbridge at Portola, Inc.** | | | | | | |
| IX | 4 | 0 | 4 | 360.10 | 0 | 360.10 |
| X | 2 | 0 | 2 | 38.42 | 0 | 38.42 |
| **Total** | **6** | **0** | **6** | **398.52** | **0** | **398.52** |

Source: CGS, City of Portola

## *Severe Weather: Extreme Cold, Freeze, and Snow (w/avalanche)*

**Likelihood of Future Occurrence**–Highly Likely
**Vulnerability**–High

### 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 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. 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 City and County are at risk to extreme cold and freeze.

Snowfall can affect almost all areas of the County. 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.

Avalanche affects only certain areas of the County. The combination of steep slopes, abundant snow, weather, snowpack, and an impetus to cause movement to create an avalanching episode. Speed of onset of avalanche is short, as is the duration of each event. Most avalanches occur during and shortly after storms between January and March. A scale of avalanche danger has been created for North America. This scale can be seen in Section 4.3.2 of the Base Plan.

#### 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 A-52 shows the dates of the disaster declarations. There have been USDA disaster declarations (2016, twice in 2022, 2023) from cold and freeze.

*Table A-52 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 City.

### *City of Portola Events*

The City noted that annual periods of heavy snowfall have been experienced since the 2019 LHMP. When this occurs, the event disrupts operations of the City.

### 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 (w/avalanche)

Extreme cold and freeze events happen in the City each year. Snow occurs regularly and can cause avalanche. Cold, freeze, snow, and avalanche can impact both structures and populations in the Planning Area. The whole of the City and County Planning Area has some measure of vulnerability to extreme cold, freeze, snow, and avalanche.

An assessment of a community's vulnerability to this hazard begins with an understanding of local exposure to City. This is included in the Local Concerns section below. After that, vulnerability is discussed in multiple sections that detail how this hazard can affect the City. These sections include assets at risk, impacts, and how future development and future conditions can be affected by this hazard.

### Local Concerns

The City 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 City's infrastructure can experience challenges when a heavy snow and cooler than normal temperatures impact the area. Freezing is of concern to the City, since the infrastructure for fire hydrants

are in need of replacement. Along with this, water and sewer systems can become inundated if water is not allowed to flow. Updating these water systems would help to mitigate the affects and impacts of this hazard.

### Assets at Risk

Assets at risk from extreme cold, freeze, snow, and avalanche include people and populations; structures; critical facilities and infrastructure; and natural, historic, and cultural resources. These are discussed in the following sections.

#### *People and Populations*

All populations within the City are vulnerable to extreme cold and freeze, but this hazard generally affects vulnerable populations and those spending large amounts of time outside. 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 City has few residential (or other) structures in areas at risk to avalanche.

#### *Structures*

Structures in the City 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, but it is usually not heavy enough to damage structures. Buildings in the upper elevations of the County can be affected directly by avalanche events. Most of these events occur away from structures in the City.

#### *Critical Facilities and Infrastructure*

Extreme cold and freeze, occasionally accompanied by high winds and snow, can cause downed trees and power lines, power outages, accidents, and road closures. Transportation networks, communications, and utilities infrastructure are the most vulnerable physical assets in the City. Depending on the facility type and function, critical facilities and infrastructure may be affected directly by freeze. Damage to pipes that feed buildings can be damaged during periods of extreme cold. Other equipment may also be affected. Infrastructure such as roads, highways, and bridges can become slippery, causing accidents and road closures. Depending on the facility type and function, critical facilities and infrastructure may be affected directly by avalanche events. Infrastructure such as roads, highways, and bridges can be blocked during these events.

#### *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 City may be affected. During periods of freeze, trees in the City 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. Snow and avalanche are unlikely to affect natural, historic, or cultural facilities.

### Impacts from Severe Weather: Extreme Cold, Freeze, and Snow (w/avalanche)

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 City. 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 City 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.

Avalanches occur when the weight of new snow increases stress faster than strength of the snowpack develops, causing the slope to fail. Avalanche conditions develop more quickly on steeper slopes and where wind-blown snow is common. The combination of steep slopes, abundant snow, weather, snowpack, and a trigger to cause movement create avalanches.

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 independently of other types of hazards, although it is possible for avalanches to be triggered by severe weather and earthquakes. 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 City 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

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 City include the following:

- Climate change is unlikely to exacerbate extreme cold, freeze, and snow and their associated impacts to the City.

- The population of the City is expected to slowly shrink as time progresses. If this trend reverses, future population growth should be considered, as having more or less people in a community affects the overall hazard vulnerability to the City. Changes in populations patterns should also be considered. Especially vulnerable individuals to this hazard include older adults, children, outdoor workers, those below the poverty line, and the unhoused. During hazard events, existing inequities can get worse, and these groups are the most likely to be affected and may require extra assistance. Planning for population changes will help to decrease the City's overall vulnerability. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of population growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. City building codes are in effect to reduce this risk and should be updated as necessary to continue to address future freeze and extreme cold conditions. Due to adherence to protective building codes, changes in land use and development will likely not increase the impacts and associated vulnerabilities of the City to this hazard.

Future development built to code should be able to withstand extreme cold, freeze, and heavy snow. Current building codes provide such provisions for new construction. Older buildings and infrastructure should be evaluated to ensure that extreme cold and freeze will not cause negative impacts. Future development considerations should be ongoing and proactive. Ensuring that comprehensive land use planning is conducted, regulatory requirements such as building codes are followed, and varying needs for different demographic groups that reside within the County are considered can help make for a more resilient community.

## *Severe Weather: Heavy Rains and Storms*

**Likelihood of Future Occurrence**–Highly Likely
**Vulnerability**–Medium

### Hazard Profile

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

#### Location and Extent

Heavy rain events occur on a regional basis. Rains and storms can occur in any location of the City. All portions of the City are at risk to heavy rains and storms. Most of the severe rains occur during the fall, winter, and spring months in the City as discussed below (with problem flooding areas associated with heavy rains and storms shown in Table A-34 in the Flood: Localized Stormwater section). 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 City and Plumas County.

Duration of severe storms in the City can range from minutes to hours to days. Information on precipitation extremes can be found in Section 4.3.4 of the Base Plan.

### Past Occurrences

#### *Disaster Declaration History*

According to historical hazard data, severe weather, including heavy rains and storms, is an annual occurrence in the City. This contributes to many of the federal disaster declarations related to flooding. Disaster declarations from flooding are shown on Table A-53.

#### *Table A-53 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 winter weather incidents for Plumas County since 1950.

#### *City of Portola Events*

The City noted that heavy rains and storms are an annual occurrence. Events causing 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 City 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 City of Portola. 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 City. 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 City, but also can cause damage, with lightning occasionally igniting wildfires.

The whole of the City 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 City's Assets at Risk to this hazard.

### Local Concerns

The City 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 City is concerned with flooding that occurs due to heavy rains and storms. High winds often accompany these events (and are discussed in the Severe Weather: High Wind and Tornado section below). This can cause damage to structures as well as infrastructure. Power outages can occur from these events which affects vulnerable populations (as well as the remainder of the population) in the City. Loss of revenue from local businesses can also occur. In addition, lightning strikes present a relatively high incidence of occurrence; and a significant risk factor when considering the potential to ignite a wildfire (refer to the section on Wildfires for further discussion). Flash flooding, fueled by wet microbursts and downpours, although localized can cause extensive damage. However, the potential for an occurrence which would result in a significantly adverse impact to the overall community is low and flash floods are not considered to present a specifically identifiable risk that can be reasonably mitigated. Should high levels of flooding occur, the Gulling Street Bridge above the Feather River is in need of rehabilitation and would be at risk during a high flow event.

The City also noted that heavy rains and storms cause localized flooding in the City. The problem areas area shown on Table A-34 above.

### Assets at Risk

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

#### *People and Populations*

All populations (including vulnerable populations) in the City 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. Populations at risk to flooding resulting from heavy rains and storm events include those

who live in floodplains (discussed in further detail in the Flood: 1%/0.2% Annual Chance section above) and those who live in and near localized flooding areas (discussed in further detail in the Flood: Localized Stormwater Flooding section above).

#### *Structures*

Structures in the City have some risk to heavy rains and storms. Structures built to modern building codes are built to withstand heavy rains and storms (including high winds and lightning). 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.

#### *Critical Facilities and Infrastructure,*

Heavy rain and storms can affect critical facilities and infrastructure during large events. Power outages may occur taking facilities offline. High winds can down power lines and trees impacting facilities. Water intrusion into facilities and infrastructure can impact operations. City roads, streets, and bridges can be impacted resulting in closures restricting traffic flow in the City. In certain areas, large storms can cause erosion and localized landslides which can impact facilities. Many critical facilities are built to modern design standards that take heavy rains and storms into account when siting and building these structures, and others may need to be retrofitted to better withstand these events.

#### *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 County 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

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 City include the following:

- Climate change is likely to exacerbate future heavy rain and storm conditions and associated impacts and vulnerability of the City to flooding.
- Population is expected to decrease for the City of Portola; however, the vulnerability may change depending on changes to the makeup of more vulnerable populations. Certain vulnerable populations, such as the unhoused, could experience disproportional effects from this hazard. and should be addressed as the City continues to grow. Thus, changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. 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 City. Building codes in the City ensure that new development is built to current building standards, which should reduce the risk to future development in the City from heavy rains and storms. With adherence to development standards, future losses to new development should be minimal.

Building codes in the City ensure that new development is built to current building standards, which should reduce the risk to future development in the City from heavy rains and storms. New critical facilities such as communications towers and others should be built to withstand hail damage, lightning, and thunderstorm winds. With adherence to development standards, future losses to new development should be minimal. 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 City.

## *Severe Weather: High Winds and Tornado*

**Likelihood of Future Occurrence**–Highly Likely
**Vulnerability**–High

### Hazard Profile

High winds, as defined by the NWS glossary, are sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration. High winds can cause significant property damage, threaten public safety, and have adverse economic impacts from business closures and power loss. High winds, when combined with high temperatures and low humidity can also lead to PSPS events. Winds can also drive fires in and near the City.

Portions of the City are also located in or near a special wind hazard region, which is a result of foehn winds. A foehn wind is a type of dry down-slope wind that occurs in the lee (downwind side) of a mountain range. Winds of this type are called "snow-eaters" for their ability to make snow melt or sublimate rapidly. These types of winds are also associated with the rapid spread of wildfires, making some regions which experience these winds particularly fire prone.

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

### Location and Extent

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

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

### Past Occurrences

#### *Disaster Declarations*

There have been no federal or state disaster declarations in the County for winds and tornadoes.

#### *NCDC Events*

The NCDC data recorded 94 high wind and 0 tornado incidents for Plumas County since 1950. Many of these wind events likely affected the City.

#### *City of Portola Past Occurrences*

The City noted that in spring of 2023, a severe winter storm brought straight line winds to the City. Damages occurred throughout the City, but estimates were unavailable.

### Climate Change and High Winds and Tornado

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 thunderstorm events is likely to increase during the 21st century. This may bring stronger thunderstorm winds. The CAS does not discuss non-thunderstorm winds or tornadoes.

## Vulnerability to Severe Weather: High Wind and Tornadoes

The City is subject to potentially destructive high winds and tornadoes. High winds are common throughout the area and can happen during most times of the entire year and outside of a severe storm event. Tornadoes are rare. High winds and tornadoes can be a significant public safety and economic concern. The whole of the City is at some measure of vulnerability to wind and tornadoes.

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

### Local Concerns

The City 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 City is in or adjacent to a special wind hazard region, which is a result of foehn winds (locally referred to as a Washoe Zephyr). A foehn wind is a type of dry down-slope wind that occurs in the lee (downwind side) of a mountain range. Winds of this type are called "snow-eaters" for their ability to make snow melt or sublimate rapidly. This snow-removing ability is caused not only by warmer temperatures, but also the low relative humidity of the air mass coming over the mountain(s). They are also associated with the rapid spread of wildfires, making some regions which experience these winds particularly fire prone. Burn patterns of almost all historic large wildfires in the larger County indicate they occurred during foehn winds.

Winds can cause damage to structures as well as infrastructure. Power outages can occur from these events which affects vulnerable populations (as well as the remainder of the population) in the City. Loss of revenue from local businesses can also occur. Protection of critical infrastructure and facilities are of highest importance to the City.

### Assets at Risk

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

#### *People and Populations*

All populations are at some vulnerability to high winds and tornadoes. Certain vulnerable populations are at the greatest risk to the effects of high winds and tornadoes. These include:

- The unsheltered.
- Citizens who reside in mobile homes.
- Citizens in buildings with no tornado shelter or below ground floors.
- Those with access and functional needs.
- The medically fragile experiencing power outages as a result of wind events.
- Those working or caught outdoors during a wind or tornado event.

### *Structures*

All structures in the City have some measure of risk from high wind and tornadoes. Though rare, a tornado could cause damage to virtually all facilities in the tornado touchdown path. This would affect homes, businesses, commercial property, as well as government and critical facilities. During a wind or tornado event, power lines in the City can be damaged by falling trees caused by wind. High winds are a cause for PSPS events to be declared, causing power outages to occur. High winds and tornadoes could cause sparks from electric wires and other sources, which could lead to wildfire ignition. Once ignited, high winds can also cause wildfires to rapidly spread and become out of control. High wind conditions can cause wildfires to move into more urban areas destroying structures and whole subdivisions, as seen in recent wildfire events in the West.

### *Critical Facilities and Infrastructure*

Though most critical facilities are built to withstand winds, high wind speeds can still cause damage to critical facilities and infrastructure in the City. Though rare, a tornado could cause damage to virtually all facilities in the tornado touchdown path. Winds can cause power outages affecting system operations. Winds can also contribute to PSPS events, and lead to out of control wildfires, which can damage critical facilities and impact their abilities to perform their critical roles in the community.

### *Natural, Historic, and Cultural Resources*

Natural resources, such as trees, are vulnerable to winds. Increased levee and streambank erosion can occur during periods of high water and high winds. High wave action during significant wind events can impact marsh lands and habitat areas. Soil erosion can also occur during high winds. Most all natural, historic, or cultural resources are at risk to tornadoes. Tornadoes can tear apart habitats, causing fragmentation across ecosystems and can damage and destroy historic structures and cultural resources.

## Impacts from Severe Weather: High Wind and Tornado

Wind and tornadoes can cause damage to property and loss of life. While most tornado damage is caused by violent winds, the majority of injuries and deaths generally result from flying debris. Property damage can include damage to buildings, fallen trees, and power lines. Local industries may also be damaged or destroyed. Access roads and streets may be blocked by debris, delaying necessary emergency response. Winds can push automobiles off roads, damage roofs and structures, cause power outages, and cause secondary damage due to flying debris and hazardous trees. High winds can also contribute to the spread and intensity of wildfires. High winds during periods of high water can cause impacts to levees and streambanks from accelerated erosion. Climate change may affect this hazard and cause winds to increase in velocity and more tornadoes to affect the City.

Impacts to identified assets at risk to this hazard and the overall vulnerability of the County 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

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 City include the following:

- Climate change is likely to exacerbate future wind conditions and associated impacts and vulnerability of the City. Climate change is not likely to affect future tornado conditions.
- Future population growth should be considered as having more or less people in a community affects the overall hazard vulnerability to the City. Population in the City is expected to slowly shrink. The population makeup of the City may change even while the population shrinks. Vulnerable populations could experience disproportional effects from this hazard and should be planned for as development of the City continues. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. Building codes in the County ensure that new development is built to current building standards to withstand high winds, which should reduce the risk to future development in the County from high winds and tornadoes. With adherence to development standards, future losses to new development should be minimal. Changes in land use and increased development may amplify the impacts of high winds and tornadoes, as additional structures in the County increase the number of buildings at risk to high winds and tornadoes.

Future development considerations should be ongoing and proactive. Ensuring that comprehensive land use planning is conducted, regulatory requirements, such as building codes, are followed, and varying needs for different demographic groups with intersecting identities that reside within the County are considered can help make for a more resilient community. The City enforces the state building codes which includes standards for new development to minimize damage from windstorms. New and existing critical facilities and infrastructure should also consider adding backup power systems to limit impacts associated with power outages.

## *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 City of Portola. Throughout California, communities are increasingly concerned about wildfire safety as increased development in the foothills and mountain areas and subsequent fire control practices have affected the natural cycle of 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 City. While wildfire risk has predominantly been associated with more remote forested areas and wildland urban interface (WUI) areas, significant wildfires can also occur in more populated, urban areas. 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 City.

### Wildfire Smoke and Air Quality

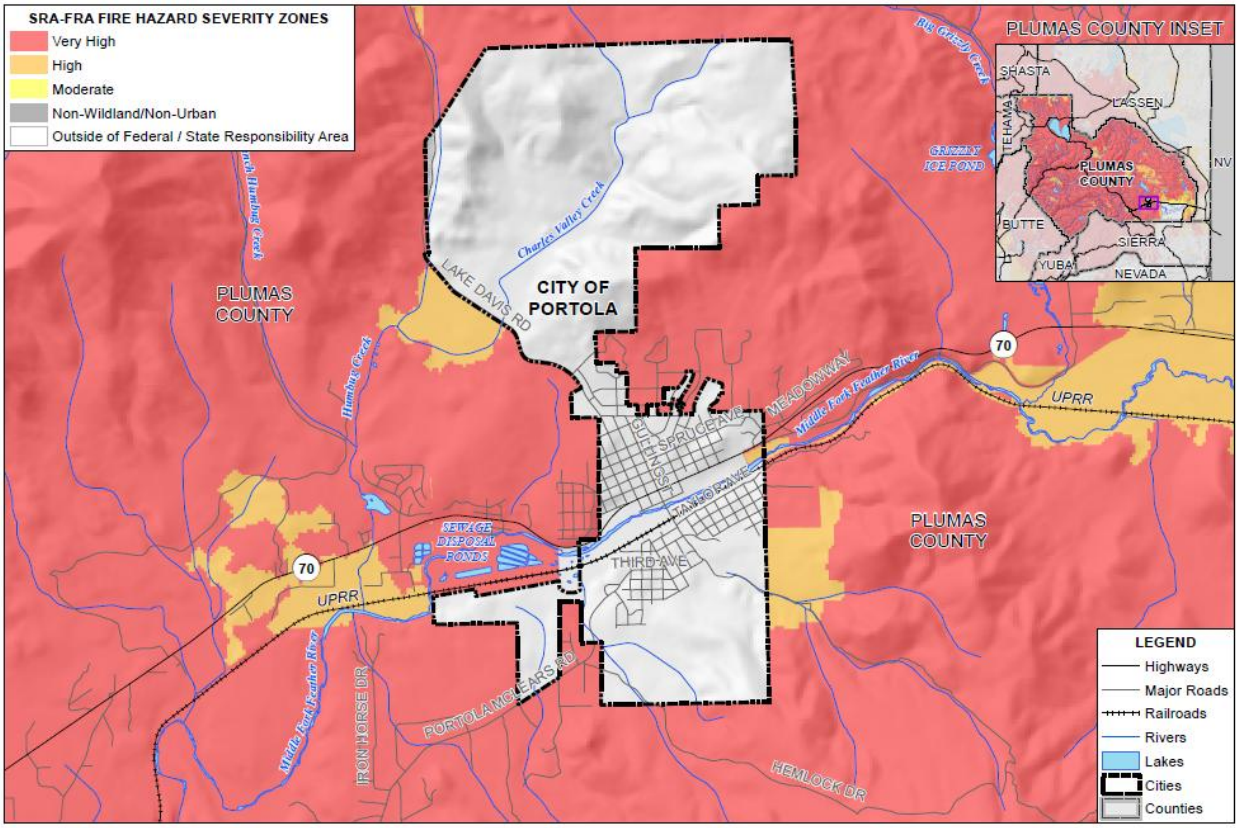
Smoke from wildfires is made up of gas and particulate matter, which can be easily observed in the air. Air quality standards have been established to protect human health with the pollutant referred to as PM2.5 which consists of particles 2.5 microns or less in diameter. These smaller sizes of particles 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 and nearby northern California communities since the 2019 LHMP Update have created significant air pollution affecting area residents. This was the case during the 2021 Caldor Fire, as well as others that affected the nearby areas.

### Location and Extent

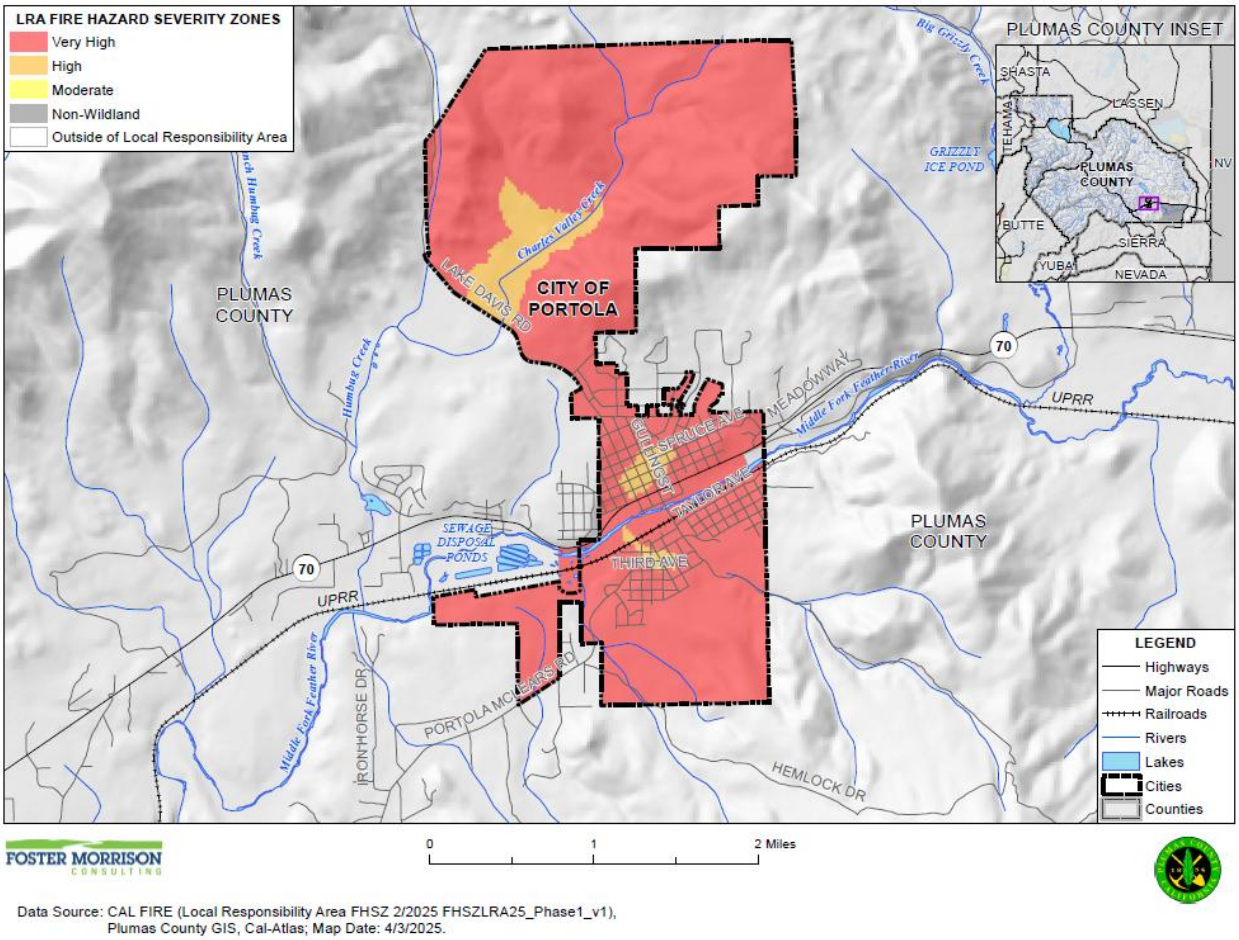
Wildfire can affect all areas of the City. CAL FIRE has estimated that the risk varies across the City and has created maps showing risk variance. Following the methodology described in Section 4.3.16 of the Base Plan, wildfire maps for the City of Portola were created. Figure A-28 shows the CAL FIRE Federal Responsibility Areas (FRA) and State Responsibility Areas (SRA) and their associated Fire Hazard Severity Zones (FHSZ) in the City. Figure A-29 shows the CAL FIRE Local Responsibility Areas (LRA) and their associated Fire Hazard Severity Zones (FHSZ) in the City. As shown on the maps, FHSZs within the City range from Moderate to Very High.

## *Figure A-28 City of Portola – CAL FIRE FRA/SRA 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: 4/7/2025.

*Figure A-29 City of Portola – 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: 4/3/2025.

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 FRA/SRA are shown in Table A-54, while extents in the LRA are shown on Table A-55.

*Table A-54 City of Portola – CAL FIRE FRA/SRA Fire Hazard Severity Zone Geographical Extents*

| SRA/FRA Fire Hazard Severity Zone | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| Very High | 5 | 0.2% | 3 | 0.1% | 2 | 0.2% |
| High | 5 | 0.1% | 0.0001 | 0.000004% | 5 | 0.4% |
| Moderate | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Non-Wildland/Non-Urban | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |

| SRA/FRA Fire Hazard Severity Zone | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| Outside of Federal / State Responsibility Area | 3,481 | 99.7% | 2,234 | 99.9% | 1,246 | 99.4% |
| **Grand Total** | **3,491** | **100.0%** | **2,237** | **100.0%** | **1,254** | **100.0%** |

Source: CAL FIRE

### *Table A-55 City of Portola – CAL FIRE LRA Fire Hazard Severity Zone Geographical Extents*

| LRA Fire Hazard Severity Zone | Total Acres | % of Total Acres | Improved Acres | % of Total Improved Acres | Unimproved Acres | % of Total Unimproved Acres |
|---|---|---|---|---|---|---|
| Very High | 3,235 | 92.7% | 2,016 | 90.1% | 1,219 | 97.2% |
| High | 250 | 7.2% | 221 | 9.9% | 28 | 2.26% |
| Moderate | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Non-Wildland | 0 | 0.0% | 0 | 0.0% | 0 | 0.0% |
| Outside of Local Responsibility Area | 6 | 0.2% | 0 | 0.0% | 6 | 0.5% |
| **Grand Total** | **3,491** | **100.0%** | **2,237** | **100.0%** | **1,254** | **100.0%** |

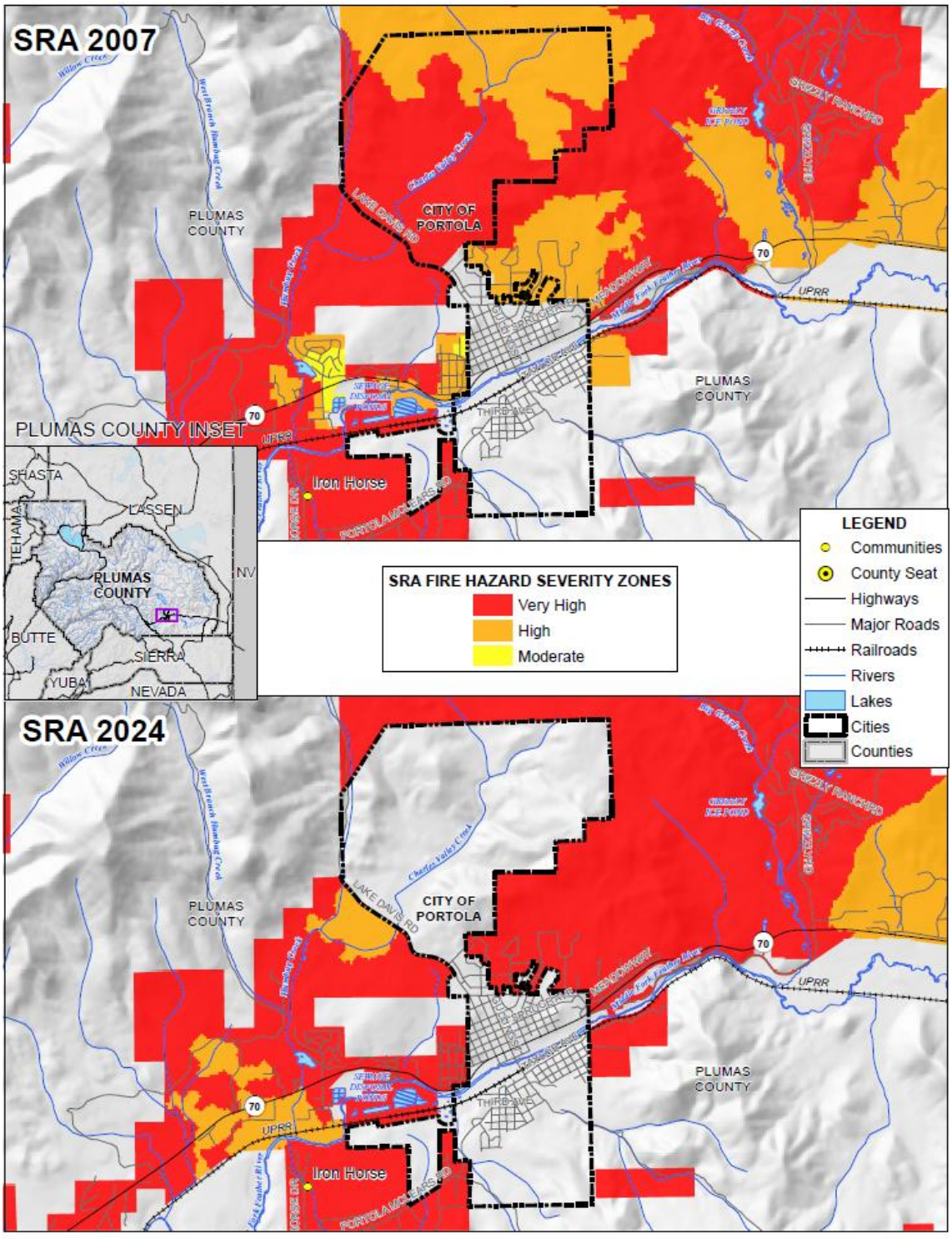
Source: CAL FIRE

### *CAL FIRE Fire Hazard Severity Zone Comparison*

Given the new CAL FIRE Fire Hazard Severity Zone mapping for the SRA (2024) and the LRA (2025), a comparison of the previous CAL FIRE FHSZ mapping from 2007 was conducted. Figure A-30 and Table A-56 shows the 2007 FHSZ data compared to the 2024 FHSZ data for the SRA within the City and Figure A-31 and Table A-57 shows the FHSZ data comparison for the LRA datasets.

Based on this comparative analysis, while many of the FHSZs have changed within the two (SRA and LRA) analyses, much of the change can be contributed to mapped areas being reallocated to new State and Local Fire Responsibility Areas. As such, the risk and vulnerability of the City to wildfire remains significant. Further given the topography and fuels located throughout the City, and the history of devastating wildfires in and around Plumas County, wildfire continues to be one of the City's most significant hazard of concern.

*Figure A-30 City of Portola – SRA FHSZ Comparison*




2007 Data Source: CAL FIRE (State Responsibility Area: fhszs06_3_32) November 2007, Plumas County GIS, Cal-Atlas; Map Date: 03/01/2020.

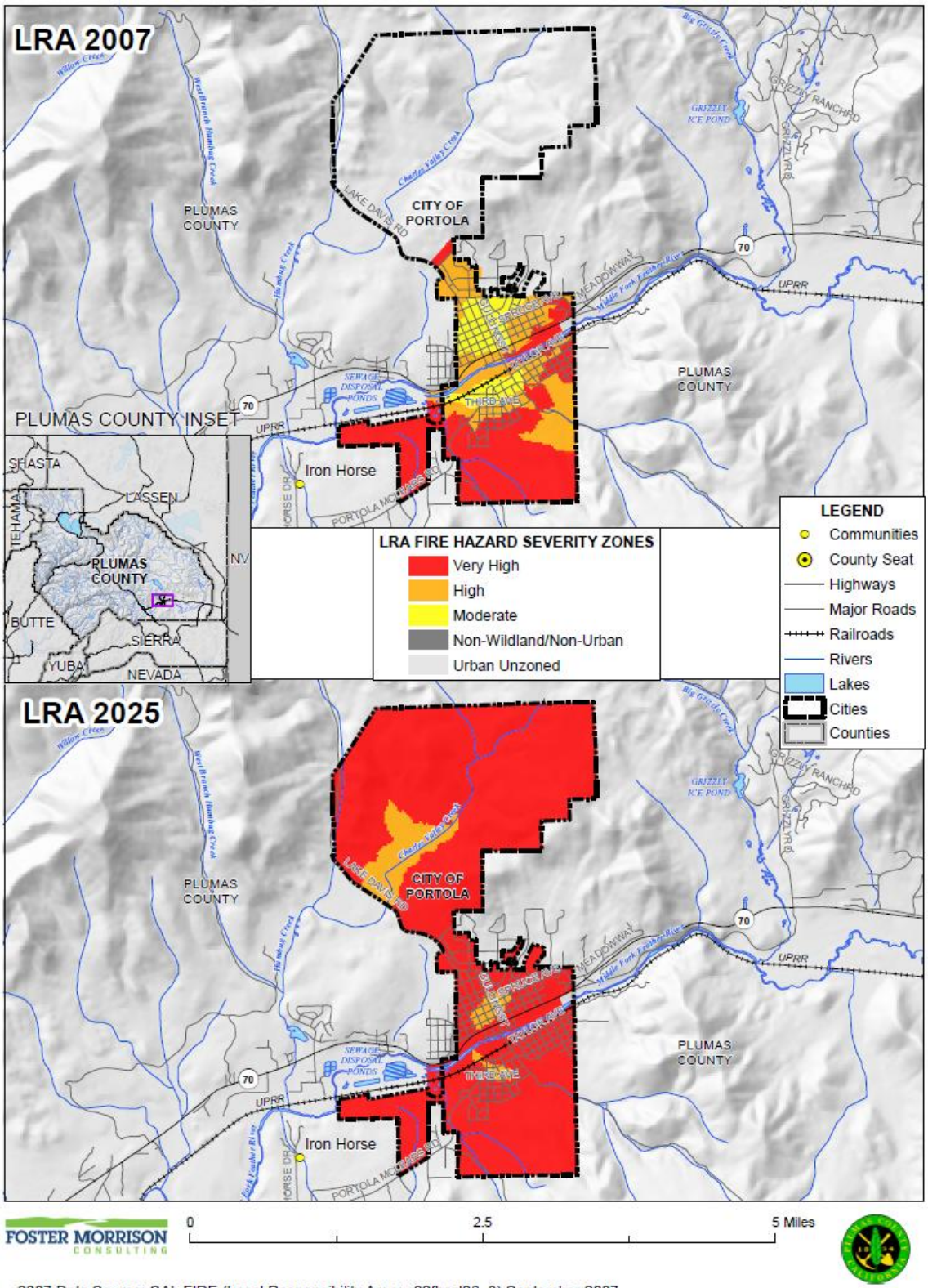
2024 Data Source: CAL FIRE (State Responsibility Area: FHSZSRA_23_3) April 2024, Plumas County GIS, Cal-Atlas; Map Date: 9/30/2025.

*Table A-56 City of Portola – SRA/FRA FHSZ Comparisons*

| Fire Hazard Severity Zones | Overall Acre Change | | | % Acre Change | | |
|---|---|---|---|---|---|---|
| | Total Acres Plumas 2007 | Total Acres Plumas 2024 | Overall Change in Total Acres | % of Total Acres Plumas 2007 | % of Total Acres Plumas 2024 | Overall Change in % Total Acres |
| Very High | 1,265 | 0.02 | -1,265 | 0.3% | 0.000004% | -0.3% |
| High | 777 | 0.0001 | -777 | 0.2% | 0.00000002% | -0.2% |
| Moderate | 0.001 | 0 | -0.001 | 0.0000002% | 0% | -0.0000002% |
| **City of Portola Total** | **2,043** | **0.0201** | **-2,043** | **0.5%** | **0.000004%** | **-0.5%** |

Source: CAL FIRE

*Figure A-31 City of Portola – LRA FHSZ Comparison*




2007 Data Source: CAL FIRE (Local Responsibility Area: c32fhszl06_3) September 2007, Plumas County GIS, Cal-Atlas; Map Date: 03/01/2020.

2025 Data Source: CAL FIRE (Local Responsibility Area: FHSZLRA25_Phase1_v1) February 2025, Plumas County GIS, Cal-Atlas; Map Date: 9/30/2025.

*Table A-57 City of Portola – LRA FHSZ Comparisons*

| Fire Hazard Severity Zones | Overall Acre Change | | | % Acre Change | | |
|---|---|---|---|---|---|---|
| | Total Acres Plumas 2007 | Total Acres Plumas 2025 | Overall Change in Total Acres | % of Total Acres Plumas 2007 | % of Total Acres Plumas 2025 | Overall Change in % Total Acres |
| Very High | 812 | 3,235 | 2,423 | 2% | 6.7% | 5.0% |
| High | 468 | 250 | -218 | 1% | 0.5% | -0.5% |
| Moderate | 205 | 0 | -205 | 0.4% | 0% | -0.4% |
| Non-Wildland/Non-Urban | 0 | 0 | 0 | 0% | 0% | 0% |
| Urban Unzoned | 0 | 0 | 0 | 0% | 0% | 0% |
| **City of Portola Total** | **1,485** | **3,485** | **2,000** | **3%** | **7%** | **4%** |

Source: CAL FIRE

## Past Occurrences

### *Disaster Declaration History*

There has been seven state and six federal disaster declarations due to fire, as shown in Table A-58.

*Table A-58 Plumas County – State and Federal Wildfire Disaster Declarations 1950-2025*

| Disaster Type | State Declarations | | Federal Declarations | |
|---|---|---|---|---|
| | Count | Years | Count | Years |
| Fire | 7 | 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.

### *City of Portola Events*

Portola has an active history of fire ignitions within the Wildland-Urban Interface (WUI), a five-mile buffer around the City. In **1988** a lightning caused fire burned 783 acres directly south of the high school, well within the City limits. In **2008** the "Cold" fire burned approximately ten square miles about fifteen miles to the west of Portola.

It was noted that in **2021** the City was threatened by the Dixie Fire. Wildfire smoke from this event affected City residents.

The City was partially evacuated in **2024** due to the Gold Complex wildfire. The south side of City evacuated, while the north side of City was under evacuation warning. The city had to evacuate roughly 931 residents. City Hall was evacuated, but Public Works was manned throughout event. The City water line from Golden Springs to South Water Tanks was damaged in fire line efforts.

### 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 City 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 City from wildfire is of significant concern. Wildfires that occur in the City occur from a variety of both natural and manmade causes. The City can be affected both by fires that start on or near City lands as well as those that start elsewhere and move into the City. In addition to burning large areas of land, air quality can be affected in the City by smoke from fires occurring inside the City as well as those from many miles away. As growth continues and populations increase in the City, the potential for wildfires will also increase.

The whole of the City 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. After that section, assets at risk are discussed.

### Local Concerns

The City 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.

It was noted that the majority of the City has been noted as "Very High" by CALFIRE on the Local Responsibility Area Fire Hazard Severity Zones maps provided by CALFIRE in 2025. The worst-case scenario wildland fire in the Portola WUI would be wind driven crown fire late in the fire season when fuel

moisture is at its lowest. These conditions in combination with hot and dry weather, steep slopes, or high winds can create a situation in which the worst-case fire severity scenario can occur. The ignition source could be either a lightning strike or structure fire. Given the frequency of lightning strikes, number of human driven ignitions, and frequency of historical events, the probability of future events should be considered high.

Depending on how closely the wildfire approaches Portola, the City could have much at risk. The high school and hospital are both near the perimeter of the town and therefore somewhat more exposed. Current proposed future development for the City is also located on the outside edge of the City, adjacent to woodland urban interfaces, increasing the fire risk. Incidental drainages and stream locations become more critical with post fire debris flows as they can serve as a main channel or conduit to funnel mud and debris to areas typically outside the stream's immediate influence area. Reducing hazardous fuel reduction, forest mastication, and other mitigation measures throughout the jurisdiction and the surrounding area will help to reduce the risk of wildfire.

The City noted that air quality is always a concern during wildfires. Risk of wildfire smoke is greater for vulnerable populations. The City is impacted on an air quality perspective by surrounding wildfire events even if they do not occur geographically close to the City.

### Assets at Risk

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

#### *People and Populations*

All populations are at vulnerable 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:

- Unhoused
- Infants and children under age five and their caregivers
- Elderly (65 and older)
- Individuals with disabilities
- Individuals' dependent on medical equipment
- Individuals who exercise, recreate, or work outdoors
- Individuals with impaired mobility

To further evaluate the impact to the residential population within the City, the CAL FIRE FHSZ dataset was overlayed on the parcel layer. Those residential parcels that intersect the FHSZs were counted and multiplied by the 2023 Census Bureau average household factors for the City of Portola – 2.29 According to this analysis, there is a total population of 66 residents of the City of Portola falling within the moderate or higher FRA/SRA FHSZs. This is shown in Table A-59. There is a total population of 2,074 residents of the City of Portola falling within the moderate or higher LRA FHSZs, as shown on Table A-60.

### *Table A-59 City of Portola – Improved Residential Parcels and Population by CAL FIRE FRA/SRA Fire Hazard Severity Zone*

| FRA/SRA Fire Hazard Severity Zone/Jurisdiction | Improved Residential Parcels | Population at Risk |
|---|---|---|
| Moderate | 0 | 0 |
| High | 0 | 0 |
| Very High | 29 | 66 |

Source: CAL FIRE, Plumas County 2024 Parcel/Assessor Data, US Census Bureau American Community Survey 2023 Household Size Estimates.

### *Table A-60 City of Portola – Improved Residential Parcels and Population by CAL FIRE LRA Fire Hazard Severity Zone*

| LRA Fire Hazard Severity Zone/Jurisdiction | Improved Residential Parcels | Population at Risk |
|---|---|---|
| Moderate | 0 | 0 |
| High | 125 | 286 |
| Very High | 781 | 1,788 |

Source: CAL FIRE, 2024 Plumas County Parcel/Assessor's Data, US Census Bureau American Community Survey 2023 Household Size Estimates.

The City noted that the Critical Facilities and Infrastructure section below includes the facilities used by At-Risk populations that are threatened by this hazard. While this is not specific to what special populations reside in the City, it does speak to facilities that area used to serve (portions) of this population.

#### *Structures*

All structures in the City have some risk to wildfire. GIS was used to determine the possible impacts of wildfire within the City of Portola. The methodology described in Section 4.3.16 of the Base Plan was followed in determining structures and values at risk in both the CAL FIRE's FRA/SRA and LRA Fire Hazard Severity Zone layer. Analysis results for the FRA/SRA in the City of Portola are shown in Table A-61, which summarizes total parcel counts, improved parcel counts and their structure values by FRA/SRA FHSZs. Analysis results for the LRA in the City of Portola are shown in Table A-62, which summarizes total parcel counts, improved parcel counts and their structure values by FRA/SRA FHSZs.

### *Table A-61 City of Portola – Count and Value of Parcels and Structures by CAL FIRE FRA/SRA Fire Hazard Severity Zone*

| SRA/FRA Fire Hazard Severity Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Very High | | | | | | | |
| Agricultural | 2 | 1 | $536,231 | $1,400,712 | $0 | $1,400,712 | $3,337,655 |

| SRA/FRA Fire Hazard Severity Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Commercial | 3 | 1 | $259,517 | $121,616 | $11,385 | $121,616 | $514,134 |
| Government | 3 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 2 | 0 | $115,464 | $0 | $0 | $0 | $115,464 |
| Residential | 67 | 29 | $3,838,318 | $9,025,414 | $1,220 | $4,512,707 | $17,377,659 |
| ROW/Utilities | 15 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Very High Total** | **92** | **31** | **$4,749,530** | **$10,547,742** | **$12,605** | **$6,035,035** | **$21,344,912** |
| **High** | | | | | | | |
| Government | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1 | 0 | $76,842 | $0 | $0 | $0 | $76,842 |
| **High Total** | **2** | **0** | **$76,842** | **$0** | **$0** | **$0** | **$76,842** |
| **Outside of State/Federal Responsibility Area** | | | | | | | |
| Commercial | 143 | 102 | $7,323,780 | $30,580,003 | $1,472,855 | $30,580,003 | $69,956,641 |
| Government | 30 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 8 | 3 | $209,772 | $230,745 | $0 | $346,118 | $786,635 |
| Institutional | 10 | 8 | $224,898 | $5,469,562 | $147,200 | $5,469,562 | $11,311,222 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,321 | 877 | $25,365,530 | $104,422,982 | $282,412 | $52,211,491 | $182,282,415 |
| ROW/Utilities | 34 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Outside of Federal / State Responsibility Area Total** | **1,549** | **990** | **$33,123,999** | **$140,703,292** | **$1,902,467** | **$88,607,174** | **$264,336,932** |
| | | | | | | | |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: CAL FIRE, Plumas County 2024 Parcel/Assessor Data

### *Table A-62 City of Portola – Count and Value of Parcels and Structures by CAL FIRE LRA Fire Hazard Severity Zone*

| LRA Fire Hazard Severity Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| **Very High** | | | | | | | |
| Agricultural | 2 | 1 | $536,231 | $1,400,712 | $0 | $1,400,712 | $3,337,655 |
| Commercial | 143 | 100 | $7,452,926 | $30,288,521 | $1,481,391 | $30,288,521 | $69,511,359 |

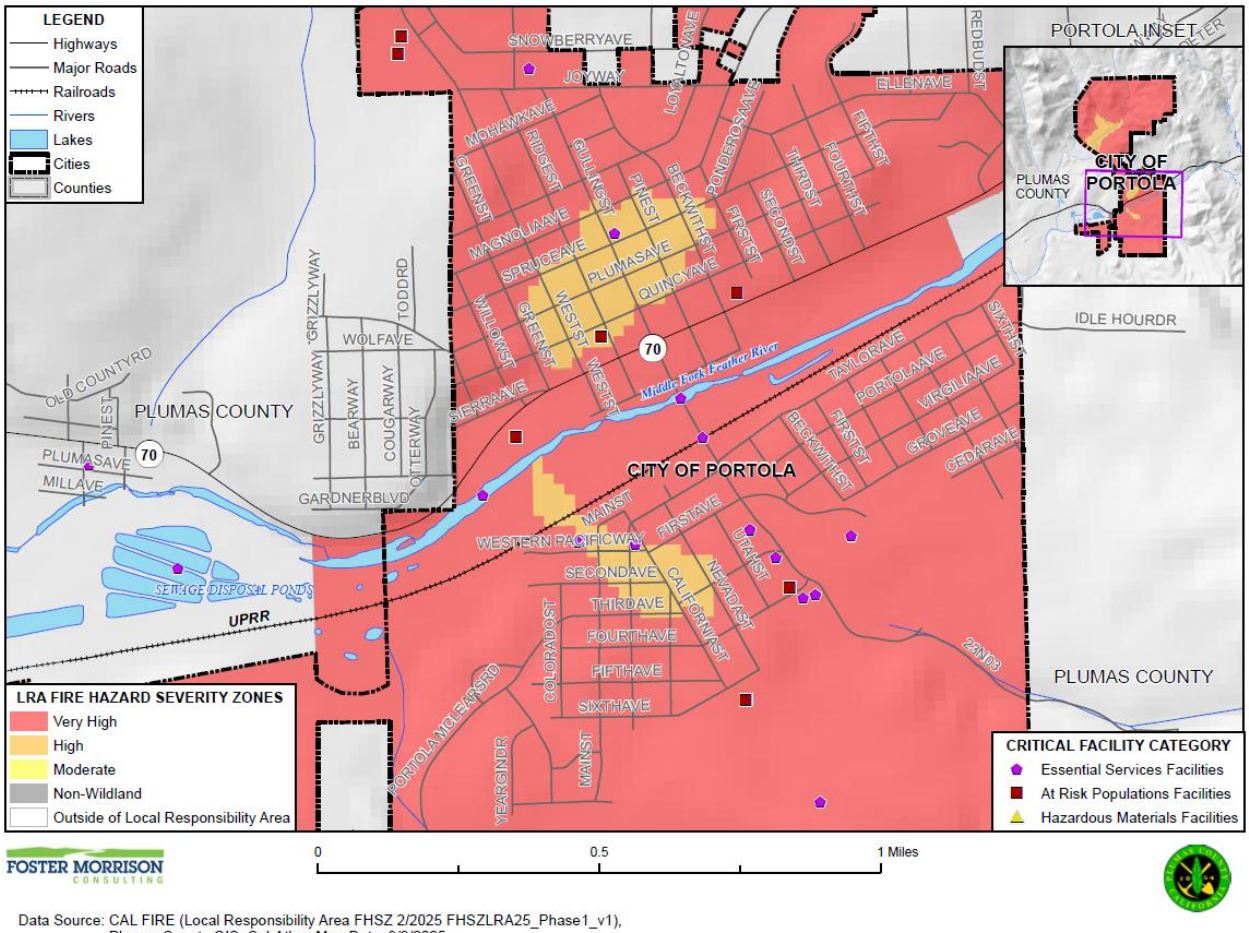
| LRA Fire Hazard Severity Zone / Property Use | Total Parcel Count | Improved Parcel Count | Total Land Value | Improved Structure Value | Personal Property Value | Estimated Contents Value | Total Value |
|---|---|---|---|---|---|---|---|
| Government | 33 | 0 | $0 | $0 | $0 | $0 | $0 |
| Industrial | 10 | 3 | $325,236 | $230,745 | $0 | $346,118 | $902,099 |
| Institutional | 8 | 6 | $178,938 | $4,914,442 | $147,200 | $4,914,442 | $10,155,022 |
| Miscellaneous | 2 | 0 | $19 | $0 | $0 | $0 | $19 |
| Recreational | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Residential | 1,240 | 781 | $26,878,299 | $102,197,186 | $283,632 | $51,098,593 | $180,457,710 |
| ROW/Utilities | 49 | 0 | $0 | $0 | $0 | $0 | $0 |
| **Very High Total** | **1,488** | **891** | **$35,371,649** | **$139,031,606** | **$1,912,223** | **$88,048,386** | **$264,363,864** |
| High | | | | | | | |
| Commercial | 3 | 3 | $130,371 | $413,098 | $2,849 | $413,098 | $959,416 |
| Government | 1 | 0 | $0 | $0 | $0 | $0 | $0 |
| Institutional | 2 | 2 | $45,960 | $555,120 | $0 | $555,120 | $1,156,200 |
| Residential | 149 | 125 | $2,402,391 | $11,251,210 | $0 | $5,625,605 | $19,279,206 |
| High Total | 155 | 130 | $2,578,722 | $12,219,428 | $2,849 | $6,593,823 | $21,394,822 |
| **City of Portola Total** | **1,643** | **1,021** | **$37,950,371** | **$151,251,034** | **$1,915,072** | **$94,642,209** | **$285,758,686** |

Source: CAL FIRE, Plumas County 2024 Parcel/Assessor Data

### *Critical Facilities and Infrastructure*

Wildfire present a threat to critical facilities and infrastructure. The following analysis discusses critical facilities and infrastructure. A separate analysis was performed on the critical facility inventory in the City to determine which critical facilities fall into each fire hazard severity zone. Using GIS, the FRA/SRA and LRA fire hazard severity zones were overlayed on the critical facility GIS layer. Only LRA fire hazard severity zones intersect the City; as such no FRA/SRA analysis is presented here. Only LRA analysis is presented. This is shown on Figure A-26 for the LRA fire hazard severity zones. Table A-63 details which critical facilities fall in which LRA fire hazard severity zone. Details of critical facility categories, type, name, and address by FRA/SRA and LRA fire hazard severity zones are listed in Appendix F.

*Figure A-32 City of Portola – Critical Facilities in 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: 9/9/2025.

*Table A-63 City of Portola – Critical Facilities by Category in LRA Fire Hazard Severity Zones*

| Jurisdiction / Fire Hazard Severity Zones | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| **Portola** | | |
| Very High | **Essential Services Facilities** | |
| | Emergency Medical | 1 |
| | Essential Government Operations | 2 |
| | Public Safety | 1 |
| | Public Utility Plant and Substation Facilities | 5 |
| | Transportation Lifeline Systems | 2 |
| | **Essential Services Facilities Total** | **11** |
| | **At Risk Populations Facilities** | |
| | Public Safety | 1 |
| | School | 6 |
| | **At Risk Populations Facilities Total** | **7** |

| Jurisdiction / Fire Hazard Severity Zones | Critical Facility Category and Critical Facility Type | Facility Count |
|---|---|---|
| **Very High Total** | | **18** |
| High | **Essential Services Facilities** | |
| | Essential Government Operations | 1 |
| | Public Safety | 1 |
| | Public Utility Plant and Substation Facilities | 3 |
| | **Essential Services Facilities Total** | **5** |
| | **At Risk Populations Facilities** | |
| | Designated Emergency Shelter | 1 |
| | **At Risk Populations Facilities Total** | **1** |
| **High Total** | | **6** |
| **Portola Total** | | **24** |

Source: CGS, City of Portola

### *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 City, the impacts to natural, historic and cultural resources could be extensive and include air pollution, contamination from water runoff containing toxic products, and other environmental discharges or releases from burned materials affecting soils, habitat areas, wildlife, and aquatic resources. 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 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 City. Fires can have devastating effects on watersheds through loss of vegetation and soil erosion, which may impact the City 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 City; smoke and air pollution from wildfires can be a severe health hazard. Smoke impacts may come from wildfires outside the City, 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 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 that are not quantified, but can be anticipated in large future events, include:

- Injury and loss of life;
- Commercial and residential structural and property damage;
- Disruption of and damage to public infrastructure, utilities, and services;
- Damage to roads/bridges resulting in loss of mobility;
- Significant economic impact (jobs, sales, tax revenue) to the community; and
- Negative impact on commercial and residential property values

Impacts to identified assets at risk to this hazard and the overall vulnerability of the City 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 City of Portola include the following:

- Climate change is likely to exacerbate future wildfire conditions and associated impacts and vulnerability of the City to wildfire.
- Population in the City of Portola is expected to shrink with the rest of the County. If this changes, additional population growth would likely bring continued diversity to the City. Vulnerable population groups could face disproportionate effects from wildfire and should be planned for. Changes in population and population patterns may or may not increase the impacts and vulnerability of the City to this hazard depending on the location and nature of growth and continued planning for future hazard conditions.
- Land use planning should be proactive to address future hazard conditions. Locating new development, structures and critical facilities and infrastructure within or near areas of wildfire risk may put additional development at risk. However, City building codes are in effect to reduce this risk and should be updated as necessary to continue to address future wildfire conditions. Specifically, with the release of the new 2025 LRA mapping for Plumas County, wildfire building codes should be updated as required to include enhanced measures to reduce wildfire impacts on new construction, and including the formal

adoption of the new LRA maps. It should be noted that most of the growth in the City is occurring in areas outside the moderate or higher fire hazard severity zones. Thus, depending on the location of new development and adherence to protective building codes, changes in land use and development may or may not increase the impacts and associated vulnerabilities of the City to this hazard. It should also be noted that once new building codes are adopted for LRA, should reduce vulnerability on new construction especially in the higher hazard zones.

### Future Development

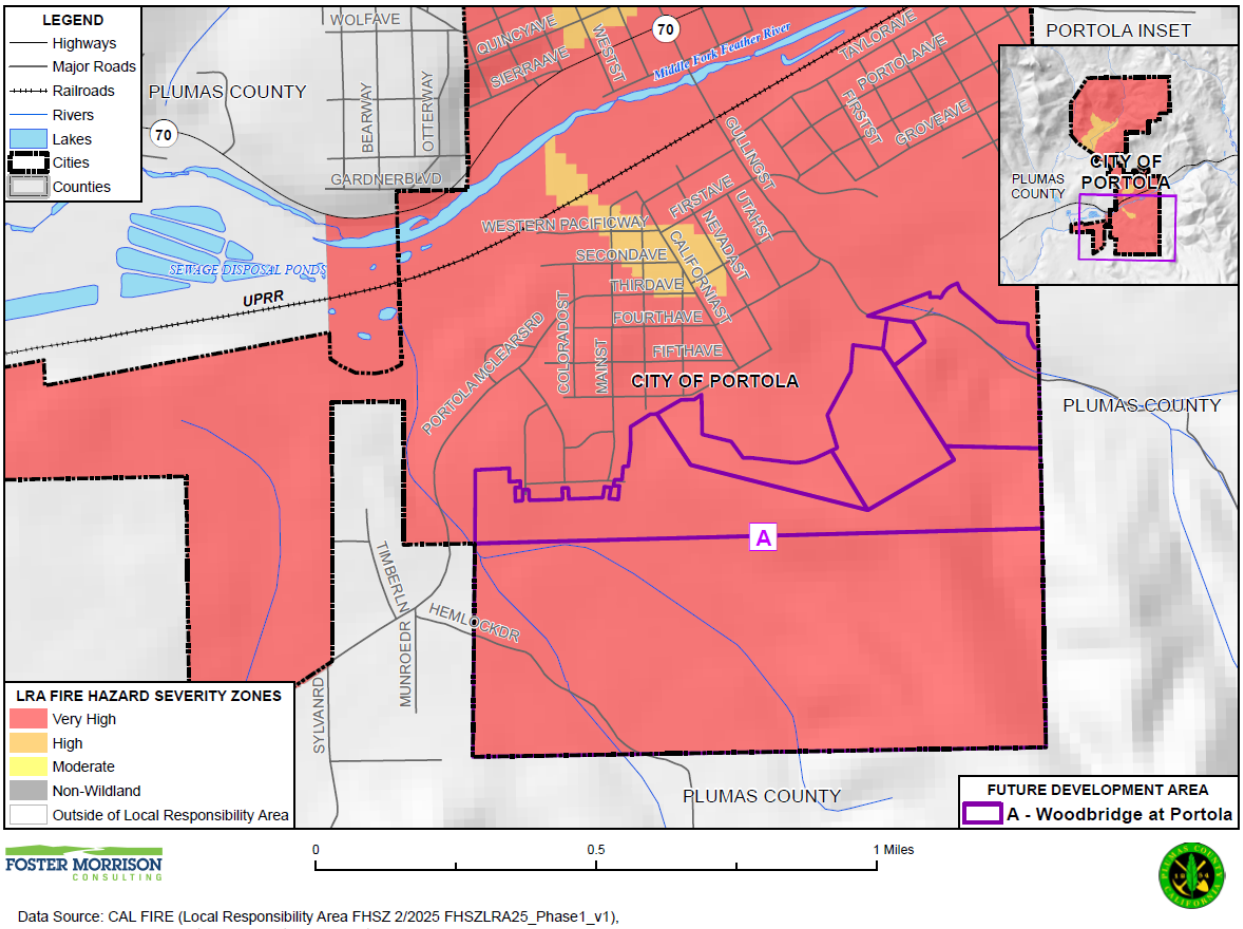
Additional growth and development within moderate or higher fire hazard severity zones in the City would place additional values at risk to wildfire. More vulnerable populations may experience a disproportionate impact from wildfire, and this should be considered as development continues. However, City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

Future development areas and their vulnerability to wildfire are discussed further in the below GIS analysis.

#### *GIS Analysis*

The City provided a future development area which was used as the basis for the inventory of future development for the City. This area were mapped in GIS. Utilizing the future development area spatial layer, the parcel polygon data was intersected to determine the future development areas within each SRA/FRA and LRA fire hazard severity zone. No facilities fell in the SRA/FRA fire hazard severity zones. Figure A-33 shows the locations of the future development area overlayed on the LRA fire hazard severity zones. As shown in Table A-64, the future development area falls in the Very High fire hazard severity zone.

*Figure A-33 City of Portola – Future Development in 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.

*Table A-64 City of Portola – Future Development Parcels and Acres in LRA Fire Hazard Severity Zones*

| Future Development / Fire Hazard Severity Zone | Total Parcel Count | Improved Parcel Count | Unimproved Parcel Count | Total Acres | Total Improved Acres | Total Unimproved Acres |
|---|---|---|---|---|---|---|
| **Woodbridge at Portola, Inc.** | | | | | | |
| Very High | 6 | 0 | 6 | 398.52 | 0 | 398.52 |
| **Total** | **6** | **0** | **6** | **398.52** | **0** | **398.52** |

Source: CAL FIRE, City of Portola

## A.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.

## A.5.1. Regulatory Mitigation Capabilities

Table A-65 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 City of Portola.

***Table A-65 City of Portola'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 | |
| Climate Change Adaptation Plan | N | |
| Community Wildfire Protection Plan | Y | (was current with the 2019 LHMP; yes, addresses hazards) |
| General Plan/Comprehensive Plan/Master Plan | Y | Yes, addresses hazards. Policies and programs are included that may be used a mitigation actions. Update June 2024 |
| Continuity of Operations Plan | N | |
| Economic Development Plan | Y | Economic Development Element is included in the General Plan 2045 |
| Land Use Plan | Y | Land Use Element is included in the General Plan 2045 |
| Local Emergency Operations Plan | Y | |
| Stormwater Management Plan | Y | |
| Transportation Plan | Y | Transportation Element is included in the General Plan 2045 |
| 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 | |
| Building code | Y | Yes |
| Flood insurance rate maps | Y | NA- Produced by FEMA |
| Floodplain ordinance | Y | Yes |
| Natural hazard-specific ordinance (stormwater, steep slope, wildfire) | N | |
| Subdivision ordinance | Y | Yes |
| Zoning ordinance | Y | Yes |
| Other | | |
| **How can these capabilities be expanded and improved to reduce risk?** | | |
| The City uses a Planning Consultant for a large portion of these requests. Efforts to staff this position internally have not been successful in the past for a variety of reasons. The City continues to balance the potential need for an internal resource for these efforts against a variable workload, lack of availability of local resources meeting the requirements of the position, and funding for consulting services. | | |

Source: City of Portola

## A.5.2. Administrative/Technical Mitigation Capabilities

Table A-66 identifies the City department(s) responsible for activities related to mitigation and loss prevention in the City of Portola.

***Table A-66 City of Portola's Administrative and Technical Mitigation Capabilities***

| Administration | In Place Y/N | Describe capability<br>Is coordination effective? |
|---|---|---|
| **Staff** | | **Is staffing adequate to enforce regulations?<br>Is staff trained on hazards and mitigation?<br>Is coordination between agencies and staff effective?** |
| Chief Building Official | Y | Director of Public Works |
| Civil Engineer, including dam and levee safety | Y | Consultant |
| Community Planner | Y | Consultant |
| Emergency Manager | Y | City Manager & CalOES assistance |
| Floodplain Administrator | Y | Director of Public Works |
| GIS Coordinator | N | |
| Planning Commission | Y | City Council temporarily serves as this function |
| Other | | |
| **Technical** | **Y/N** | **Has capability been used to assess/mitigate risk in the past?** |
| Grant writing | N | |
| Hazard data and information | Y | Planning consultant |
| GIS analysis | N | |
| Mutual aid agreements | Y | Beckworth Peak Fire Protection District, Plumas County Sherrif's Office |
| Other | | |
| **How can these capabilities be expanded and improved to reduce risk?** | | |
| Grant writing specific to hazard mitigation efforts would help assist the City with these efforts overall. | | |

Source: City of Portola

## A.5.3. Fiscal Mitigation Capabilities

Table A-67 identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

*Table A-67 City of Portola'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 | |
| Community Development Block Grant | Y | Underserved community project with PCIRC |
| Federal funding programs (non-FEMA) | Y | |
| Fees for water, sewer, gas, or electric services | Y | |
| Impact fees for new development | Y | |
| State funding programs | Y | |
| Stormwater utility fee | Y | |
| Other | | |
| **How can these capabilities be expanded and improved to reduce risk?** | | |
| Grant writing specific to hazard mitigation efforts would help assist the City with these efforts overall. | | |

Source: City of Portola

## A.5.4. Mitigation Education, Outreach, and Partnerships

Table A-68 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 A-68 City of Portola's Mitigation Education, Outreach, and Partnerships*

| Program/Organization | In Place Y/N | How widespread are each of these in your community? |
|---|---|---|
| Community newsletters | Y | City website, mailers, and City Facebook messaging |
| Hazard awareness campaigns (such as Firewise, Storm Ready, Severe Weather Awareness Week, school programs, public events) | Y | Firewise messaging |
| Local news | Y | Plumas Sun, Mountain Messenger, Sierra Booster |
| Organizations that interact with underserved and vulnerable communities | Y | Veterans Hall, Plumas Crisis Intervention & Resource Center, Food Bank (EPCAN) |
| Social media | Y | Facebook, LinkedIn |

| 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?** | | |
| The availability of local news outlets has decreased recently. To offset this, the City has taken a proactive approach with outward messaging on social media, the City's website, and a quarterly newsletter. The City works closely with Firewise to ensure information is available to the public. We also have fostered relationships with organizations that interact with underserved and vulnerable communities in our City.<br>Capabilities could be expanded through additional potential public workshops/table tops between local stakeholders in order to continue to foster a collaborative approach for issues that effect the public and multiple parties. Groups could also perform more collaborative messaging that is shared among all parties. | | |

Source: City of Portola

### A.5.5. Other Mitigation Efforts

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

CAN THE CITY PROVIDE A LIST OF PAST HAZARD MITIGATION TYPE PROJECTS AND ACTIVITIES THAT HAVE BEEN IMPLEMENTED BY HAZARD. INCLUDE ANY HAZARD RISK REDUCTION MEASURES REGARDLESS OF WHETHER IT WAS INCLUDED IN THE 2019 LHMP

## A.6 Mitigation Strategy

### A.6.1. Mitigation Goals and Objectives

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

### A.6.2. NFIP Mitigation Strategy

The City of Portola joined the National Flood Insurance Program (NFIP) as an emergency entrant on April 14, 1975. The City followed up with a regular entry on July 18, 1985. As a participant of the NFIP, the City of Portola has administered floodplain management regulations that meet the minimum requirements of the NFIP. The management program objective is to protect people and property within the City. The City of Portola will continue to comply with the requirements of the NFIP in the future.

The City's regulatory activities apply to existing and new development areas of the City; implementing flood protection measures for existing structures and new development and maintaining drainage systems. The goal of the program is to enhance public safety and reduce impacts and losses while protecting the environment. The City's Municipal Code has a Flood Damage Prevention Section under the Zoning Ordinance that regulates construction in the floodplain. The City intends to continue to implement the ordinance and participate at the regional level with Plumas County implementing appropriate measures to mitigate exposure and damages within designated flood prone areas.

The NFIP's Community Rating System (CRS) is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum NFIP requirements. As

a result, flood insurance premium rates are discounted to reflect the reduced flood risk resulting from the community actions meeting the three goals of the CRS which are to reduce flood losses, facilitate accurate insurance rating, and promote the awareness of flood insurance. The City of Portola is not a current participant in the CRS program.

More information about the floodplain administration in the City of Portola can be found in Table A-69. FILL OUT REMAINDER OF TABLE

### *Table A-69 City of Portola Compliance with NFIP*

| NFIP Topic | Comments |
|---|---|
| **Staff Resources** | |
| Who is responsible for floodplain management in your community? Provide Department/Title. Do they serve any roles other than Community Floodplain Administrator (FPA)? | Ryan Bonk- City Manager; Todd Roberts- Director of Public Works. Yes, they serve various roles outside of this function. |
| Is the Community FPA or NFIP Coordinator a Certified Floodplain Manager? | Todd Roberts serves in this capacity. |
| Is floodplain management an auxiliary function? | Yes |
| Provide an explanation of NFIP administration services (e.g., permit review, GIS, education or outreach, inspections, engineering capability) | Permit review, code compliance education and outreach, inspections |
| What are the barriers to running an effective NFIP program in the community, if any? | Staffing and resource constraints |
| **Insurance Summary** | |
| How many NFIP policies are in the community? What is the total premium and coverage? | 2 policies in force<br>$514,000 of insurance in force<br>$1,021 in annual premiums |
| How many claims have been paid in the community? What is the total amount of paid claims? How many of the claims were for substantial damage? | 5 paid losses<br>$37,720 in paid losses<br>1 substantial damage claim |
| How many structures (residential and non-residential) are exposed to flood risk within the community? | 50 in 1% Annual Chance Flood Hazard<br>1 in 0.2% Annual Chance Flood Hazard |
| Are there Repetitive Loss (RL) and Severe Repetitive Loss Properties (SRL) structures in the community? | 0 RL<br>0 SRL |
| Describe any areas of flood risk with limited NFIP policy coverage | |
| How does the community teach property owners or other stakeholders about the importance flood insurance? | |
| What digital sources (like the FEMA Map Service Center, National Flood Hazard Layer) or non-regulatory tools does the community use? | |
| **Compliance History** | |
| Is the community in good standing with the NFIP? | Yes |
| Are there any outstanding compliance issues (i.e., current violations)? | No |

| NFIP Topic | Comments |
|---|---|
| Who is responsible (Department, Title) for making substantial damage/improvement determinations? How does the community identify substantially damaged/improved structures? What is the process to make sure these structures are brought into compliance? | |
| When was the most recent Community Assistance Visit (CAV) or Community Assistance Contact (CAC)? | CAV 7/19/2011 |
| Is a CAV or CAC scheduled or needed? | No |
| **Regulation** | |
| When did the community enter the NFIP? | 7/18/1985 |
| Are the FIRMs digital or paper? | Digital |
| Has the community adopted the NFIP minimum floodplain management criteria via local regulation? Date of current local regulation? | |
| Has the community adopted the latest effective FIRM? Date adopted? | |
| How does the community enforce local floodplain regulations and monitor compliance? | |
| Do floodplain development regulations meet or exceed FEMA or State minimum requirements? If so, in what ways? | |
| How are Letters of Map Change (LOMCs) tracked and compiled? | |
| Provide an explanation of the permitting process. | |
| **Community Rating System** | |
| Does the community participate in CRS? If so, what is the community's CRS Class Ranking? | No |
| What categories and activities provide CRS points and how can the class be improved? | N/A |
| Does the plan include CRS planning requirements? | N/A |

Source: City of Portola

## A.6.3. Mitigation Actions

The Planning Team for the City of Portola identified and prioritized the following mitigation actions based on the risk assessment. Background information and information on how each action will be implemented and administered, such as ideas for implementation, responsible office, potential funding, estimated cost, and timeline are also included. The following hazards were considered a priority for purposes of mitigation action planning:

- Climate Change
- Dam Failure
- Drought & Water Shortage
- Earthquake
- Floods: 1%/0.2% annual chance

- Floods: Localized Stormwater
- Landslide, Mudslide, and Debris Flow
- Severe Weather: Extreme Cold and Freeze
- Severe Weather: Heavy Rain and Storms (Wind, Hail, Lightning)
- Severe Weather: High Winds and Tornados
- Wildfire

Low priority hazards for mitigation planning include:

- Ag Hazards: Severe Weather/Invasive Species (Pests and Weeds)
- Severe Weather: Extreme Heat

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

## *Mitigation Actions*

### *Action 1. Public Education on Hazards in the City of Portola*

**Hazards Addressed**: Climate Change, Dam Failure, Drought & Water Shortage, Earthquake, Floods: 1%/0.2% annual chance, Floods: Localized Stormwater, Landslide, Mudslide, and Debris Flow, Severe Weather: Extreme Cold and Freeze, Severe Weather: Heavy Rain and Storms (Wind, Hail, Lightning), Severe Weather: High Winds and Tornados, Wildfire

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

**Issue/Background (Problem Statement)**: Educating the public on potential hazards that effect our community is paramount. Actions taken in this area to enhance public knowledge will lead to greater mitigation efforts within the community as a whole.

**Project Description**: Partnering with local resources (Cal OES, Beckwourth Peak Fire Protection District, Plumas County Sheriff's Office), the project will offer a variety of public education outreach efforts. Public education including but not limited to:

- Potential hazards and high hazard areas
- Property owners personal mitigation measures related to natural hazards specific to community and personal property

- Citywide (and County) emergency evacuation plan
- Living with fire, fire safe requirements, home hardening, etc.
- Forecasting information
- Hazard warning notification
- Emergency shelter locations
- General Plan Safety Element

**Other Alternatives**: Public obtains the knowledge through their own individual research and/or resources

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

**Responsible Office/Partners**: City Manager & Local Resources

**Benefits (Losses Avoided)**: Increased mitigation of hazards and the effects of hazards on the community as an increased number of the public is educated on mitigation efforts. Effect of hazards on the public can be reduced with availability and knowledge of emergency evacuation plan

**Potential Funding (Local Budgets, Grant Funds, etc.)**: Local Budgets (City budget), Grants from Cal OES, CAL FIRE, CA DWR, and other grant agencies.

**Timeline**: Ongoing- Through 2029

**Project Priority (High, Medium, Low)**: High

### *Action 2. Essential Facilities Retrofit and Redundant Power Sources*

**Hazards Addressed**: Climate Change, Earthquake, Severe Weather: Extreme Cold, Freeze, and Snow, Severe Weather: Extreme Heat, Severe Weather: Heavy Rains and Storms, Severe Weather: High Winds and Tornadoes, Wildfire

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

**Issue/Background (Problem Statement)**: Essential facilities need to be surveyed for points of weakness, both structurally and from a redundancy perspective, so the facilities can be used during an emergency situation.

**Project Description**: Survey and prioritize all critical and/or emergency facilities. Perform necessary upgrades to facilities and/or systems to ensure the facilities can be utilized effectively in the event of an emergency.

**Other Alternatives**: Continue existing as-is with the risk that critical facilities may not be operational in the event of an catastrophe

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

**Responsible Office/Partners**: City Manager

**Benefits (Losses Avoided)**: Inability to utilize a critical facility in the event of an emergency. Power redundancy for critical facilities and systems.

**Potential Funding (Local Budgets, Grant Funds, etc.)**: FEMA grant funds for secondary power sources, local budgets, grants

**Timeline**: 2027

**Project Priority (High, Medium, Low)**: High

### *Action 3. Wildfire Risk and Impact Reduction*

**Hazards Addressed**: Wildfire

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

**Issue/Background (Problem Statement)**: The likelihood of occurrence and intensity of wildfires within our region has increased exponentially recently. These wildfires threaten all aspects of our communities.

**Project Description**: Perform hazardous fuel reduction, mastication, and other mitigation efforts throughout our jurisdiction and the surrounding areas to reduce the risk of wildfire.

**Other Alternatives**: Work alongside county resources and organizations to ensure mitigation efforts are undertaken

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

**Responsible Office/Partners**: City Manager

**Benefits (Losses Avoided)**: Mitigation of catastrophic wildfire threatening life and property

**Potential Funding (Local Budgets, Grant Funds, etc.)**: Local budgets, grants

**Timeline**: 2027

**Project Priority (High, Medium, Low)**: High

### *Action 4. Gulling Street Bridge Structural Rehabilitation*

**Hazards Addressed**: Earthquake, Haz Mat Transportation, Severe Weather: Heavy Rains and Storms

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

**Issue/Background (Problem Statement)**: The Gulling Street Bridge's compromised condition, as noted in the Caltrans BIRIS Report from 12/06/2023 (Substructure as "2 CRITICAL"), poses a risk to the City of Portola, emergency response capabilities and the safety of its residents.

**Project Description**: Engineering analysis of the current conditions of the bridge to ascertain appropriate mitigation strategies for potential required structural rehabilitation due to conditions noted in the Caltrans BIRIS reports. Construction of mitigation solutions as engineered.

**Other Alternatives**: Continuously reshore the affected pier with temporary solutions. Construct a new bridge

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

**Responsible Office/Partners**: City Manager

**Benefits (Losses Avoided)**: This bridge is a matter of urgent public safety, addressing an imminent threat to life and property for the City. The bridge is the sole viable access route connecting the northern and southern regions of the City, serving as a lifeline to essential emergency services, including Eastern Plumas Health Care Hospital, the Fire Station, the Plumas County Sheriff's Office, Portola High School, City Hall, and the core business district. The Eastern Plumas Health Care Hospital services the City of Portola as well as all eastern Plumas County and parts of eastern Sierra County, including the city of Loyalton. Any closure or failure of the bridge would cut off access to these critical facilities, jeopardizing the health, safety, and well-being of the community.

Moreover, in the event of a wildfire—such as the one experienced last summer—residents on the southern side of the City would lose all viable evacuation routes if the bridge were to fail or be closed. The city had to evacuate roughly 931 residents utilizing the bridge as the only emergency egress during the most recent Gold Complex wildfire in 2024 due to County Road A-15 being closed.

In addition to the above, our area has experienced multiple seismic events over the past year, further increasing the risk of failure for this critical piece of infrastructure. Given the propensity for seismic activity in our area, we are extremely concerned about the inevitability of future events and their impact on the bridge.

**Potential Funding (Local Budgets, Grant Funds, etc.)**: Caltrans Highway Bridge Program, FEMA

**Timeline**: 2029

**Project Priority (High, Medium, Low)**: High

### *Action 5. Fire Suppression Enhancements*

**Hazards Addressed**: Wildfire

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

**Issue/Background (Problem Statement)**: Hydrant supply lines are aging infrastructure that can be subject to damage in the event of a catastrophe requiring high volume use of the lines.

**Project Description**: Replace all hydrant supply lines and upgrade aged hydrants

**Other Alternatives**: Operate with current system limitations and risks

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

**Responsible Office/Partners**: City Manager

**Benefits (Losses Avoided)**: Catastrophic wildfire threating life and property

**Potential Funding (Local Budgets, Grant Funds, etc.)**: FEMA, Local budgets, grants

**Timeline**: 2027

**Project Priority (High, Medium, Low)**: High