

2 Community Wildfire Protection Plan - Plan Area Description

2.1 Location

The Plan Area encompasses all areas within Nevada County, totaling 623,213 acres (Figure 1 Plan Area Location). Nevada County has an estimated population of 97,466 (County of Nevada 2021). The majority of residents live in the Grass Valley/Nevada City Forecast Zone (FZ), which contains the urban centers for western Nevada County. The incorporated areas of Grass Valley, Nevada City, and Truckee house 33% of the County’s population, while the remaining 67% live in unincorporated areas (County of Nevada 2020b). Numerous public agencies and entities own land within the Plan Area, as presented in Table 6, Land Ownership in the Plan Area.

Table 6. Land Ownership in the Plan Area

Land Ownership	Total Acreage	Percentage
Private Ownership	376,033	60%
United States Forest Service	196,820	32%
United States Bureau of Land Management	17,077	3%
Truckee Donner Land Trust	10,811	2%
Nevada Irrigation District	8,941	1%
California Department of Parks and Recreation	8,316	1%
California Department of Fish and Wildlife	4,034	<1%
Bear Yuba Land Trust	2,018	<1%
The Nature Conservancy	1,904	<1%
University of California	1,492	<1%
California Department of Forestry and Fire Protection	927	<1%
Truckee Tahoe Airport District	890	<1%
United States Army Corps of Engineers	587	<1%
California State Lands Commission	228	<1%
Nevada City, City of	180	<1%
Placer Land Trust	142	<1%
Truckee-Donner Recreation and Park District	119	<1%
Grass Valley, City of	114	<1%
Western Gateway Recreation and Park District	86	<1%

Table 6. Land Ownership in the Plan Area

Land Ownership	Total Acreage	Percentage
California Heritage: Indigenous Research Project	33	<1%
North Star Historic Conservancy	14	<1%
Nevada, County of	11	<1%
Grass Valley School District	9	<1%
South Sutter Water District	6	<1%
Other State	2	<1%
Yuba County Water Agency	<1	<1%

Source: CAL FIRE 2024d.

The County contains lands where the responsibility for fire protection lies with federal or state agencies as well as numerous Local Responsibility Area (LRA) jurisdictions. Agencies responsible for fire protection within the County depend on the designated Fire District. There are 13 total Fire Districts within the County as provided below in Table 7, Fire Districts Within Nevada County, and presented graphically in Figure 3. Fire Districts in Nevada County are independent special districts that provide Fire Protection and Emergency Response. This includes all city, town, and unincorporated areas that do not fall under state and federal responsibility areas.

Table 7. Fire Districts Within Nevada County

Fire District	Forecast Zone
California Department of Forestry and Fire Protection	<ul style="list-style-type: none"> • Higgins/Penn Valley • Grass Valley/Nevada City • Tahoe National Forest Area • Truckee/Donner
Grass Valley	<ul style="list-style-type: none"> • Grass Valley/Nevada City
Higgins	<ul style="list-style-type: none"> • Higgins/Penn Valley
Nevada City	<ul style="list-style-type: none"> • Grass Valley/Nevada City
Nevada County Consolidated	<ul style="list-style-type: none"> • Higgins/Penn Valley • Grass Valley/Nevada City • Tahoe National Forest Area
North San Juan	<ul style="list-style-type: none"> • Grass Valley/Nevada City • Tahoe National Forest Area
Ophir Hill	<ul style="list-style-type: none"> • Grass Valley/Nevada City
Peardale-Chicago Park	<ul style="list-style-type: none"> • Higgins/Penn Valley • Grass Valley/Nevada City
Penn Valley	<ul style="list-style-type: none"> • Higgins/Penn Valley • Grass Valley/Nevada City
Rough and Ready	<ul style="list-style-type: none"> • Higgins/Penn Valley • Grass Valley/Nevada City
Truckee	<ul style="list-style-type: none"> • Tahoe National Forest Area

Table 7. Fire Districts Within Nevada County

Fire District	Forecast Zone
	<ul style="list-style-type: none"> • Truckee/Donner
USDA Forest Service	<ul style="list-style-type: none"> • Grass Valley/Nevada City • Tahoe National Forest Area • Truckee/Donner
Washington	<ul style="list-style-type: none"> • Tahoe National Forest Area

Source: County of Nevada 2024a.

2.2 Demographic Summary

Nevada County is a rural community comprised of three incorporated cities (the City of Nevada City, the City of Grass Valley, and the Town of Truckee) and numerous communities within the unincorporated areas of the County. The majority of residents (67%) reside in the unincorporated areas of the County. The communities within the County vary greatly in characteristics ranging from rural lifestyle and working landscaping communities to traditional suburban tracts and high-amenity high-resource communities. The current population is estimated to be 97,466 people with a population density of 102 people per square mile (County of Nevada 2021). Given the low population density over large acreage, there are areas within the County that have little to no inhabitants.

The County’s population is considered to be fairly aged as 36% of residents are over the age of 60. Nevada County also has the highest percentage of residents over the age of 65 when compared to neighboring counties of Butte, El Dorado, Mendocino, Napa, Placer, Sutter, Tehama, and Yuba. There are also fewer residents in the County under the age of 30 than the statewide average. Ninety-three percent (93%) of residents identify as white (County of Nevada 2021).

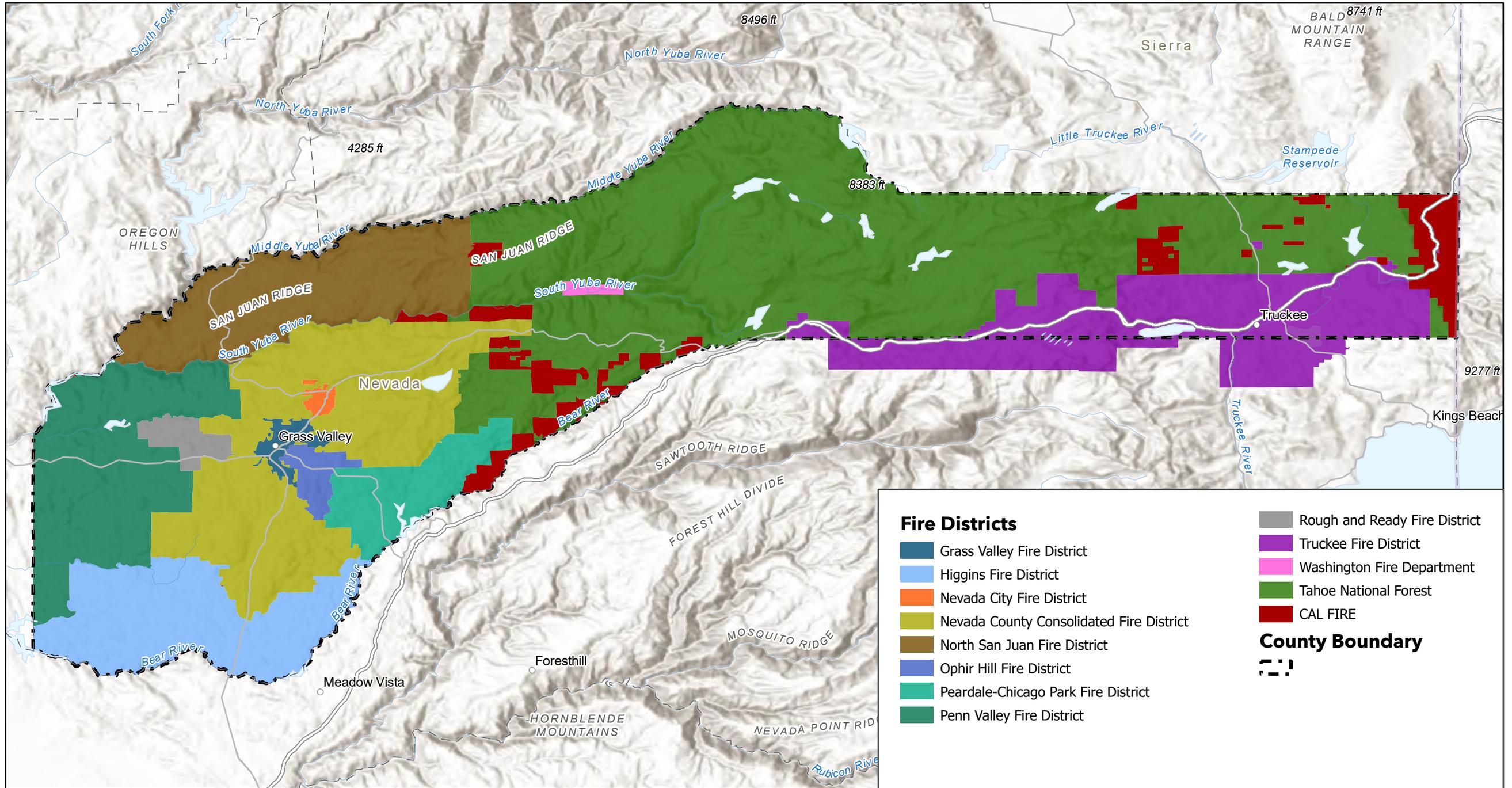
The Nevada County population is well-educated compared to state averages. Seventy-five percent (75%) of residents have attended some college and over 40% have either an associate degree, bachelor’s degree, or graduate/professional degree. The community is also considered to be affluent with just over 8% of the population being considered impoverished. Further, the County has the second lowest unemployment rate when compared to the neighboring counties. Finally, 84% of residents live in a single-family home and 52% own the home they occupy (County of Nevada 2021).

2.2.1 Community Archetypes

As a whole Nevada County is considered a rural county, however the communities within the County are incredibly diverse and vary across the landscape. Communities are defined by the people who live there, the space they occupy, and how they interact. These factors help inform and influence how communities respond to stressors like wildfire. Understanding the differences in these communities and who lives in them is an integral part of wildfire risk reduction (Schmidt et al. 2022).

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Figure 3 - Fire Districts



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2.2.1.1 Working Landscape

Working landscape communities are defined by a strong sense of attachment to the area due to their livelihood being tied to land or resource management. The community is generally low density, has large acre parcels, and low turnover rates. As a result, these communities are often very familiar with local ecology and are more likely to undertake wildfire mitigation actions on their own due to their skills and capacity. In Nevada County, working landscape communities have strong generational ties and are characterized by families that have farmed or ranched here since the 1800s. These communities tend to be located in the lower elevations of the County, especially in the Higgins/Penn Valley FZ, in the Lower Colfax area, or on the San Juan Ridge.

2.2.1.2 Rural Lifestyle

Rural lifestyle communities are communities where people move to or live in rural areas for the value of “rural living” and a desire to “get out” of more populated areas. Because this community is largely driven by the desire for rural living there is a wide range in background, skills, and individual capacity amongst the community members. Some community members are able and willing to take on wildfire mitigation tasks independently and others are not. While these communities are lower density when compared to suburban communities the parcels tend to be heavily vegetated and struggle with evacuation challenges. This community archetype is very common in Nevada County and can be found all across the Plan Area. They are often located just outside the city centers in unincorporated areas such as the Rough and Ready area, Banner Mountain and Greenhorn, You Bet, Highway 20, and Russell Valley.

2.2.1.3 High Amenity/High Resource

High amenity/high resource communities are similar to rural lifestyle communities in that they tend to be located directly adjacent to or in the natural environment however, their motivation for being there is very different. People tend to live in high amenity/high resource communities not because they desire rural living but because they desire access to public lands or outdoor amenities, especially recreation resources. These communities are more developed than rural lifestyle communities and have higher proportions of second homeowners. Wildfire mitigation can be challenging in these communities due to the fluid nature of the community, competing values of aesthetics, and high values placed on the preservation of natural resources. Because of the abundance of outdoor recreation resources in Nevada County such as the Tahoe National Forest, this type of community is common, especially in the Truckee/Donner FZ. Examples include Cascade Shores, Tahoe Donner, and West End Donner Lake.

2.2.1.4 Formal Subdivision

Formal subdivisions are characterized by the “classic” housing development community and well-defined neighborhoods. They often have formal boundaries and may include governance structures such as a homeowner’s association. These communities are dominated by primary homeowners and have stable turnover rates. As a result, they can be very uniform in socioeconomic backgrounds and how they approach wildfire mitigation. It is more common for these communities to depend on outside resources and services when it comes to wildfire mitigation actions. With the exception of the Tahoe National Forest Area FZ, formal subdivisions exist across Nevada County though they are less common than rural

lifestyle communities. They include communities such as Lake Wildwood, Lake of the Pines, Morgan Ranch, and Glenshire.

2.2.1.5 Commercial and Highly Developed

Commercial and highly developed communities are often associated with cities and urban centers. Commercial and highly developed community areas have high diversity in skills and backgrounds with limited ability to modify fuels. This is also where renters tend to be more concentrated. Commercial and highly developed communities rely on regulations to implement wildfire mitigation actions and can be vulnerable to economic loss. Nevada County does not have traditional city centers with highly urbanized development. However, the Nevada County version of this community archetype exists mostly in the City of Grass Valley, the City of Nevada City, and the Town of Truckee.

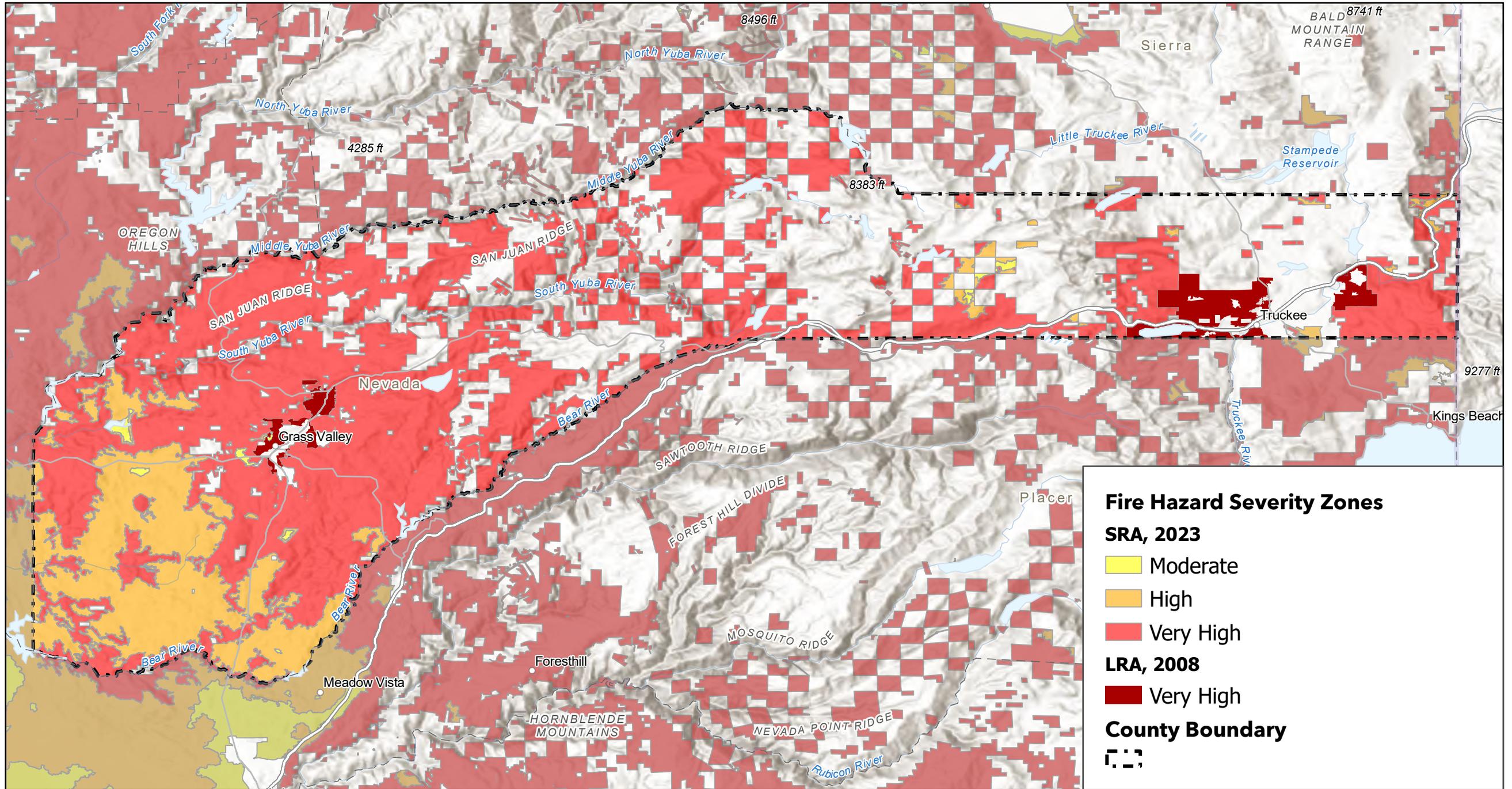
2.3 Adjacent Communities

This Community Wildfire Protection Plan (CWPP) recognizes that wildfire and the wildfire environment do not adhere to jurisdictional boundaries and that incorporated cities and towns that abut unincorporated County areas face similar wildfire hazard and risk. The hazard and risk modeling and analysis conducted in support of this CWPP was conducted at a County-wide scale and FZ scale which includes incorporated areas. This data may also be useful to adjacent communities for fire planning efforts. Finally, cross-jurisdictional coordination is encouraged to address wildfire risk to communities in Nevada County.

2.4 Fire Hazard Severity Zones

Fire Hazard Severity Zones (FHSZ) are “geographical areas designated pursuant to California Public Resources Code (PRC), Sections 4201 through 4204 and classified as Very High, High, or Moderate in State Responsibility Areas (SRA) or as Local Responsibility Area (LRA) Very High Fire Hazard Severity Zone (VHFSZ) or non-VHFSZ designated pursuant to California Government Code, Sections 51175 through 51189” (California Building Standards Commission 2016). SRA FHSZs in the Plan Area encompass 381,934 acres, including 303,771 acres classified as VHFHSZ. The extent of FHSZs in the Plan Area is presented in Figure 4, Fire Hazard Severity Zones, and summarized in Table 8, FHSZ Distribution in the Plan Area. PRC Sections 4201–4204 and Government Code Sections 51175–51189 direct CAL FIRE to map areas of significant fire hazards based on fuels, terrain, weather, and other relevant factors. Structures built in FHSZs are subject to more stringent fire hardening requirements, including requirements for building materials, appurtenances, and defensible space.

Figure 4 - Fire Hazard Severity Zones



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In 2024, CAL FIRE completed a statewide remapping update of FHSZs within the SRA. An LRA FHSZ remap will begin following the completion of the SRA process¹. Current LRA maps are derived from CAL FIRE recommendations from 2008 and include LRA VHFHSZs for the cities of Grass Valley and Nevada City and the Town of Truckee. FHSZs within Nevada County are presented in Table 8 and Figure 4.

Table 8. Fire Hazard Severity Zone Distribution in the Plan Area

Forecast Zone	FHSZ (acres)			
	Moderate (SRA)	High (SRA)	Very High (SRA)	Very High (LRA)
Higgins / Penn Valley	1,064 (<1%)	70,351 (49%)	68,823 (48%)	0
Grass Valley / Nevada City	353 (<1%)	714 (<1%)	110,273 (81%)	3,032 (2%)
Tahoe National Forest Area	743 (<1%)	2,974 (1%)	91,539 (39%)	0
Truckee / Donner	33 (<1%)	1,931 (2%)	33,136 (31%)	10,886 (10%)
Total	2,193	75,970	303,771	13,918

Source: CAL FIRE 2008, 2023.

Notes: FHSZ = Fire Hazard Severity Zone; SRA = State Responsibility Area; LRA = Local Responsibility Area.

2.5 Fire Environment

2.5.1 Climate

The County is generally characterized by a Mediterranean climate with hot, dry summers followed by cool, wet winters. The western portion of the County is typically characterized by mild winters, with little snow (2022/2023 and 2023/2024 winter seasons were atypical, seeing more snowfall than typical years). Winters along the crest of the Sierra Nevada range and eastward are long and cold, with heavy snowfalls. Annual precipitation ranges from approximately 35 inches in the west to nearly 70 inches at the summits of the range. Peak summer temperatures in July average between 95°F and 100°F, and the winter temperatures in January average between 35°F and 55°F. The growing season (free from freezing temperatures) varies from more than 250 days in the western portions of the County (usually from mid-March to November), to as low as 25 days in the eastern portions (usually from mid-June to July) (County of Nevada 2017). Due to the County's diversity in elevation, which climbs up in elevation from 950 feet where the Yuba County and Nevada County lines meet to where Mount Lola sits in the Truckee area at 9,143 feet of elevation, microclimates and differences within the Forecast Zones (FZs) may exist (County of Nevada 1996). As such, conditions may be variable on a daily and seasonal basis throughout the County. Microclimatic conditions can



Fire Behavior Triangle

¹ Senate Bill 63 mandates CAL FIRE to revise the LRA FHSZ maps. The updated maps, set to be released in January 2025, will broaden the FHSZs in the LRA to cover areas with Moderate, High, and Very High fire hazards.

greatly affect fire hazards and would be considered when determining vegetation treatments and implementation timing. Such conditions are often not captured in weather station datasets or recorded in easily referenced weather almanacs but are usually well known to locals, land managers, and local fire agency personnel. Weather components such as temperature, relative humidity, wind, and lightning also affect the potential for wildfire. High temperatures and low relative humidity dry out fuels that feed wildfires, creating a situation where fuel will ignite more readily and burn more intensely. Thus, during periods of drought, the threat of wildfire increases (County of Nevada 2017).

Wind is one of the most significant factors influencing fire behavior. Higher wind speeds contribute to rapid wildfire spread and high-intensity fire behavior. Winds can be significant at times in Nevada County. Southwest winds in western Nevada County result in topographic wind alignment and are funneled through the river canyons. In eastern Nevada County, southwest winds pick up speed as they cross Donner Summit and can result in Red Flag Warning Days. North winds in Nevada County can occur during hot, dry conditions, which can lead to “red flag” days indicating extreme fire danger, especially in western Nevada County. In addition to wind speed, wind shifts can occur suddenly due to temperature changes or the interaction of wind with topographical features such as slopes or steep hillsides (County of Nevada 2017). Predominant winds (in CAL FIRE’s Nevada-Yuba-Placer Unit [NEU] area, which encapsulates Nevada County) are southwest but commonly become north-to-northeast following weather systems. Fire weather conditions in the County generally become critical in late July through October. Note, that this does vary across the County due to differences in climate especially in eastern Nevada County. On average, a summer day is 85°F to 95°F with winds from the southwest at 0 mph to 7 mph and relative humidity of 20% to 25%. During these conditions, the ignition potential and likelihood of a fire growing into a significant event is high (CAL FIRE 2024e).

2.5.1.1 Climate Change

As noted, California faces a dramatic increase in the number and severity of wildfires, with 15 of the most destructive fires occurring since 2015 (CAL FIRE 2024a). The state’s major study on climate impacts, the Fourth Climate Assessment (OPR et al. 2019), projects that California’s wildfire burn area is likely to increase by 77% by the end of the century. As identified in Governor Newsom’s Strike Force report (State of California 2019), the growing risk of catastrophic wildfires has created an imperative for the state to act urgently and swiftly to expand fire prevention efforts. Current research has also identified that the frequency of autumn days with extreme fire weather has more than doubled in California since the early 1980s, a result of human-caused climate change. Such fire weather exhibits strong winds (e.g., north winds) and is coincident with unusually dry vegetation resulting from warm conditions over the summer months prior to the onset of autumn precipitation (Goss et al. 2020).

Climate change is expected to make landscapes more susceptible to extreme wildfires by altering temperatures (Hayhoe et al. 2004) and the availability and aridity of fuels (Abatzoglou and Williams 2016). Anthropogenic climate change has emerged as a driver of increased fire activity, a trend that is expected to continue (Abatzoglou and Williams 2016). All analyses completed for fire occurrence and severity into the future predict more frequent fires, a greater number of fires, and higher fire severity under climate change scenarios (Fried et al. 2004; Lenihan 2008; Westerling et al. 2011; Westerling 2018).

A changing climate, combined with anthropogenic factors, has already contributed to more frequent and severe wildfires in the western United States (Abatzoglou and Williams 2016; Mann et al. 2016;

Westerling 2016, OEHHA 2022), with the number of human-caused fires being much higher in more populated regions of the state. Recently, the area burned by wildfires has increased consistent with increasing air temperatures (OEHHA 2022). Increased wildfire risk and severity are vulnerabilities that are anticipated throughout California (Westerling 2018; Krawchuk et al. 2009). Increased fire occurrence and severity under climate change would secondarily affect other areas of vulnerability, as noted below.

- **Increased Fire Risk:** Warmer air temperatures are expected to lengthen the fire season, drying out vegetation more quickly and increasing fire risk. Based on high- and low-emissions climate change scenarios, increases in the number of high-severity wildfires are anticipated (IPCC 2023, Westerling 2018). Multi-year severe drought is supported as a factor in increasing fire size and severity, as well as tree mortality (Crockett and Westerling 2018). On interannual and shorter time scales, climate variability affects the flammability of live and dead forest vegetation (Westerling 2016). The greatest increases in burned area are projected to be in forested areas, with annual average area burned in many parts of the Sierra Nevada doubling to quadrupling by end of century under the most extreme warming (Westerling 2018). Additionally, the frequency of extreme fire weather in the fall months has increased over the past 40 years, a trend which is expected to continue under climate change models (Goss et al. 2020).
- **Greater Fuel Loads:** Years with widespread fires are historically preceded by wet years, which influence greater vegetation growth, especially in the understory. Highly flammable species, which often populate disturbed areas quickly, may have a competitive advantage over other species, typically resulting in a higher, more flammable fuel load. Drought may result in increased tree mortality, which contributes to higher fuel loading and wildfire size and severity (Crockett and Westerling 2018). Increasing fire size and severity and tree mortality are linked to increasing temperatures and aridity (Crockett and Westerling 2018). Increased prevalence of dead or desiccated fuels resulting from drought effects is conducive to crown fires, which require ladder fuels to move from volatile grasses to the less volatile mid-level forest to the dry and volatile canopy cover (Crockett and Westerling 2018). Increased fuel aridity contributes to larger forest areas experiencing increased periods of high fire potential (Abatzoglou and Williams 2016).
- **Ecological Impacts:** Increased fire severity is expected to amplify and accelerate the ecological impacts of climatic change. Drought years may increase the vulnerability of tree populations to insects and disease, and the lower occurrence of extended freezing periods in the winter would allow higher insect survivability. Climate-induced changes in fire behavior and frequency would influence species distribution, migration, and extinction (Flannigan et al. 2000). Greater occurrence of fires increases the amount of carbon and particulates released into the atmosphere (Westerling and Bryant 2008).
- **Social Impacts:** Increased expenditures for fire suppression are anticipated, and the amount of burned property (in total area and monetary value) increases substantially under global climate models' high-emissions scenarios due to greater fire risk (Westerling and Bryant 2008; Levy 2018). This has been seen recently, where 2020 wildfires alone caused billions of dollars in damages (OEHHA 2022). In areas with the highest fire risk, wildfire insurance is estimated to see costs rise by 18% by 2055, and the number of properties insured lowered (Westerling 2018). Wildland fire smoke exposure is a growing risk to public health (Domitrovich et al. 2017). Secondary effects of increased fire, such as loss of recreational amenities, area closures, and excessive smoke, can have serious financial effects on regional business interests and local economies.

The California Energy Commission alongside UC Berkeley’s Geospatial Innovation Facility released Cal-Adapt in 2011 as a resource to highlight climate change research and future climate change projections for specific regions throughout the state (Cal Adapt, n.d.). Nevada County resides within the North Sierra Region, and climate projections for this region are provided below in Table 9.

Table 9. Climate Change Projections for Nevada County

Effect	Ranges
Temperature Change, 1990–2100	January increase in average temperatures: 2.5 °F to 4°F by 2050 and 6°F to 7°F by 2100. The largest changes are observed in the southern part of the region. July increase in average temperatures: 4°F to 5°F by 2050 and 10°F by the end of the century, with the greatest change in the northern part of the region. (Modeled average temperatures; high emissions scenario)
Precipitation	Precipitation decline is projected throughout the region. The amount of decrease varies from 3 inches to 5 inches by 2050 and 6 inches to more than 10 inches by 2100, with larger rainfall reductions projected for the southern portions of the region. (CCSM3; high carbon emissions scenario)
Heat Waves	Heat waves are defined as 5 consecutive days over 83 °F to 97°F depending on location. By 2050, the number of heat waves per year is expected to increase by two. A dramatic increase in annual heat waves is expected by 2100, 8 to 10 more per year.
Snowpack	Snowpack levels are projected to decline dramatically in many portions of the region. In southern portions of the region, a decline of nearly 15 inches in snowpack levels—a more than 60% drop—is projected by 2090. (CCSM3; high carbon emissions scenario)
Wildfire	Wildfire risk is projected to increase in a range of 1.1 to 10.5 times throughout the region, with the highest risks expected in the northern and southern parts of the region. (GFDL climate model; high carbon emissions scenario)

Source: County of Nevada 2017.

Notes: CCSM3 = Community Climate System Model version 3; GFDL = Geophysical Fluid Dynamics Laboratory.

The effects of climate change in the Nevada County region have the potential to impact the occurrence and significance of the identified hazards.

2.5.2 Terrain

The County is very topographically diverse and includes features such as mountain ranges, valleys, and canyons with significant differences in elevation, slope, and aspect. Each of these features affects fire behavior and alters how fire moves across the landscape. The County climbs from the Sacramento Valley at an elevation of 300 feet to the crest of the Sierra Nevada Mountains, at an elevation of 9,143 feet, the peak of Mount Lola (County of Nevada 1996). Topographical features of interest include Deer Creek

Canyon, Wolf Creek, and Wolf Mountain in the Higgins/Penn Valley FZ; Deer Creek Canyon, South Yuba River Canyon, Bear River Canyon, Middle Yuba River, and Greenhorn Creek in the Grass Valley/Nevada City FZ; Deer Creek Canyon, South Yuba River Canyon, Bear River Canyon, Middle Yuba River, Steepollow Creek, and the Sierra Crest in the Tahoe National Forest (TNF) FZ; and Donner Summit, Sagehen, Carpenter Valley, Casey Canyon, and Truckee Canyon in the Truckee/Donner FZ, with the Middle Yuba Canyon and Bear River Canyon along the County’s northern and southern borders, respectively.

Terrain affects wildfire movement and spread. Flat areas typically result in slower fire spread and absent windy conditions. Topographic features such as saddles, canyons, and chimneys may form unique circulation conditions that concentrate winds and funnel or accelerate fire spread (i.e., land formations that collect and funnel heated air upward along a slope). Steep terrain typically results in faster upslope fire spread due to the pre-heating of uphill vegetation. Terrain may also buffer, shelter, or redirect winds away from some areas based on canyons or formations on the landscape. Saddles occurring at the top of drainages or ridgelines may facilitate the migration of wildfire from one canyon to the next. Various terrain features can also influence fire behavior, as summarized in Table 10.

Table 10. Effects of Topographic Features on Fire Behavior

Topographic Feature	Effect
Narrow Canyon	Surface winds follow the canyon direction, which may differ from the prevailing wind; wind eddies/strong upslope air movement is expected, which may cause erratic fire behavior; radiant heat transfer between slopes facilitates spotting/ignition on the opposite canyon side.
Wide Canyon	Prevailing wind direction is not significantly altered; aspect is a significant contributor to fire behavior. Wide canyons are not as susceptible to cross-canyon spotting except in high winds.
Box Canyon/ Chute	Air is drawn in from the canyon bottom, resulting in strong upslope drafts. No gaps or prominent saddles to let heated air escape. Fires starting at the canyon bottom can rapidly move upslope due to chimney-like preheating of the higher-level fuels and upslope winds.
Ridge	Fires may change direction when reaching the ridge/canyon edge; strong airflows are likely at the ridge point; possibility for different wind directions on different sides of the ridge. Ridges experience more wind. Fires gain speed and intensity moving toward a ridge. Fires burning at a ridge can exhibit erratic behavior. Strong air flows can cause fire to whirl. Wind crossing a ridge usually has a leeward eddy where the wind rolls around and comes up the leeward side.
Saddle	Potential for rapid rates of fire spread; fires pushed through saddles faster during upslope runs. Winds can increase when blowing through saddles due to the funneling effect of the constricted pass. On the other side, winds will slow, but erratic winds potentially occur at the saddle due to eddies.

Sources: Teie 1994; NFPA 2011.

2.5.3 Vegetation and Fuels

All vegetation will burn; however, some plants exhibit characteristics that make them more flammable than others. Hazardous fuels include live and dead vegetation that exists in a condition that readily ignites; transmits fire to adjacent structures or ground, surface, or overstory vegetation; and/or can support extreme fire behavior. Flammability can be defined as a combination of ignitability, combustibility, and sustainability, where ignitability is the ease of or the delay of ignition, combustibility is the rapidity with which a fire burns and sustainability is a measure of how well a fire will continue to burn with or without an external heat source (White and Zipperer 2010).

Flammability is influenced by several factors, which can be classified into two groups: physical structure (e.g., branch size, leaf size, leaf shape, surface-to-volume ratio, and/or retention of dead material) and physiological elements (e.g., volatile oils, resins, and/or moisture content) (Moritz and Svihra 1998; UCCE 2016; UCFPL 1997; White and Zipperer 2010). Plants that are less flammable have low surface-to-volume ratios, high moisture contents, and minimal dead material or debris, while those that are more flammable have high surface-to-volume ratios, exhibit low moisture contents, contain volatile oils, and have high levels of dead material or debris (Moritz and Svihra 1998; UCFPL 1997; UCCE 2016; White and Zipperer 2010). Plant condition and maintenance is also an important factor in flammability. Some plants that have more flammable characteristics can become less flammable if well maintained and irrigated but can also be explosively flammable when poorly maintained or situated on south-facing slopes, in windy areas, or in poor soils (Moritz and Svihra 1998). In general, most vegetation within the Plan Area is not regularly irrigated or maintained and exists in natural or open space settings.

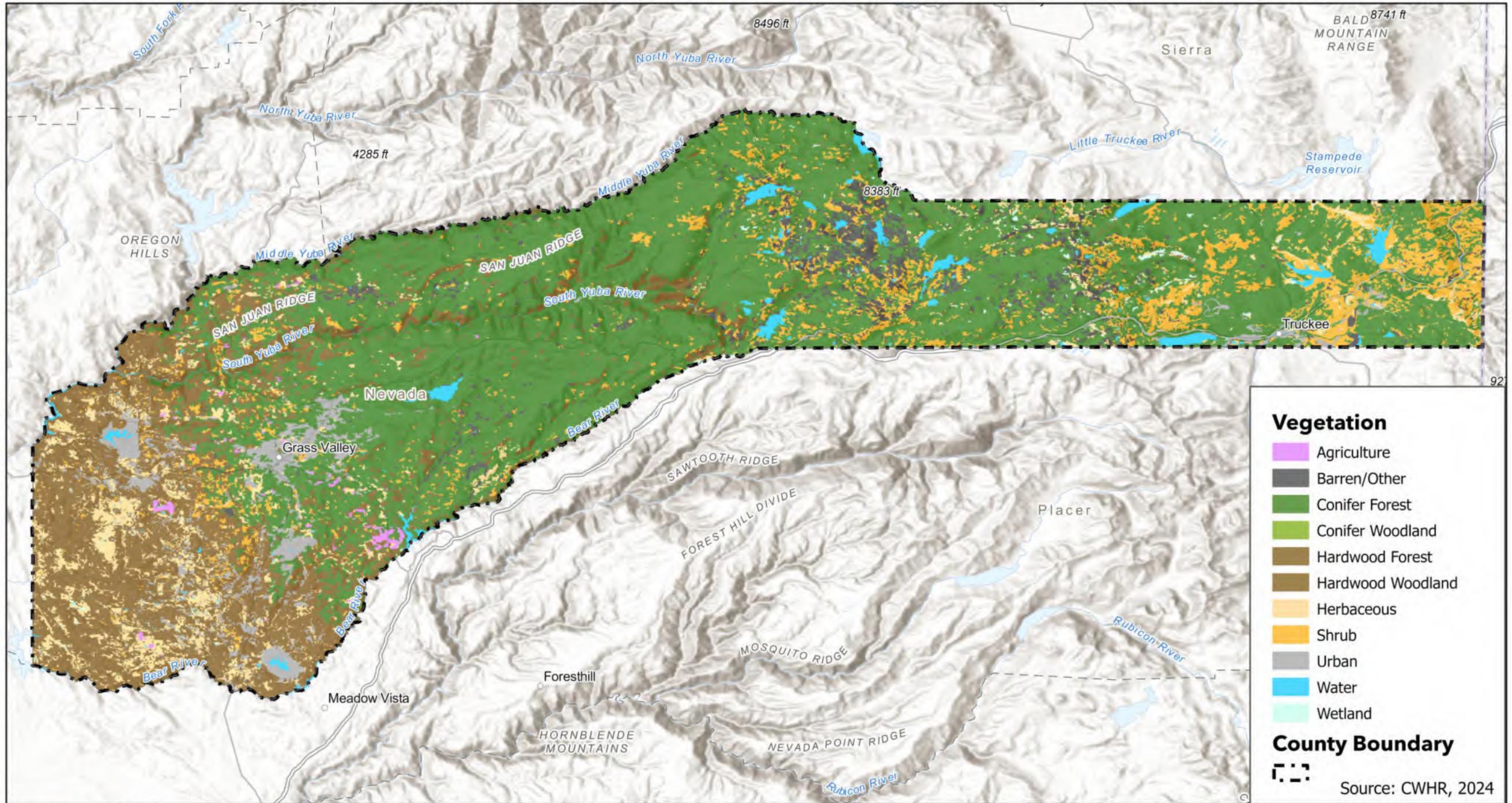
Nevada County features a diverse range of vegetation communities due to its varied topography, elevation gradients, and climate. In lower-elevation regions of the County (western portion of the County), vegetation communities are dominated by oak woodlands and annual grasslands with scattered shrublands. As elevation increases, gray pine forests and shrublands become increasingly dominant. At roughly 2,500 feet above mean sea level, ponderosa pine forests become increasingly dominant, transitioning into mixed conifer forests at higher elevations. In the eastern portion of the County, aspen dominates hardwood woodlands, and east side pine type (dominated by Jeffrey pine [*Pinus jeffreyi*] and white fir [*Abies concolor*]) becomes dominant. Figure 5, Vegetation Communities, provides a visual display of these communities in Nevada County.

While this section focuses on vegetative fuels, this CWPP recognizes that non-vegetative fuels can ignite and contribute to wildfire ignition and spread and can increase wildfire hazard and risk to resources. Non-vegetative fuels are any material that can ignite and carry fire, such as structures, vehicles, and debris. The recommendations presented in this CWPP are intended to minimize the potential for ignition of such fuels and acknowledge that they can contribute to increased hazard in some areas.

Conifer Forest/Woodland

As provided below in Table 11, conifer forest and woodlands are the most commonly observed vegetation communities across the County, covering 39% of the County, or 245,147 acres. In lower areas in the County, conifer forests are comprised of mainly ponderosa pine (*Pinus ponderosa*) with a mix of

Figure 5 - Vegetation Communities



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other coniferous trees like Douglas fir (*Pseudotsuga menziesii*) and white fir (*Abies concolor*). The understory often includes shrubs like manzanita (*Arctostaphylos spp.*) and a variety of grasses. In higher elevations, forest conditions resemble mixed conifer, including a more diverse mix of species such as white fir (*Abies concolor*), sugar pine (*Pinus lambertiana*), Jeffrey pine (*Pinus jeffreyi*), incense cedar (*Calocedrus decurrens*), Douglas fir (*Pseudotsuga menziesii*), and red fir (*Abies magnifica*). The understory in mixed conifer varies greatly and may be dependent on a variety of factors including canopy cover, terrain, fire history, or historical and current forest management practices. Wildfire behavior in conifer vegetation communities is highly dependent on forest structure and fuel characteristics. Wildfire hazard is generally highest in stands with minimal crown separation and high accumulations of ladder fuels that can facilitate surface-to-crown fire transition. Other factors such as drought and forest pests and diseases can increase wildfire hazards due to reduced fuel moisture and the increased prevalence of dead and dying trees.

Mixed Conifer/Hardwood

Mixed conifer/hardwood communities are the second most abundant vegetation community occurring throughout Nevada County, covering 21% of the County, or 130,864 acres. This vegetation community is largely represented by oak and conifer species including canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizenii*), California black oak (*Quercus kelloggii*), ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffreyi*), gray pine (*Pinus sabiniana*), incense cedar (*Calocedrus decurrens*), and Douglas-fir (*Pseudotsuga menziesii*). Shrubs such as manzanita (*Arctostaphylos spp.*), poison oak (*Toxicodendron diversilobum*), coffeeberry (*Rhamnus californica*), and ceanothus (*Ceanothus spp.*) may also be present in these vegetation types, although poorly developed. Herbaceous vegetation is generally sparse but is often more prevalent in open canopy stands. The reduction of fire as an ecosystem process in these vegetation communities allows for an accumulation of fuels that had previously been consumed during regular, low-intensity fires. These vegetation types are often highly productive and lead to a build-up of woody vegetation in the understory, including significant increases in dead and downed woody material and ladder fuels connecting ground vegetation to tree canopies. As a result, some stands are more susceptible to severe, crown-consuming wildfires.

Hardwood Forest/Woodland

Hardwood forest/woodlands are the third most abundant vegetation community occurring throughout Nevada County, covering 17% of the County, or 102,739 acres. This vegetation type is represented by oak woodlands with common species including California black oak (*Quercus kelloggii*), blue oak (*Quercus douglasii*), and interior live oak (*Quercus wislizenii*). Trees are scattered, although canopies may be closed on better quality sites favorable to tree production. Shrubs may be present but are rarely extensive. The typical understory is composed of annual grasses and forbs. As such, wildfire behavior in Blue Oak Woodland is typically dependent on the structure of understory vegetation. Wildfires may move quickly through these flashy surface fuels; however, fuel loads are low and do not typically promote high flame lengths.

Shrub

Shrub vegetation comprises roughly 9% of the County, or 52,988 acres. Continuous shrublands are most common in lower elevations of the County, including species such as chamise (*Adenostoma*

fasciculatum), manzanita (*Arctostaphylos spp.*), and ceanothus (*Ceanothus spp.*). Also referred to as chaparral, this vegetation community is subject to hazardous wildfire conditions, particularly in shrublands with a high accumulation of woody material. Mature chaparral stands are more flammable compared to younger chaparral stands. Older chaparral stands are more flammable due to their ability to accumulate more dead material. Chaparral 30 years and older present a greater hazard due to the accumulation of dead material within shrub canopies. Some chaparral species such as chamise are highly flammable due to their dense, resinous foliage. The plant contains volatile oils that can easily ignite and burn intensely.

Herbaceous/Grassland

Herbaceous, or grassland vegetation covers 6% of the County, or 36,856 acres. Introduced annual grasses are the dominant species, including wild oats (*Avena fatua*), soft chess (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), red brome (*Bromus rubens*), wild barley (*Hordeum murinum*), and foxtail fescue (*Setaria spp.*). Grasses have a high surface-area-to-volume ratio, requiring less heat to remove fuel moisture and raise the fuel to ignition temperature. They are also subject to early seasonal drying in late spring and early summer. Live fuel moisture content in grasses typically reaches its low point in early summer, and grasses begin to cure soon after. Due to these characteristics, grasses have the potential for a high rate of spread, rapid ignition, and facilitation of extreme fire behavior. Their low overall fuel loads typically result in faster-moving fires with lower flame lengths and heat output. Untreated grasses can spread a fire into other adjacent surface fuel types (e.g., shrubs, small trees) or facilitate surface-to-crown fire transition where grasses exist beneath tree canopies.

Table 11. Vegetation Communities within Nevada County

Vegetation Community	Acres	Percent of County
Conifer Forest/Woodland	245,147	40%
Mixed Conifer/Hardwood	130,864	21%
Hardwood Forest/Woodland	102,739	17%
Shrub	52,988	9%
Herbaceous	36,856	6%
Barren/Other	24,557	4%
Urban	14,490	2%
Water	11,244	2%
Agricultural	4,331	1%

Source: USFS 2019a, 2019b.

Forest Health and Tree Mortality

Forest pests, such as insects, fungi, other microbes, and vertebrates, are a natural component of California forests and plant communities. Populations of pests are dynamic and fluctuate in response to climatic and environmental changes such as drought, stand density, fire, and other site disturbances. Healthy, vigorous trees are typically able to withstand pest attacks when pest populations are at endemic levels. When stressors exist in forests (e.g., overstocking, shading, drought), tree vigor is reduced, and tree susceptibility to pest attacks and infestations increases.

Tree mortality creates both hazardous fuel conditions and threatens recreational resources through the increased likelihood of falling trees. Tree mortality is largely driven by prolonged periods of drought as trees become stressed and susceptible to forest pests and pathogens, or when trees are damaged from wildfires. Bark beetles attack weakened trees and continue to be a large driver of tree mortality throughout the Sierra Nevada and in Nevada County (County of Nevada 2017). Areas experiencing an increase in tree mortality have been mapped by CAL FIRE within the California High Hazard Zones Tier 1 and Tier 2 datasets. The Tier 1 Hazard Zones identify areas designated by state and local governments as being in greatest need of dead tree removal for the threats they pose to public safety. Nevada County includes 44,477 acres of Tier 1 Hazard Zones (CAL FIRE 2022b), with 38% of this acreage in the Grass Valley/Nevada City Forecast Zone and 35% of this acreage in the Tahoe National Forest Area Forecast Zone. Tier 2 Hazard Zones define tree mortality by watersheds that have significant tree mortality as well as significant community and natural resource assets (CAL FIRE 2022c). Work conducted in Tier 2 Zones addresses the immediate threat of falling trees, increased fire risk, and supports broader forest health and landscape-level fire planning efforts. Nevada County includes 520,709 acres of Tier 2 Hazard Zones, with 38% of this acreage in the Tahoe National Forest Area Forecast Zone and 26% of this acreage in the Grass Valley/Nevada City Forecast Zone.

Recent surveys of forested areas in California were conducted to detect tree mortality and tree damage. Statewide, elevated levels of tree mortality (more than 1% of forested area affected) were recorded on more than 2.4 million acres, representing an estimated 28.8 million dead trees. Most of the trees killed were recorded as fir (*Abies spp.*), ponderosa pine (*Pinus ponderosa*), and Douglas-fir (*Pseudotsuga menziesii*). Mortality is attributed in part to the ongoing effects of long-term, intermittent, exceptional drought conditions and subsequent successful bark and engraver beetle attacks that have resulted in an estimated 239 million trees killed since 2010 (USDA 2024a).

In the Tahoe National Forest, tree mortality increased from ~5 million dead trees across 260,000 acres in 2022 to an estimated 6.5 million dead trees across 330,000 acres in 2023. Mortality occurred at moderate to severe levels over many areas, but notably along central, high elevation areas of the Forest (USDA 2024a).

In Nevada County, tree mortality rates have increased between 2021 and 2023 with severe (30-50% mortality) mortality rates increasing from 2,527 acres to 16,699 acres and very severe (50%+ mortality) mortality rates increasing from 101 to 4,609 acres (USDA 2024b). These changes are seen primarily in red fir trees, with some mortality occurring in white fir and ponderosa pine trees. The causal agent for mortality in red and white firs is the fir engraver beetle and the western pine beetle for ponderosa pine. Tree mortality areas are located primarily at upper elevations in the eastern portion of the County, with concentrations near Boreal/Donner Lake, Soda Springs, Sand Ridge/Buzzard Roost/Lake Sterling, Fordyce Lake/Magonigal Road, Grouse Ridge, Meadow Lake, and Mount Lola (USDA 2024b).

2.5.4 Fire and Ignition History

Fire history is an important component of fire planning and can provide an understanding of a variety of factors related to fires, including frequency, type, behavior, most vulnerable community areas, and significant ignition sources, among others. One important use for this information is as a tool for pre-planning. It is advantageous to know which areas may have burned recently and therefore may provide a tactical defense position, what type of fire burned in the area, and how a fire may spread. Fire history

represented in this Community Wildfire Protection Plan (CWPP) uses the CAL FIRE Fire and Resource Assessment Program (FRAP) database (CAL FIRE 2024c). FRAP summarizes fire perimeter data dating to the late 1800s².

There have been 231 recorded wildfires in Nevada County, with 65 fires burning 500 acres or more (CAL FIRE 2024c). The largest fire affecting the County was the 1960 Donner Ridge Fire, which burned 43,374 total acres (19,166 acres within Nevada County and 24,208 within Sierra County). The largest fire burning entirely within the County was the 1988 49er Fire (36,343 total acres). A list of notable wildfires burning within the County is provided below:

- **Donner Ridge Fire (1960):** Burned a total of 43,374 acres, resulting in 27 injuries and threatened Downtown Truckee burning within 2.5 miles of the Town (County of Nevada 2017)
- **49er Fire (1988):** Burned 36,343 acres and destroyed 148 homes and 358 additional structures (County of Nevada 2017)
- **Trauner Fire (1994):** Burned 536 acres and destroyed 12 homes and 21 additional structures (County of Nevada 2017)
- **Martis Fire (2001):** Burned 14,126 acres and destroyed 2 homes and 3 vehicles (County of Nevada 2017)
- **Yuba River Complex Fire (2008):** A complex of 13 fires that burned a total of 3,590 acres leading to multiple health issues reported from smoke exposure (County of Nevada 2017)
- **Lowell Fire (2018):** Burned 2,304 acres resulting in 3 injuries and extensive evacuations (County of Nevada 2017)
- **Jones Fire (2020):** Burned 705 acres resulting in 18 destroyed structures, 3 damaged structures, and 7 injuries (CAL FIRE 2022d)
- **River Fire (2021):** Burned 2,619 acres resulting in 21 destroyed structures, 142 damaged structures, and 4 injuries (CAL FIRE 2022e)
- **Rices Fire (2022):** Burned 921 acres resulting in 4 destroyed structures (CAL FIRE 2023b)

While the number of acres burned in California has substantially increased over the past 3 decades (Miller and Safford 2012), this trend has not necessarily occurred in Nevada County. As presented in Exhibit 1, the County has experienced a gradual decline in burned acres since a peak between 1941 and 1960. While the size of wildfires is influenced by many factors including remoteness, emergency response capacity, and wildfire behavior, wildfire trends have resulted in large continuous tracts of forestland that have not experienced fire since the beginning of the historical fire record. Without fire as a natural disturbance or other fuel reduction efforts, vegetation continues to mature and accumulate, resulting in hazardous forest conditions in many areas of the County. However, specific regions of the County have experienced repeated wildfires, including the Fall Creek drainage east of the Washington and Truckee Canyon in the far eastern portion of the County—both of which have burned more than three times according to the historical fire record (Figure 6, Fire History) (CAL FIRE 2024c).

² Includes perimeters ≥ 10 acres in timber, ≥ 50 acres in brush, or ≥ 300 acres in grass, and/or ≥ 3 impacted residential or commercial structures, and/or caused ≥ 1 fatality.

Exhibit 1. Acres burned in Nevada County from 1908–2023 (CAL FIRE 2024c)

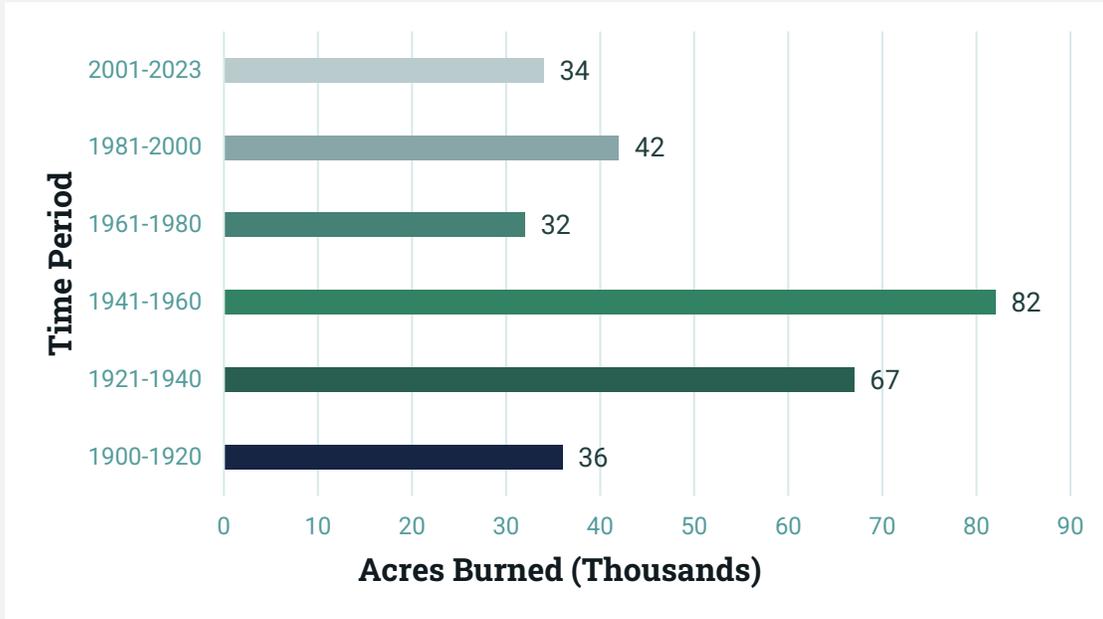
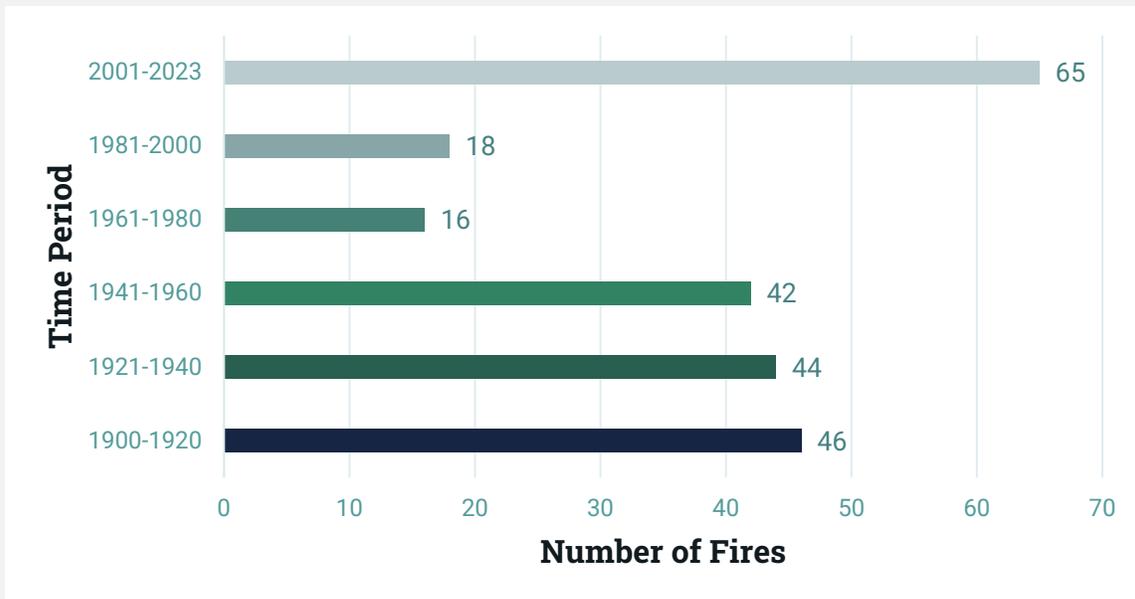
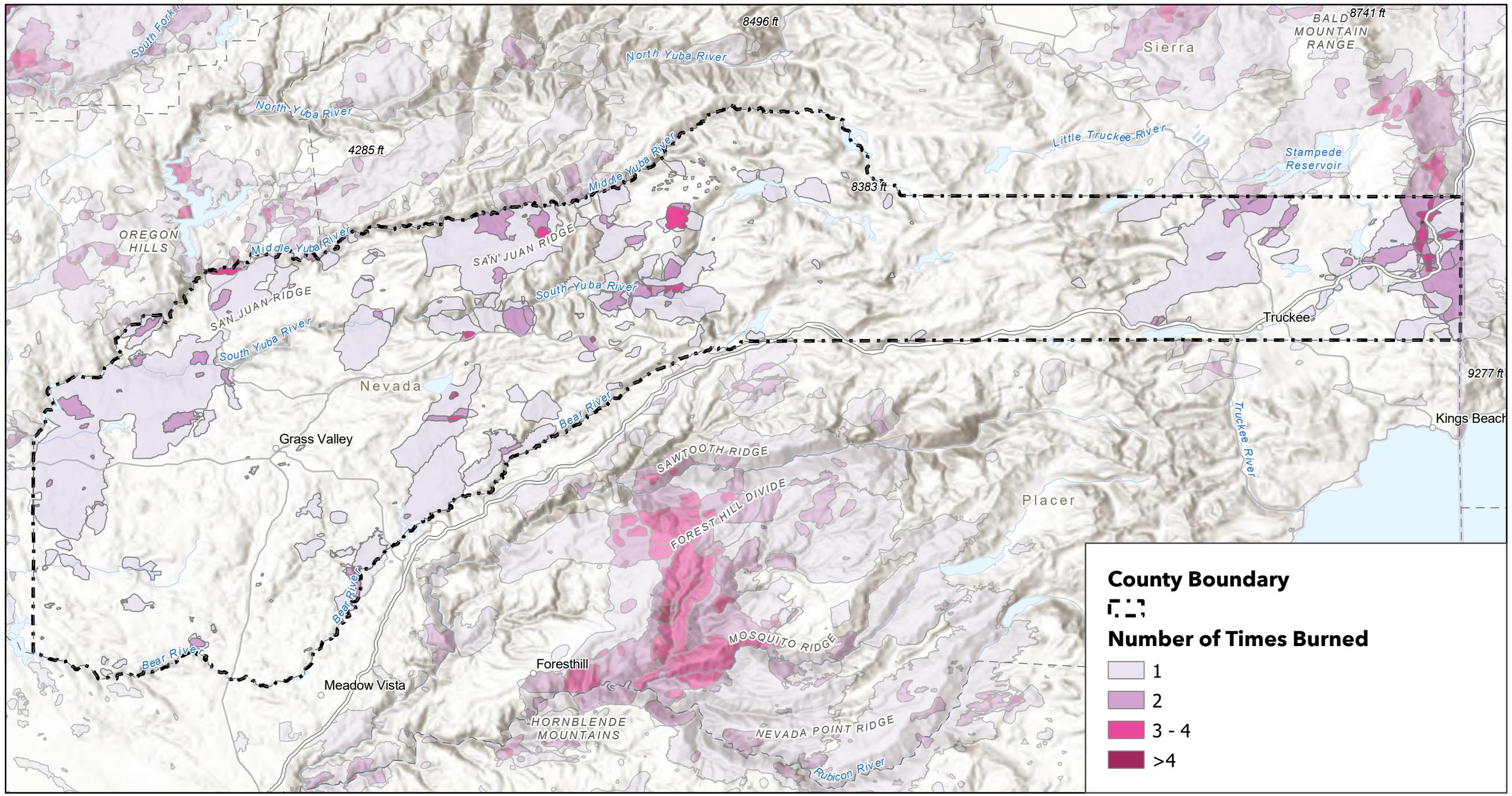


Exhibit 2. Wildfire frequency in Nevada County from 1908–2023 (CAL FIRE 2024c)



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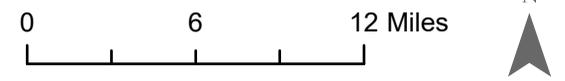
Figure 6 - Fire History



County Boundary


Number of Times Burned

-  1
-  2
-  3 - 4
-  >4



Every reasonable effort has been made to assure the accuracy of the maps and data provided; nevertheless, some information may not be accurate. The County of Nevada assumes no responsibility arising from use of this information. THE MAPS AND ASSOCIATED DATA ARE PROVIDED WITHOUT WARRANTY OF ANY KIND, either expressed or implied, including but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Before making decisions using the information provided on this map, contact the Nevada County Public Counter staff to confirm the validity of the data provided.

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Nevada County residents are often exposed to wildfire smoke during summer and early fall months from wildfires burning within the County or from wildfires burning in other regions of the state (County of Nevada 2017). It is not uncommon for air quality to well exceed air quality standards for PM2.5 concentration, the leading pollutant within wildfire smoke. For example, during the summers of 2013 and 2014, heavy smoke from wildfires in Northern California, including Nevada County, increased fine particulate matter levels 100 times greater than air quality standards (County of Nevada 2017). Wildfire smoke leads to health concerns, can negatively impact local economies, and can adversely affect vulnerable populations.

2.5.4.1 Fire Cause

An analysis of the cause of the 231 fires burning in the County reveals that most are unknown/unidentified or miscellaneous (67%). Those with identified causes include lightning (8%), debris burning (5%), equipment use (4%), arson (4%), smoking (3%), campfires (3%), vehicles (2%), powerlines (2%), railroads (1%) and escaped prescribed burns (1%).

2.5.4.2 Ignitions

Wildfire ignitions in the County are typically concentrated along major highways, including Highways 20, 49, 20, and 174, as well as Interstate 80. Concentrations are also seen in more urbanized areas, notably in or near Lake of the Pines, Lake Wildwood, Penn Valley, Rough and Ready, Alta Sierra, Grass Valley, Nevada City, North San Juan, Cedar Ridge/Peardale, Scotts Flat, Truckee and near Prosser Creek and Boca Reservoirs. For ignitions in the County, the vast majority are classified as being of unknown or undetermined origin. For those with identifiable sources, the majority (67%) are human caused and the remainder (33%) are naturally caused.

2.5.5 Wildfire Types and Potential Fire Behavior

Several wildfire types exist, as summarized below.

Ground Fire: Fire that consumes the organic material beneath the surface litter ground, such as a peat fire (NWCG 2024).

Surface Fire: Fire that burns loose debris on the surface, which includes dead branches, leaves, and low vegetation (NWCG 2024).

Crown Fire: A fire that advances from top to top of trees or shrubs more or less independent of a surface fire. Crown fires are sometimes classed as running or dependent to distinguish the degree of independence from the surface fire (NWCG 2024). There are three types of crown fires:

- *Passive Crown Fire:* A crown fire in which individual or small groups of trees torch out, but solid flaming in the canopy cannot be maintained except for short periods. Passive crown fires encompass a wide range of crown fire behavior, from the occasional torching of an isolated tree to a nearly active crown fire. Also called torching (Scott and Reinhardt 2001).

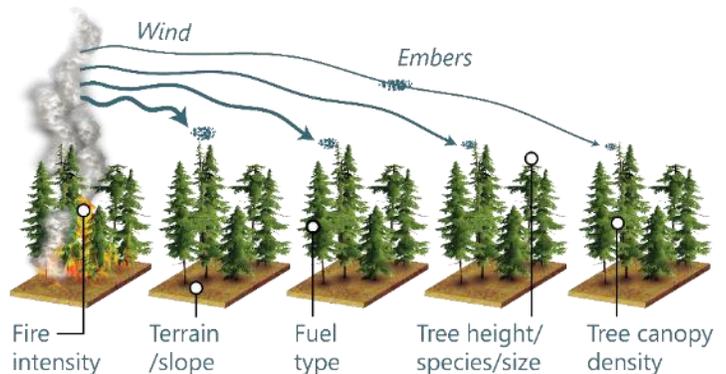
- *Active Crown Fire*: A crown fire in which the entire fuel complex becomes involved, but the crowning phase remains dependent on heat released from the surface fuels for continued spread. Also called running and continuous crown fire (Scott and Reinhardt 2001).
- *Independent Crown Fire*: A crown fire that spreads without the aid of a supporting surface fire (Scott and Reinhardt 2001).

Another component of fire behavior is spotting—the transfer of firebrands (embers) ahead of a fire front—which can ignite smaller vegetation fires (NWCG 2024). These smaller fires can burn independently or merge with the primary fire. Spotting can also result in structural ignitions when transported embers reach a receptive fuel bed³ (e.g., combustible roofing), especially in wind-driven fires, such as those occurring during Santa Ana wind events in the foothills of the San Gabriel mountains. Structure fires, as well as vegetation-fueled fires, can generate firebrands. Additionally, landscape features like ridges can dramatically affect fire behavior by changing prevailing wind patterns, funneling air, and increasing wind speeds, thereby intensifying fire behavior.

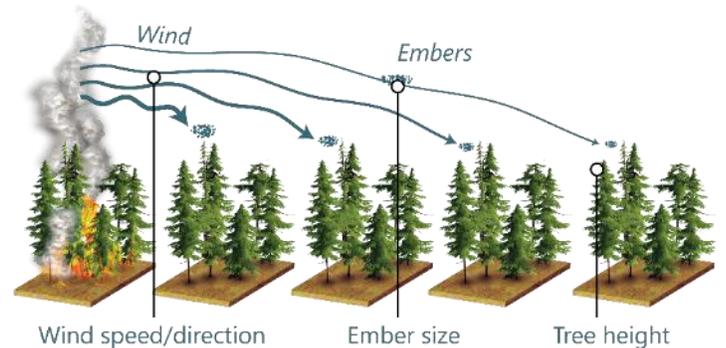
Each of the fire types mentioned above may occur within the Plan Area, depending on site-specific conditions. Fire behavior is how a wildland fire reacts to weather, fuels, and topography. The difficulty of controlling and suppressing a wildfire is typically determined by fire behavior characteristics, such as rate of spread, fireline intensity, torching, crowning, spotting, fire persistence, and resistance to control. Extreme fire behavior is that which precludes methods of direct control (e.g., flame lengths 8 feet and greater), behaves unpredictably and erratically, and typically involves high spread rates, crowning and spotting, the presence of fire whirls, and a strong convective column.

Fire behavior characteristics are an essential component in understanding fire risk. Flame length—the length of the flame of a spreading surface fire within the flaming front—is measured from midway in the active flaming combustion zone to the average tip of the flames (Andrews et al. 2008). Although it is a subjective and nonscientific measure of fire behavior, it is imperative to fireline personnel when evaluating fireline intensity and is worth considering as a vital wildfire variable (Rothermel 1983). Fireline

Ember lofting is affected by:



Ember distance is affected by:



Variables affecting ember lofting and travel distance

³ An area where existing vegetation or other combustible debris is in a condition that is ready and available to ignite when an ember lands upon it.

intensity is a measure of heat output from the flaming front and affects the potential for a surface fire to transition to a crown fire. Table 12 presents an interpretation of flame length and its relationship to fire suppression efforts.

Table 12. Fire Behavior Interpretation

Flame Length	Fireline Intensity	Interpretation
Under 4 feet	Under 100 BTU/ft/s	Fires can generally be attacked at the head or flanks by persons using hand tools. Hand line should hold the fire.
4 feet to 8 feet	100–500 BTU/ft/s	Fires are too intense for a direct attack on the head by persons using hand tools. Hand line cannot be relied on to hold the fire. Equipment such as dozers, pumpers, and retardant aircraft can be effective.
8 feet to 11 feet	500–1,000 BTU/ft/s	Fires may present serious control problems—torching out, crowning, and spotting. Control efforts at the fire head will probably be ineffective.
Over 11 feet	Over 1,000 BTU/ft/s	Crowning, spotting, and major fire runs are probable. Control efforts at the head of fire are ineffective.

Source: Roussopoulos and Johnson 1975.

Note: BTU/ft/s = British thermal units per foot per second.

2.6 Evacuation and Emergency Alerts

2.6.1 Evacuation

The Plan Area presents unique challenges for evacuation. Terrain limits radio and cellular communication capabilities in much of the Plan Area. Terrain also affects road types in the Plan Area, and many roads are long, steep, and narrow with limited capabilities for accommodating numerous vehicles during an evacuation event. Factors associated with evacuation, such as human behavior, population density, overloaded transportation routes, visitors, vulnerable populations, and the evacuation of pets and large animals, make the task of any evacuation more complex. Any combination of these factors may significantly increase the amount of time it takes to execute an evacuation. In addition, the decision by property owners and agencies to evacuate is often made quickly. Common evacuation challenges within the Plan Area include:

- Limited ingress/egress
- Narrow roads
- Unmaintained roads/poor road conditions
- Private roads
- Roadside vegetation
- Lack of secondary access
- Limited road capacity

- Lack of turnouts
- Poor cellular reception
- Addressing and road identification
- Varying road standards

Evacuation during a wildfire in the Plan Area is directed by fire agencies, except in specific areas where fire personnel may enact evacuations on-scene. The Nevada County Sheriff's Department and other cooperating law enforcement agencies have the primary responsibility for evacuations. These agencies work closely within the Unified Incident Command System with County OES and responding fire agency personnel who assess fire behavior and spread, which should ultimately guide evacuation decisions.

Nevada County relies on predesignated evacuation zones that law enforcement and fire agencies use when issuing evacuation information. Authorities will use Zone names in emergency alerts, media releases, and on social media to notify residents which areas are under an evacuation warning or order. Residents are encouraged to find their evacuation zone prior to a wildfire event. There are five evacuation statuses that could be issues during an emergency or wildfire event:

- **Evacuation Order:** an immediate threat to life. This is a lawful order to leave now. The area is lawfully closed to public access.
- **Evacuation Warning:** a potential threat to life and/or property. Those who require additional time to evacuate, and those with pets and livestock should leave now.
- **Advisory:** a notice to be on alert and follow County recommendations.
- **Clear To Repopulate:** It is safe to return to your home. Be aware of your surroundings and go through the returning home checklist.
- **Shelter in Place:** an order to go indoors. Shut and lock doors and windows. Prepare to self-sustain until further notice and/or contacted by emergency personnel for additional direction.

Information on how to find evacuation zones and evacuation zone maps are available on the Ready Nevada County Website: <https://readynevadacounty.org/3223/Evacuation-Zones>

2.6.1.1 Nevada County Evacuation Study

The 2024 Nevada County Evacuation Study (County of 2024b) analyzed fire behavior, human behavior, traffic management, and infrastructure capacity-related to develop recommendations for effective emergency evacuations. The study concluded that all County areas require efforts to enhance their wildfire resilience and provided recommendations in two broad areas: (1) evacuation route improvements and (2) wildfire mitigation strategies.

Evacuation route improvements focused on adding turnouts in key areas to allow for emergency vehicle passage, widening road shoulders, and expanding roadside shaded fuel breaks. Wildfire mitigation recommendations focused on roadside fuel load reduction, enhancing and maintaining defensible space areas, and conducting structural hardening enhancements, where possible.

The Evacuation Study also included Appendix A which consists of community-identified concerns. Appendix A detailed community input on evacuation constraints and opportunities for improvement. Further information on the Nevada County Evacuation Study can be found in Section 2.8.

2.6.2 Emergency Alerts

Nevada County uses a layered approach to emergency alerts and includes the following systems:

- **CodeRED Emergency Alerts:** CodeRed is an opt-in emergency alert system and is the primary system used by the County to notify residents in the case of an emergency. Notifications are sent based on the address users register in the system. It can send emergency alerts to cell phones, landlines, and emails.
- **CodeRED Mobile Alert App:** The CodeRED Mobile Alert app pushes emergency notifications to your smartphone within 25 miles of your current location. Users are required to download the app to their phone.
- **Genasys Protect App:** Genasys Protect App allows users to follow a zone or turn on their location to get notified if the status of that zone changes to an evacuation order or warning. Download is required for use.
- **Wireless Emergency Alert:** Wireless Emergency Alerts send emergency alerts to cellphones based on their location. No registration is required; this alert is issued by local governments as part of the Integrated Public Alert and Warning System.
- **Emergency Alert System:** Emergency Alert System sends emergency alerts to radio listeners and TV viewers. No registration is required; this alert is issued by local governments as part of the Integrated Public Alert and Warning System.
- **Hi-Lo Siren:** The Hi-Lo Siren alerts neighborhoods of an evacuation order using a European-style two-tone siren. Law enforcement will go door to door when an evacuation order has been issued.

2.6.2.1 Staying Informed

Staying informed is critical for community members and first responders. It is also important that information is obtained and shared from trusted sources. Various trusted sources exist within Nevada County:

- **ReadyNevadaCounty.org:** During disasters and emergencies community members can visit the Ready Nevada County website to view active emergency alerts.
- **211 Connecting Point and Disaster Response:** 211 is a free service that provides critical non-emergency information before, during, and after a disaster. During an emergency users can call 211 for information on evacuations, shelters, road closures, and more.
- **Trusted News Sources:** Trusted news sources can be used by residents to get up-to-date disaster information these include:
 - Agency Social Media Accounts
 - Nevada County Office of Emergency Services:
<https://www.facebook.com/NevadaCountyOES/>

- County of Nevada: <https://www.instagram.com/nevadacountyca/>,
<https://www.facebook.com/NevadaCountyCA/>
- City of Grass Valley: <https://www.instagram.com/cityofgrassvalley>,
<https://www.facebook.com/cityofgrassvalley/>
- City of Nevada City: <https://www.facebook.com/nevadacityca/>
- Town of Truckee: <https://www.instagram.com/townoftruckee>,
<https://www.facebook.com/TownofTruckee>
- Nevada County Sheriff's Office:
https://www.instagram.com/nevada_county_sheriffs_office/,
<https://www.facebook.com/nevadacountysheriffsoffice>
- Grass Valley Police Department:
<https://www.facebook.com/GrassValleyPoliceDepartment/>
- City of Nevada City Police Department: <https://www.facebook.com/NCPDCA/>
- Truckee Police: <https://www.facebook.com/truckee/police/>
- California Highway Patrol: <https://www.facebook.com/CHPGrassValley/>,
<https://www.facebook.com/chp.truckee/>, https://www.instagram.com/chp_truckee/
- CAL FIRE NEU: <https://www.facebook.com/CALFIRENEU/>
- Truckee Fire Protection District: <http://www.facebook.com/truckee/fire>,
<http://instagram.com/@truckee/fire>
- Trusted Media Outlets
 - KVMR: 93.9FM, 99.5FM, 105.1 FM
 - KNCO: 830AM
 - KTKE: 101.5FM
 - KQMS: 1670AM
 - Yuba Net: Yubanet.com
 - The Union: theunion.com
 - Sierra Sun: Sierrasun.com

2.7 Values at Risk

2.7.1 At-Risk Communities

The Health Forest Restoration Act (HFRA) identifies at-risk communities as an area:

- A. That is comprised of—
 - i. an interface community as defined in the notice entitled “Wildland Urban Interface Communities Within the Vicinity of Federal Lands That Are at High Risk From Wildfire” issued by the Secretary of Agriculture and the Secretary of the Interior in accordance with title IV of the Department of the Interior and Related Agencies Appropriations Act, 2001 (114 Stat. 1009) (66 Fed. Reg. 753, January 4, 2001); or

- ii. a group of homes and other structures with basic infrastructure and services (such as utilities and collectively maintained transportation routes) within or adjacent to Federal land;
- B. in which conditions are conducive to a large-scale wildland fire disturbance event; and
 - i. for which a significant threat to human life or property exists as a result of a wildland fire disturbance event.

2.7.2 Wildland Urban Interface

The wildland urban interface (WUI) is an area where wildfire risk reduction projects may be conducted to reduce wildfire threats to communities at risk. The HFRA defines the WUI as follows:

- a) an area within or adjacent to an at-risk community that is identified in recommendations to the Secretary in a community wildfire protection plan; or
- b) in the case of any area for which a community wildfire protection plan is not in effect:
 - a. an area extending ½ mile from the boundary of an at-risk community.
 - b. an area within 1½ miles of the boundary of an at-risk community, including any land that:
 - i. has a sustained steep slope that creates the potential for wildfire behavior endangering the at-risk community.
 - ii. has a geographic feature that aids in creating an effective fire break, such as a road or ridge top; or
 - iii. is in condition class 3, as documented by the Secretary in the project-specific environmental analysis; and
 - c. an area that is adjacent to an evacuation route for an at-risk community that the Secretary determines, in cooperation with the at-risk community, requires hazardous fuel reduction to provide safer evacuation from the at-risk community.

The importance of the HFRA definition of the WUI is emphasized in the expedited environmental review process for federal fuel treatment projects conducted within 1.5 miles of a community at risk of wildfire. Specifically, if an authorized hazardous fuel reduction project proposed to be conducted in the WUI is no farther than 1.5 miles from the boundary of an at-risk community, “the Secretary is not required to study, develop, or describe any alternative to the proposed agency action in the environmental assessment or environmental impact statement prepared pursuant to Section 102(2) of the National Environmental Policy Act of 1969.”

A County-specific map was created to map the WUI throughout Nevada County. Structure locations and Critical Ingress and Egress road data were used to determine the overall extent of the WUI, and development density data was utilized to delineate interface and intermix WUI. The WUI across the County was mapped under the following categories:

- **Wildland Urban Interface:** Higher density development in close proximity to vegetation that can burn in a wildfire.

- **Wildland Urban Intermix:** Lower-density development interspersed in an area dominated by wildland vegetation subject to wildfire.
- **Wildfire Influence Zone:** Wildfire susceptible vegetation up to 1.5 miles from WUI or Wildland Urban Intermix.
- **Major Roadways Zone:** Wildfire susceptible vegetation within 150 feet of major roadways that may be used during emergency ingress or egress. The Major Roadways Zone is removed where Wildland Urban Intermix and Interface areas overlap this zone.

For the majority of the Truckee-Donner Forecast Zone (FZ) and a portion of the Tahoe National Forest (TNF) Area FZ, the existing WUI map created by the Truckee Fire Protection District (FPD) was relied upon. For a full description of the County WUI mapping methodology, refer to Appendix B.

Another region mapped in support of this CWPP is the **Defensible Space Priority Areas**. These areas define community areas in the County where contiguous defensible space/home hardening is the priority risk reduction activity due to high/moderate density community characteristics that limit the capacity for other risk reduction activities (e.g., fuel breaks, open space fuels reduction).

Table 13 presents the acreage of land in each WUI type by FZ and Table 14 presents the acreage of land in the Defensible Space-Priority Areas by FZ. A graphical depiction of the WUI and Defensible Space Priority Areas is provided in Figures 7 and 8, respectively.

Table 13. Wildland Urban Interface Distribution in the Plan Area

Forecast Zone	WUI Type (acres)				
	Interface	Intermix	Influence Zone	Major Roadways	Non-WUI
Higgins/Penn Valley	665	25,355	107,402	3,521	6,621
Grass Valley/Nevada City	2,790	20,070	106,129	5,456	1,739
Tahoe National Forest Area	6	1,991	131,518	3,694	80,700
Truckee/Donner	*	*	13,081	181	10,803
Total	3,461	47,416	358,130	12,853	99,863

Truckee Fire Protection District WUI Mapping (acres)*			
Forecast Zone	Intermix	Defense	Threat
Tahoe National Forest Area	165	2,506	14,781
Truckee/Donner	14,230	25,879	44,824
Total	14,395	28,385	59,605

* Data pulled from Truckee CWPP (SWCA 2024).

Table 14. Defensible Space Priority Areas in the Plan Area

Forecast Zone	Defensible Space/Home Hardening Zone (acres)
Higgins/Penn Valley	9,935
Grass Valley/Nevada City	10,755

Table 14. Defensible Space Priority Areas in the Plan Area

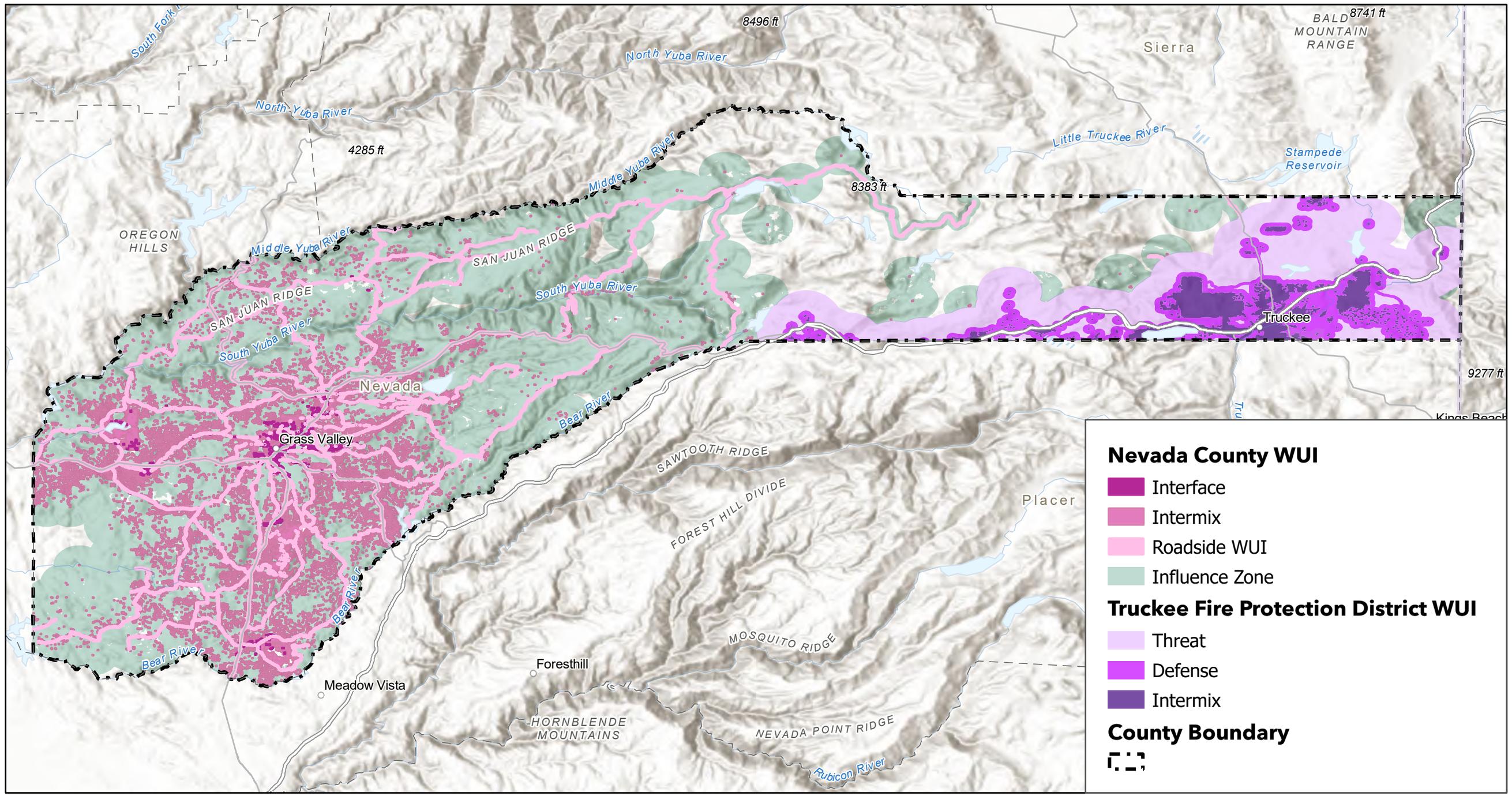
Forecast Zone	Defensible Space/Home Hardening Zone (acres)
Tahoe National Forest Area	266
Truckee/Donner	5,986
Total	26,922

2.7.3 High Value Resources and Assets at Risk

High Value Resources and Assets (HVRA) at risk are values on the landscape that can be impacted by wildfire. Resources are naturally occurring, and assets are human made. HVRAs can be influenced positively or negatively by fire. When assessing wildfire risk, the HVRAs' susceptibility to wildfire impacts was determined. The Interagency Fuel Treatment Decision Support System (IFTDSS) (USDOI and USDA 2024) classified HVRAs into two categories: Primary-HVRAs and Sub-HVRAs. Primary-HVRAs are the overall categories that Sub-HVRAs are sorted into. Sub-HVRAs are the geospatial components of the Primary-HVRA. For example, if the Primary-HVRA is Critical Power Infrastructure then the Sub-HVRA

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Figure 7 - Wildland-Urban Interface



Nevada County WUI

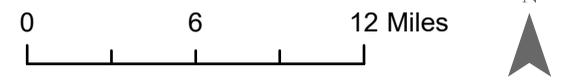
- Interface
- Intermix
- Roadside WUI
- Influence Zone

Truckee Fire Protection District WUI

- Threat
- Defense
- Intermix

County Boundary

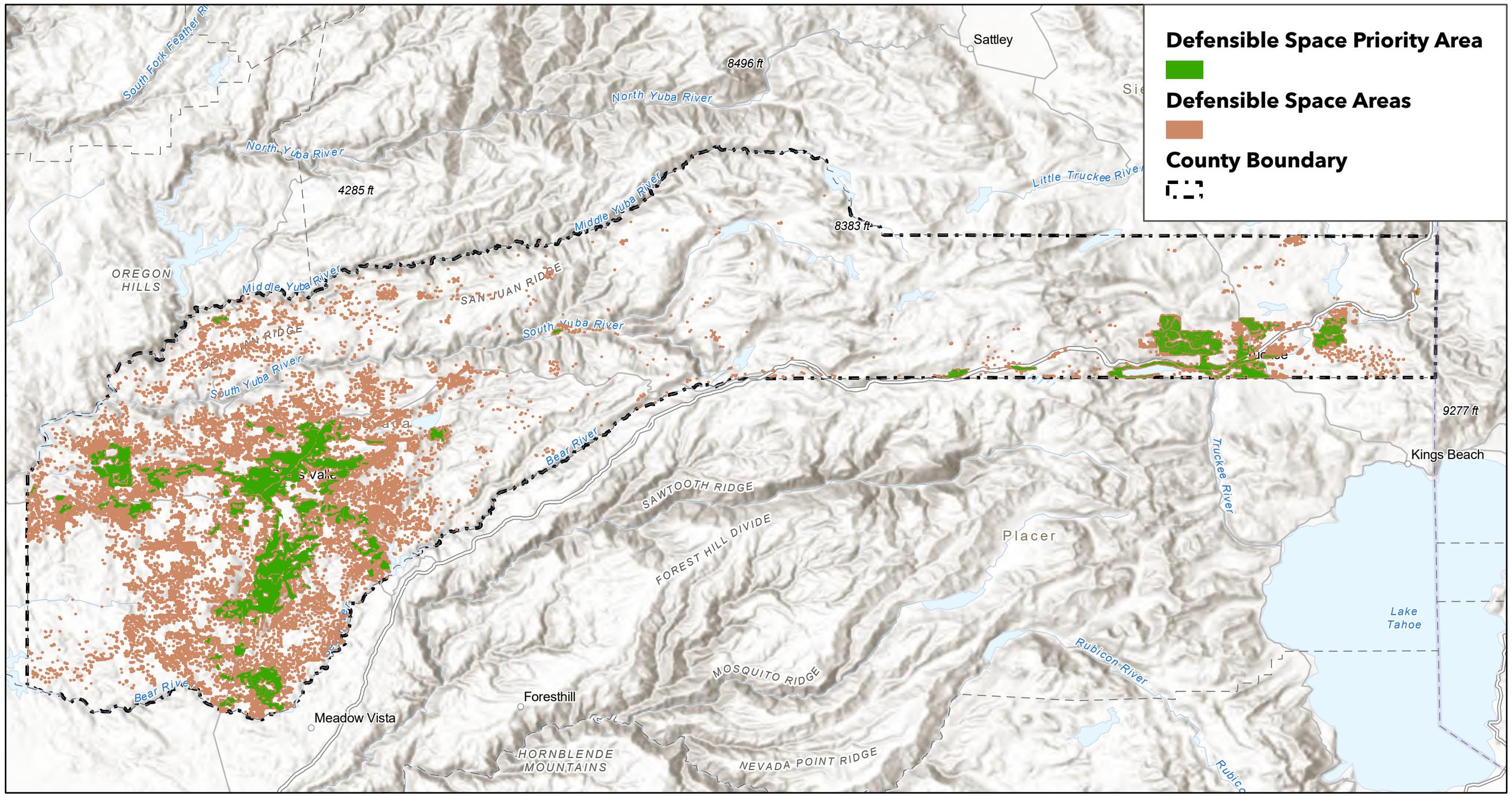
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Figure 8 - Nevada County Defensible Space



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would be powerlines. Since HVRAs are considered “values,” the HVRAs differ from community to community as different communities would have different priorities for wildfire mitigation. Further, HVRAs allow for the creation of consolidated spatial layers of values which can be used for risk assessments or to estimate the potential impact of a wildfire on a community.

Following the hazard assessment (detailed in Section 3.1 of this Community Wildfire Protection Plan (CWPP)), a Quantitative Wildfire Risk Assessment (QWRA) was conducted in the IFTDSS to evaluate wildfire risk across Nevada County and within its FZs. The QWRA aids in land management by characterizing the predicted effects of fire on defined values across a landscape. Results from the QWRA could be used to identify and prioritize potential fuel treatment areas based on what was determined as being valuable. The QWRA helped prioritize fuel treatments and management activities and accounted for the predicted benefits and threats from a fire on multiple, often, overlapping values across the landscape.

The QWRA calculated the estimated benefit or loss of an HVRA to wildfire impacts based on the fire behavior modeling outputs. HVRAs used in a QWRA were limited to HVRAs of high value or high importance. Consideration was also given to the scope of the HVRAs and their appropriateness to the size of the analysis area. A limited scope of the HVRA ensured that the interpretation of the results was manageable and meaningful.

Recognizing that Nevada County has both a unique fire environment and rural challenges, the HVRAs were chosen in a way that tried to capture both factors. The HVRAs for the Nevada County CWPP consider the location of the critical assets at risk but also the community values and Nevada County’s rural nature. The Primary and Sub-HVRAs were chosen based on both the critical assets needed for a community to effectively exist as well as assets and resources that define why people live in Nevada County. This ensured that the QWRA prioritized areas based on where it was strategic to implement risk reduction activities to ensure the survival of a community and based on the location of values that a community would consider necessary to thrive. The list was limited to the HVRAs of the highest importance to ensure the analysis was meaningful and consideration was given to focus on larger categories that encapsulated multiple values into one.

A total of four Primary-HVRAs were selected for modeling and each Primary-HVRA also included up to five Sub-HVRAs. The HVRA list for Nevada County and an explanation of each HVRA is documented in Appendix E of the WRA (Appendix B, Wildfire Risk Assessment). The following HVRAs evaluated in the risk assessment are briefly summarized here and further discussed in Section 3 of the QWRA. The full details of the QWRA can be accessed in Appendix B, Wildfire Risk Assessment.

2.7.3.1 Community Lifelines

Community Lifelines are critical assets to a community. According to the Federal Emergency Management Agency (FEMA), Community Lifelines are the fundamental services of a community that enable all other aspects of society. Community Lifelines are considered to be the absolute necessities that have to be in place for a community to exist (e.g., infrastructure, powerlines, post offices, grocery stores, gas stations). When Community Lifelines are disrupted by a disaster such as a wildfire it can make it very difficult for a community to recover from a disaster. As such, initial response efforts will often focus on protecting Community Lifelines. Essentially, Community Lifelines are what make it

possible to live within a community. Therefore, Community Lifelines was chosen as a Primary-HVRA. For the Nevada County CWPP, the Sub-HVRAs under Community Lifelines are as follows:

- **Communities** include populated areas (e.g., Grass Valley, Truckee, North San Juan, Lake of the Pines, Washington) and assets within them (e.g., fire stations, schools, post offices, gas stations, and grocery stores).
- **Vulnerable Populations** include nursing homes, mobile home parks, homeless shelters, and low-income or disadvantaged communities.
- **Critical Water Infrastructure** includes canals, dams, public and private water storage, water or wastewater treatment sites, and areas likely on well or septic systems.
- **Critical Transportation Infrastructure** includes airports, bridges, highways, railroads, major County roads, and yearlong USFS roads.
- **Critical Power and Communication Infrastructure** includes communications sites, power plants, and major powerlines.

A map of identified Community Lifeline assets within Nevada County is provided in Figure 9.

2.7.3.2 Community Health

Community health focuses on factors that impact the overall health of a community and are potentially could result in secondary impacts from a wildfire that impede community recovery. These are assets that, if they burn or are impacted by a wildfire, will make it much harder for a community to exist or will significantly impact the overall health of a community. The Sub-HVRAs within Community Health are as follows:

- **Wildfire Smoke Emission Potential**, which are areas, identified by the U.S. Forest Service as having a high potential for emitting harmful levels of PM 2.5 if burned.
- **Soil Vulnerability** refers to soils in the County that are more likely to be subject to post-fire mass wasting events such as hydraulic mine scars.
- **Listed Hazardous Waste Sites** are current listed hazardous waste sites.
- **Hospitals and Sheltering Facilities** which include local hospitals, schools, community centers, veteran halls, etc.
- **Solid Waste Management Facilities**

A map of identified Community Health assets within Nevada County is provided in Figure 10.

2.7.3.3 Natural Resources

In Nevada County, natural resources are both high value resources that can be impacted by a wildfire and a wildfire hazard. The majority of vegetation has adapted in one way or another to exist in a fire-prone environment. However, historical management decisions and fire suppression have resulted in many of the natural resources in Nevada County being overloaded with fuel and presenting a fire hazard. Nevada County is also home to an abundance of natural resources that offer recreational amenities, significant species habitat, and support for watersheds. Further, the community has a very strong identity

tied to many of these natural resources, such as the South Yuba River. As such, it is strategic to identify natural resources as a Primary-HVRA for the protection of these resources and the recognition of the fire hazard that some of them present. The Natural Resources Primary-HVRA includes the following Sub-HVRAs:

- **Outdoor Recreation Resources** which include recreation areas such as public parks, trails, campsites, seasonal roads, and the Tahoe National Forest.
- **Watersheds**
- **Significant Species** include State and/or Federally identified critical habitat.
- **Oak Woodlands**
- **Areas of High Climate Change Resilience** are areas identified by the State as being more likely to survive the impacts of climate change (Thorne et al. 2016).

A map of identified Natural Resource assets within Nevada County is provided in Figure 11.

2.7.3.4 Economic Resources

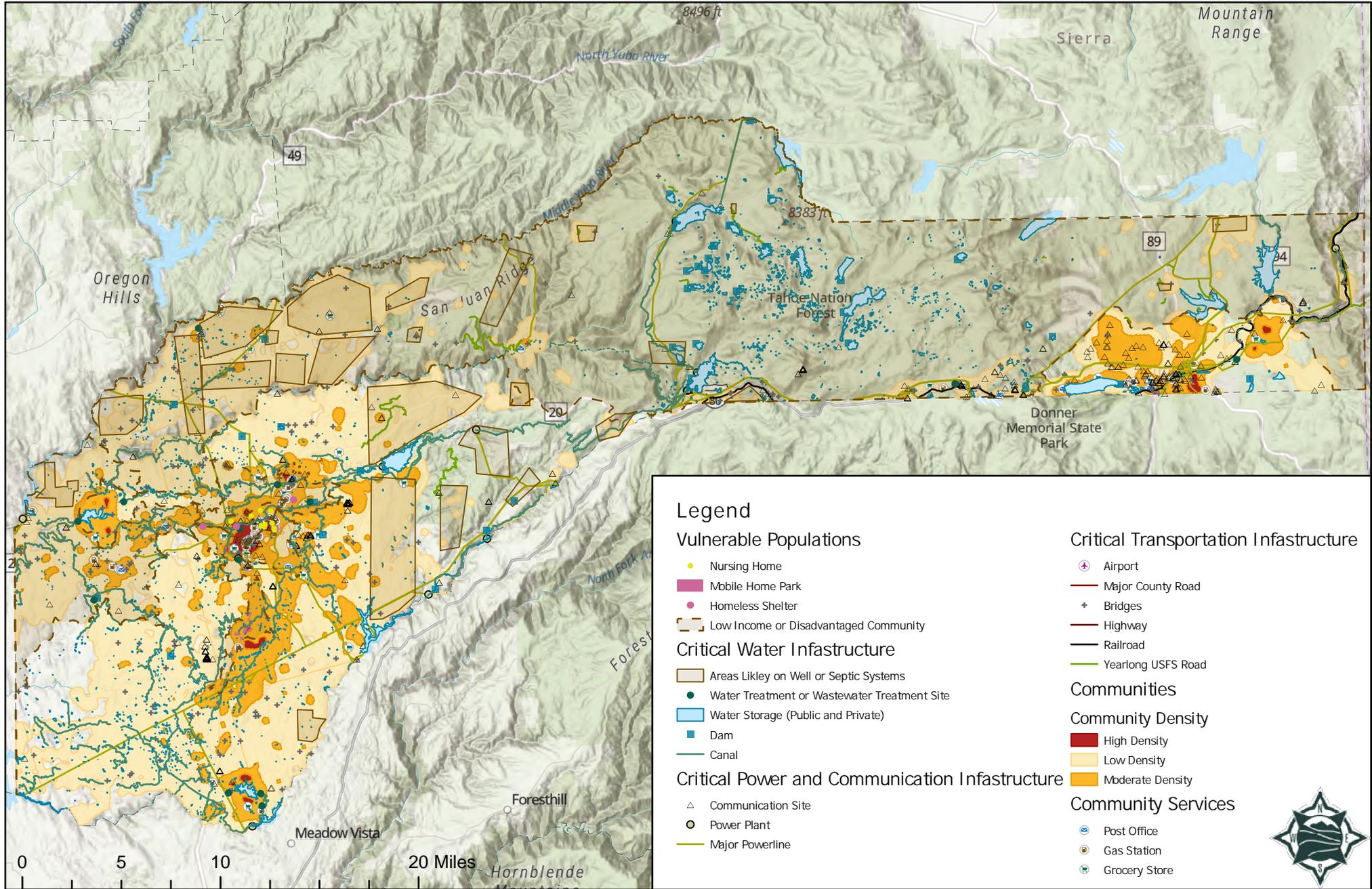
An important component of wildfire resilience is economic resources. Communities not only need to be able to physically survive a wildfire, but they also need to be able to have their economic infrastructure in place so that the community can recover after a wildfire. In California, wildfire has significantly impacted economic resources, impairing the community's ability to recover. This is seen in Paradise, after the Camp Fire, and in rural communities, such as Greenville, after the Dixie Fire. Therefore, it is important to include Economic Resources as a Primary-HVRA in the WRA. In Nevada County, many economic resources also double as natural resources, as the economy is tourist-driven and focused on outdoor recreation. The Economic Resources Primary-HVRA includes the following Sub-HVRAs:

- **Recreation**
- **Historic and Cultural Districts**
- **Government Buildings**

A map of identified Economic Resource assets within Nevada County is provided in Figure 12.

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Figure 9 - Community Lifelines

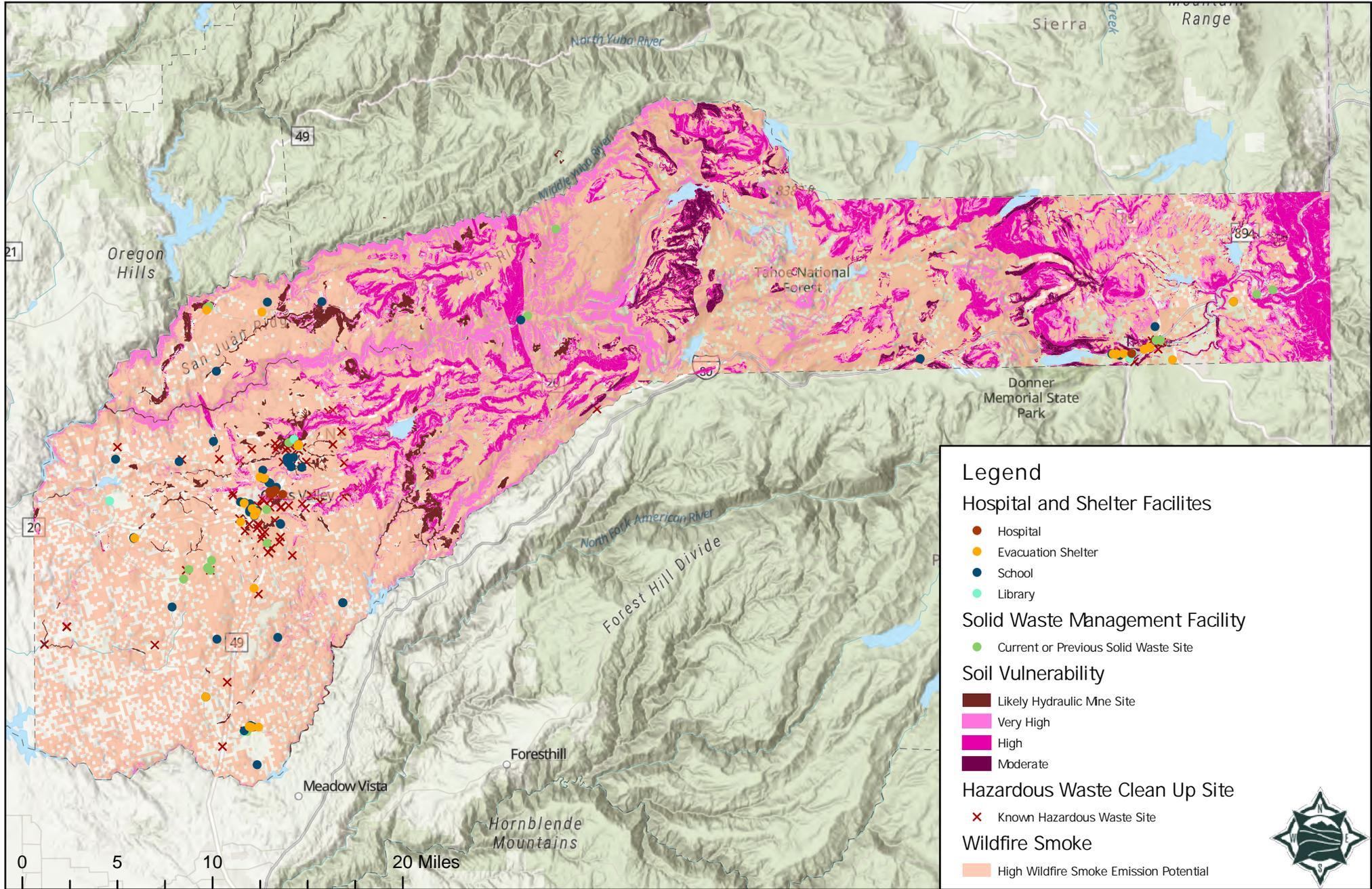


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Figure 10 - Community Health



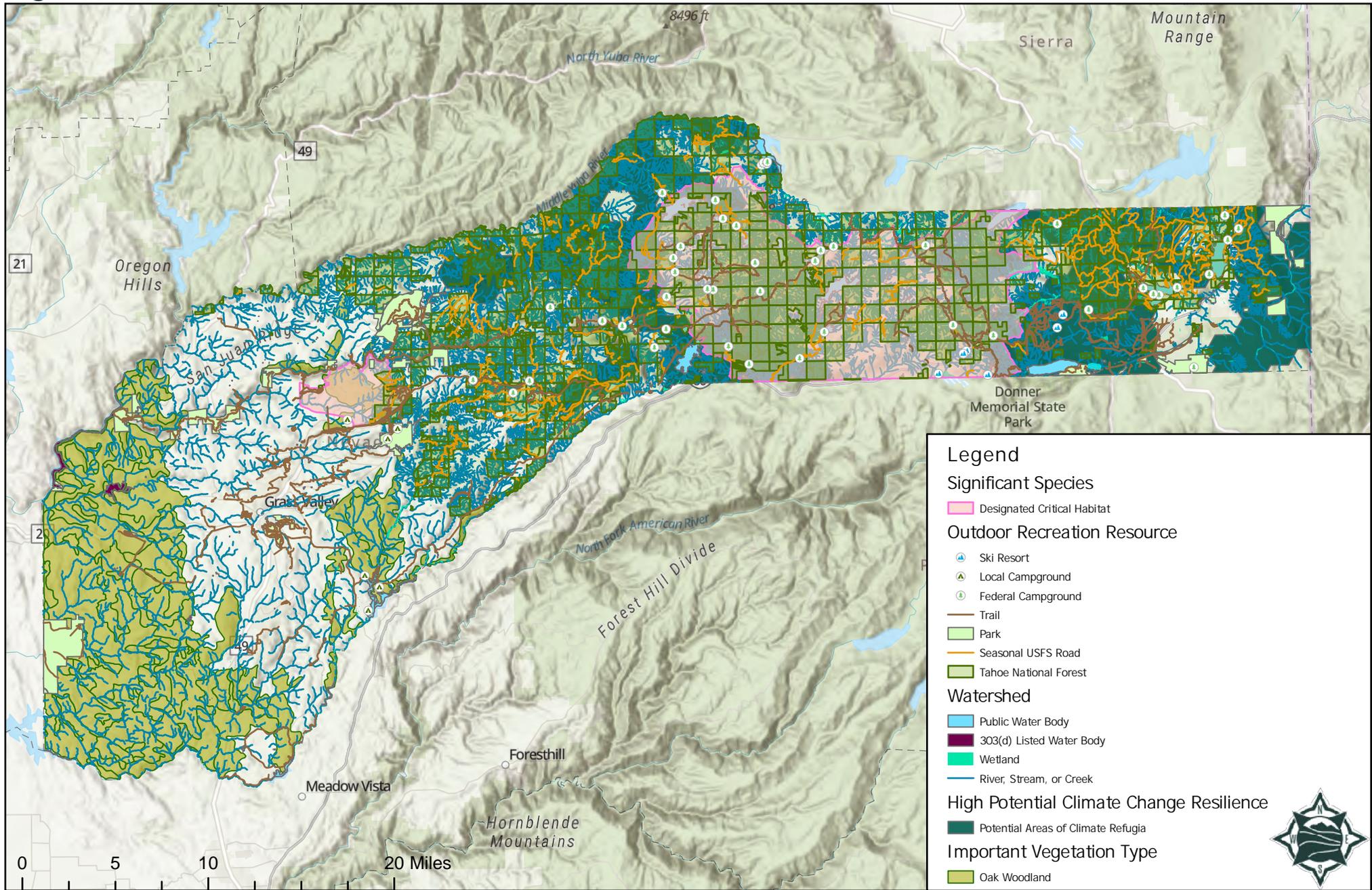
Office of Emergency Services

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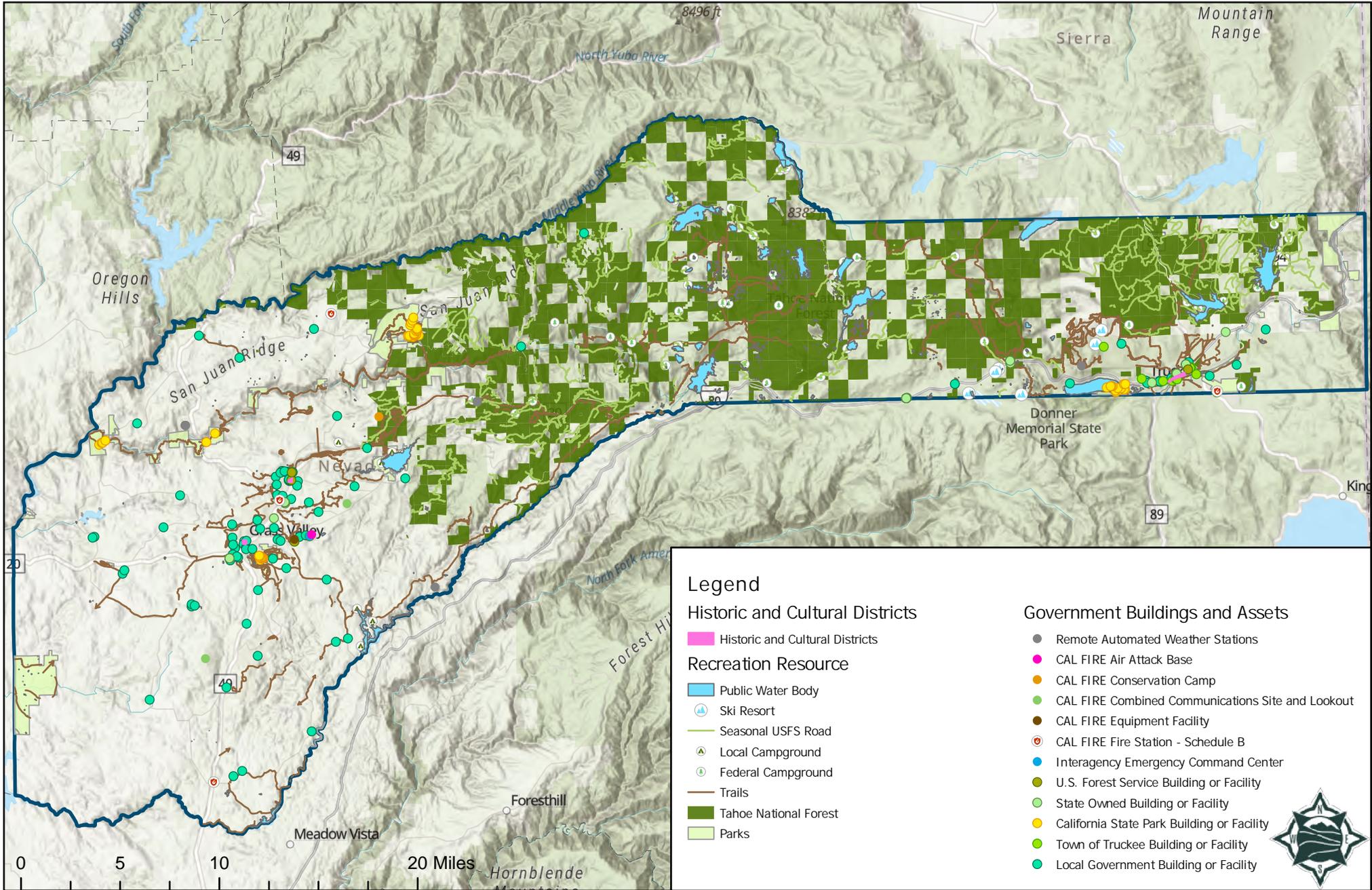
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Figure 11 - Natural Resources



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Figure 12 - Economic Resources



Legend

Historic and Cultural Districts

- Historic and Cultural Districts

Recreation Resource

- Public Water Body
- Ski Resort
- Seasonal USFS Road
- Local Campground
- Federal Campground
- Trails
- Tahoe National Forest
- Parks

Government Buildings and Assets

- Remote Automated Weather Stations
- CAL FIRE Air Attack Base
- CAL FIRE Conservation Camp
- CAL FIRE Combined Communications Site and Lookout
- CAL FIRE Equipment Facility
- CAL FIRE Fire Station - Schedule B
- Interagency Emergency Command Center
- U.S. Forest Service Building or Facility
- State Owned Building or Facility
- California State Park Building or Facility
- Town of Truckee Building or Facility
- Local Government Building or Facility



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2.8 Existing Wildfire Hazard Reduction Plans and Programs

2.8.1 Plans

2.8.1.1 CAL FIRE Nevada-Yuba-Placer Unit 2023 Strategic Fire Plan

The Nevada-Yuba-Placer Unit (NEU) 2023 Strategic Fire Plan is a product of the implementation of the State Fire Plan (CAL FIRE 2024c). The State Fire Plan provides an analysis procedure utilizing, in part, computer-based geographical information data that is validated by experienced fire managers to assess fire fuel hazards and risks to design and implement mitigating activities. The NEU Strategic Fire Plan

provides background information, fuels, and fire data, proposed projects, and individual Battalion reports outlining mitigating activities commonly carried out each year. The NEU Strategic Fire Plan is the local road map to create and maintain defensible landscapes to protect those assets vital to the state and is updated on an annual basis.

The State Board of Forestry and the California Department of Forestry and Fire Protection have drafted a comprehensive update of the Fire Plan for wildland fire protection in California. NEU has reviewed the State Strategic Fire Plan goals to develop and incorporate those goals into the Unit Fire Strategic Fire Plan. NEU's priorities provide the foundation upon which Nevada County's local goals and objectives are built. NEU's priorities and goals are as follows (CAL FIRE 2024e):

Priorities:

1. To reduce the risks to citizens and emergency responders from wildland fires.
2. Develop a "land stewardship" ethic in the residents of the NEU.

Goals:

1. Demonstrate methods that individuals and the community can use to properly manage their lands to improve forest resiliency and reduce the ignitability of structures in the Wildland Urban Interface.
2. Raise citizen and interested parties' awareness of fire risks and enlist their help and participation in risk reduction.
3. Assist local government in developing standards, policies, and plans, which will result in local, and landscape-level fuel modifications.
4. Implement local and landscape level projects and programs that decrease fire risk and increase the potential for success on initial attack.

2.8.1.2 Wildfire Preparedness Action Plan

2019 Wildfire Preparedness Action Plan

The Nevada County 2019 Wildfire Preparedness Action Plan is intended to support and implement specific actions outlined by the 2018 Strategic Fire Plan for California, 2016 Community Wildfire Protection Plan (CWPP), 2018 NEU Strategic Fire Plan, and other community wildfire-related plans that have been developed by fire professionals and experts at the state, regional, and local levels. These fire plans include detailed approaches, projects, and recommendations of how local municipalities should address and prepare for wildfire hazards in their communities. The 2019 Wildfire Preparedness Action Plan is designed to effectively leverage County organizational and staff capabilities to implement the actionable strategies derived from the goals outlined in the other plans.

The 2019 Wildfire Preparedness Action Plan empowers the County to act as a facilitator to bring local and regional wildfire-interested parties together to collaborate and coordinate on tactical actions that provide the most significant impact locally, in the 12 months to 48 months from the publication of the plan. The County OES is spearheading this plan, which provides a direct response to the need for increased community education, communication, preparedness, and action in anticipation of the next extreme wildfire event.

The Nevada County Board of Supervisors and community's overarching goals are to implement a comprehensive system of wildfire hazard reduction and preparedness activities in Nevada County. The 2019 Wildfire Preparedness Action Plan objectives are based on adaptive management strategies, lessons learned, experience, and best practices. OES will update this plan to inform the Board of Supervisors and the public, as well as provide details on the results and impacts of these actions. Its objectives and action items will also be updated periodically as the Board of Supervisors provides further direction and policy guidance.

For each of the identified objectives, this plan lays out a few corresponding action items to be completed, or to be continued by the County and community stakeholders over the next 12 months to 48 months from the publication of the plan. It also lists those action items already accomplished by the date of the plan's publication. The identified objectives and action items are not meant to be all-inclusive, as there may be additional objectives and actions that can be utilized to reach the primary goals. The outlined action items focus solely on activities that County staff can undertake and accomplish in their daily job activities with available resources. Refer to the 2019 Wildfire Preparedness Action Plan document for action items that are to be accomplished, ongoing, or already completed (County of Nevada 2019).

- **Objective 1:** Amend Hazardous Vegetation and Combustible Material Abatement Ordinance No. 2411 to provide fire agencies/departments and County staff with an effective and efficient tool to address emergency community needs. This ordinance will be utilized to achieve County-wide parcel compliance.
- **Objective 2:** Increase property owner accountability and parcel fire-safe compliance through the County's continued defensible space inspection (DSI) program in coordination with CAL FIRE and Nevada County fire districts.

- **Objective 3:** Increase local community education, awareness, and support for hazardous vegetation abatement and the County’s hazardous vegetation compliance efforts.
- **Objective 4:** Provide the community with more convenient and affordable green waste disposal options.
- **Objective 5:** Leverage the County’s General Plan fire protection elements to make our community safer.
- **Objective 6:** Enable Community Plan project objectives by seeking hazardous vegetation reduction and fire safe community funding opportunities.
- **Objective 7:** Increase the percentage of residents who are enrolled in the County’s emergency alert system Code RED and who are prepared for emergencies.
- **Objective 8:** Facilitate County-wide wildfire prevention interested parties to share activities and best practices, maximize funding opportunities and resources, and enhance project coordination and collaboration across Nevada County.
- **Objective 9:** Enhance public safety in highly visited and high wildfire-risk remote areas such as the South Yuba River Canyon.
- **Objective 10:** Work with local fire officials, Sheriff, Public Works, Cal Trans, Fire Safe Council, Fire Wise Communities, neighborhoods, and homeowner associations to develop localized “zone-based” evacuation plans to be used during an emergency situation, and to assess and plan for required evacuation route capacities.
- **Objective 11:** Participate in the next update of the County-wide Community Wildfire Protection Plan.
- **Objective 12:** Further mature and develop the Emergency Operations Center (EOC) staffing, capabilities, training, systems, resources, and response readiness.

2.8.1.3 Nevada County Local Hazard Mitigation Plan

The Local Hazard Mitigation Plan (LHMP) is one of the four documents that comprise Nevada County’s Roadmap to Resilience. The LHMP is a multi-jurisdictional plan that addresses all hazards County-wide, including wildfire. Jurisdictions included in this effort are the County of Nevada, the City of Grass Valley, the City of Nevada City, the Town of Truckee, the Nevada Irrigation District, the Truckee/Donner Public Utility District, Nevada County Consolidated Fire District, and the Washington Water District. The goal of hazard mitigation planning is to minimize the impact of future disasters.

The LHMP is currently undergoing an update. In 2024, the County designed a survey for community input regarding how to better prepare the communities to withstand the hazards and potential disasters that are most relevant to the area (County of Nevada n.d.a). More information on the LHMP can be found at: <https://www.nevadacountyca.gov/3830/Local-Hazard-Mitigation-Plan>.

2.8.1.4 Nevada County Evacuation Study

The Nevada County Evacuation Study was published in February 2024 through OES and was conducted by PyroAnalysis LLC and Ladris Technologies in partnership with local departments and state agencies. By analyzing fire behavior, human behavior, traffic management, and infrastructure capacity-related challenges through a comprehensive, community-informed, and data-driven approach, this study aims to

develop actionable plans that establish a resilient strategy for effective emergency evacuations. The Evacuation Study includes the following:

- Mapped evacuation constraints and tailored strategies for the five most evacuation-vulnerable areas in Nevada County.
- Analysis of fire behavior and traffic dynamics essential for effective evacuation planning.
- Recommendations for roadway improvements and wildfire mitigation projects to enhance evacuation route safety and capacity.
- Appendix documenting place-based needs put forth by Firewise Communities, HOAs, and Neighborhood Associations.

The study evaluated each of the focus areas based on the significant potential for catastrophic wildfire events (Alta Sierra and Greenhorn Road have the greatest potential) and evacuation clearance time (Lake of the Pines has the longest), among other factors. The conclusion is that all areas require efforts to enhance their wildfire resilience. The study recommends focusing on two broad areas: (1) evacuation route improvements and (2) wildfire mitigation strategies. While specific details vary for each area, the following are recommended across all study areas:

Roadways

- Continue to collaborate with Nevada County Transportation Commission and Caltrans
- Add turnouts to roadways to allow for emergency vehicle passage
- Expand shaded fuel breaks along roadways
- Expand collector roads and widen shoulders

Wildfire Mitigation

- Vegetation Management/Fuel Reduction
 - Drastically reduce fuel loads along roads and near homes
 - Ensure defensible space standards are met or exceeded, including establishing an ember-resistant zone in defensible space ("Zone 0")
 - Limb and thin trees
 - Open the tree canopy to prevent crown fires
- Add a grant-funded Nevada County Wildfire Mitigation ombudsman to assist property owners in working with regulatory agencies to achieve wildfire resilience outcomes on private land.
- Home Hardening
 - Enhance building regulations to align with VHFHSZs
 - Replace flammable materials with limited noncombustible, or flame-resistant materials

Appendix A of the Evacuation Plan, titled Community-Identified Evacuation Concerns, discusses current evacuation situations and challenges, and opportunities to improve evacuation for 23 communities in the Plan Area. While the above section encapsulates the overall needs and opportunities of improving

evacuation, and while primary evacuation challenges vary for each community, the following list displays commonalities articulated for evacuation situations and challenges:

- Limited ingress/egress roads
- Bottleneck effect
- Road suitability for all vehicles (low clearance, RV, trailers, 2WD),
- Fuel clearance alongside roads
- Private roads / locked emergency exits
- Clear communication from traffic control and law enforcement
- Timely alerts
- Knowing the evacuation routes beforehand

The study provides a road map for enhancing community resilience against wildfires, emphasizing the importance of a multifaceted, collaborative approach in emergency planning. By combining scientific analysis with real-world applicability, the findings and recommendations aim to ensure that Nevada County is better prepared and equipped to manage and mitigate the risks associated with wildfires (County of Nevada 2024b).

2.8.1.5 Office of Emergency Services Wildfire Evacuation Preparedness Action Plan

The Wildfire Evacuation Preparedness Action Plan outlines how OES is making progress on the 2020 Board of Supervisors a Priority: *Reduce the loss of life during a wildfire by improving evacuation routes and early warning systems; creating more defensible space around private properties and driveways, building a network of maintained fuel breaks, engaging residents in emergency preparedness and fire-safe stewardship, and enhancing critical infrastructure.* The plan outlines the five initiatives that drive OES work and the milestones by which progress will be measured quarterly (County of Nevada 2020c):

1. Create safer evacuation routes County-wide to save lives.
2. Improve early warning systems and emergency communications to reach everyone.
3. Establish defensible space around our homes and neighborhoods by reducing hazardous vegetation and encouraging voluntary compliance with defensible space standards.
4. Provide a coordinated approach to wildfire response preparedness through planning, community engagement, and project implementation.
5. Enhance critical infrastructure needed to respond to wildfires such as evacuation route improvements, water storage, fire hydrants, communication systems, and green waste facilities.

2.8.1.6 Community Wildfire Protection Plans

This section summarizes other existing or planned Community Wildfire Protection Plans (CWPPs) in the County. These documents are provided in Appendix E.

2.8.1.6.1 Nevada County (2016)

The Nevada County CWPP (2016) quantifies wildfire hazards and risks within the County and recommends planned actions to reduce impacts on human life, property, essential infrastructure, and

natural resources from wildfire (Fire Safe Council of Nevada County (FSCNC) 2016). Uniquely, the Plan utilizes the Natural Assets Database to integrate ecosystem service values into its assets at risk. A Mitigation Action Plan was created concentrating on safety issues within the following categories:

- Education and outreach related to Firewise Communities
- Fuels reduction
- Improved protection capabilities

The CWPP aims to address the following objectives through identifying and providing paths for implementing priority projects in response to increasing wildfire risks due to historic fire suppression, climate change and declines in forest health, a growing County population within the WUI, and a patchwork of cross-jurisdictional ownership including State, Federal, and Local Responsibility Areas:

1. To reduce wildfire risk to communities, municipal water supplies, and other at-risk Federal land through a collaborative process of planning, prioritizing, and implementing hazardous fuel reduction projects.
2. To authorize grant programs to improve the commercial value of forest biomass (that otherwise contributes to the risk of catastrophic fire, or insect or disease infestation) for producing electric energy, useful heat, transportation fuel, and petroleum-based product substitutes, and for other commercial purposes.
3. To enhance efforts to protect watersheds and address threats to forest and rangeland health, including catastrophic wildfire, across the landscape.
4. To promote systematic gathering of information to address the impact of insect and disease infestations and other damaging agents on forest and rangeland health.
5. To improve the capacity to detect insect and disease infestations at an early stage, particularly with respect to hardwood forests.
6. To protect, restore, and enhance forest ecosystem components, including the possibility to:
 - a. promote the recovery of threatened and endangered species;
 - b. improve biological diversity; and
 - c. enhance productivity and carbon sequestration

2.8.1.6.2 Truckee Fire Protection District (2024)

In collaboration with SWCA Environmental Consultants, Truckee Fire completed a CWPP for the Truckee community. The 2024 Truckee Fire Protection District Wildfire Protection Plan (CWPP) identifies potential priority areas where mitigation measures can help protect the irreplaceable life, property, and critical infrastructure within and adjacent to the Truckee Fire Protection District (FPD) and is published as an ArcGIS StoryMap (Truckee Fire 2024).

2.8.1.6.3 North San Juan Fire Protection District (2017)

North Juan Fire Protection District serves an 87-square-mile area of the San Juan Ridge, located north of Nevada City and Grass Valley areas, and is located within the Grass Valley/Nevada City FZ. It includes the town of North San Juan and the smaller communities of French Corral, Birchville, Sweetland,

Cherokee and North Columbia. Over the past several decades, the district has grown from a volunteer fire department to a taxpayer-supported fire district still staffed mainly by volunteers. CAL FIRE Columbia Hill Station 42 is located within the district and is staffed during fire season.

Situated between the Middle and South Yuba Rivers, factors such as topography, fire suppression and a network of privately and in some cases poorly maintained roads have contributed to a severe risk of wildfire throughout much of the district. However, various programs offered by county and federal agencies and the creation of 12 Firewise Communities since 2018 have helped to improve conditions in many neighborhoods. The District has also identified several Temporary Refuge Areas for emergency shelter in place for the residence of our community.

The second edition of the district's CWPP was drafted by the North San Juan Fire Protection District and updated in 2017. Prior to the 2017 update, the first iteration of this CWPP was published in 2005. The North San Juan Fire Protection District CWPP has two purposes:

1. To provide a database of District information for inclusion in grant proposals or for other uses
2. To satisfy the requirement for priority funding of grants under the Healthy Forests Restoration Act of 2003, a Fire Plan exists giving "background information about a project area, a discussion of community values at risk, community base maps, a fire risk assessment, and recommendations that identify treatment areas for reducing fuels and promoting education and awareness about wildland fires." The primary goal of the CWPP is to protect human life, private property, essential infrastructure, and natural resources through the implementation of fire prevention projects that work to increase public awareness, improve forest health, sustain local wildlife, and preserve the natural beauty of the area through a shared responsibility concept. The final adopted plan was included in the previous Countywide CWPP as an Appendix.

2.8.1.6.4 Grass Valley Wildfire Hazard and Risk Assessment (2024)

The City of Grass Valley prepared a Wildfire Hazard and Risk Assessment to evaluate the City's wildfire exposure and identify where approaches could be implemented to reduce wildfire risk to the community. The Assessment included focused wildfire hazard and risk modeling for the City and its Sphere of Influence, which indicated that over 75% of the analysis area exhibited High, Very High, and Extreme wildfire relative risk. The assessment report provides a description of potential wildfire risk reduction approaches and was completed in 2024.

2.8.1.6.5 Nevada City (2024)

The City of Nevada City is in the process of developing a CWPP covering the City and its Sphere of Influence. To date, the City has initiated community outreach, completed a community survey and held a community workshop to gather input for the CWPP development process. Preparation of the CWPP document is currently underway.

2.8.1.6.6 Nevada County Resource Conservation District (2024)

The Nevada County Resource Conservation District has developed a strategic plan that addresses its stated goals of 1) Carbon Sequestration, Biomass Removal, and Wood Product Utilization; 2) Wildfire

Mitigation and Resilience; 3) Climate Resilience Actions; and 4) Social and Cultural Well-Being. The plan identifies strategic initiatives including livestock grazing and prescribed fire, biochar usage for mine restoration and soil health, carbon sequestration and ecosystem health, and recreation and tourism utilization. Projects identified in the plan include fuel reduction and fire prevention, prescribed fire training, education, reforestation, biomass utilization, and early warning systems enhancements, amongst others.

2.8.1.7 Sierra Nevada Conservancy Strategic Plan (2024–2029)

The Sierra Nevada Conservancy is a state agency with a mission to initiate, encourage, and support efforts that improve the environmental, economic, and social well-being of California’s Sierra-Cascade Region, its communities, and the people of the state. The Sierra Nevada Conservancy services the "Sierra-Cascade" region, which includes the mountains and foothills of the Sierra Nevada range, the Mono Basin, Owens Valley, the Modoc Plateau, and parts of the southern Cascade Range and Klamath Mountains (Sierra Nevada Conservancy n.d.). The purpose of the Sierra Nevada Conservancy 2024–2029 Strategic Plan document is to identify Sierra Nevada Conservancy’s priorities over the next 5 years, lay out the strategies and high-level actions that will advance those priorities, and communicate how this work meets Sierra-Cascade Regional needs and state priorities (Sierra Nevada Conservancy 2024). The plan details the four regional goals that the Sierra Nevada Conservancy will engage in, with objectives outlined for each to meet these goals:

1. Healthy Forests and Watersheds
2. Resilient Sierra-Cascade Communities
3. Sustainable Recreation, Tourism, and Equitable Outdoor Access
4. Conservation and Stewardship of Natural Working Lands

2.8.1.8 Tahoe–Central Sierra Initiative

In 2017, federal, state, and private partners founded the Tahoe–Central Sierra Initiative (TCSI) to pilot innovative solutions to improve science-based forest management and restoration. The TCSI aims to restore the resilience of 2.4 million acres of Sierra Nevada forested watersheds and to act as a model for similar initiatives in other at-risk landscapes in the state (TCSI 2023). TCSI’s goals are as follows:

1. Develop and implement forest health projects across the landscape.
2. Accelerate the administrative processes to complete these projects.
3. Secure the necessary funding for these projects.
4. Develop the next generation of biomass and wood-utilization facilities.
5. Monitor forest health projects to understand the impact and continuously improve the outcomes (TCSI n.d.).

This initiative focuses on the Lake Tahoe–Central Sierra Nevada region, a 2.4-million-acre landscape that is crucial for downstream communities, agricultural interests, recreationists, and the environment. This landscape sustains communities, ensures a reliable water supply for California, provides wildlife habitat, mitigates climate change through carbon sequestration, and is an important part of California’s

economy. At the same time, this area is at significant risk of large severe wildfires and unnatural levels of tree mortality given the overgrown, unhealthy forest conditions that exist there. TCSI aims to improve the understanding of current landscape conditions and the potential effects of management decisions on future landscape conditions in order to inform future forest management.

A Memorandum of Understanding exists between many partners who work together to be collectively known as the “TCSI Partners”: The Nature Conservancy; the Sierra Nevada Conservancy; the California Tahoe Conservancy; the National Forest Foundation; California Forestry Association; the U.S. Department of Agriculture (USDA) Forest Service Pacific Southwest Research Station; the University of California Natural Reserve System, including the Sagehen Creek Field Station; and the USDA Region 5 Forest Service, including the TNF, the Eldorado National Forest, and the Lake Tahoe Basin Management Unit.

The purpose of the Memorandum of Understanding is to document the cooperation between the TCSI Partners and provide a framework to enable further cooperation and coordination on the TCSI. The TCSI Partners will partner in the following to improve the health and resiliency of the forest ecosystems and communities in the Central Sierra and Lake Tahoe Basin:

1. Supporting and implementing ecologically based forest restoration projects, based on the best available science including GTR-220 and GTR-237, including, for example, mechanical thinning, controlled burning, and managed wildfire, to reduce the risk of high-severity wildfire and promote healthier, more resilient forest conditions.
2. Supporting, developing, and implementing science-based large-landscape restoration projects with integrated design, implementation, and monitoring.
3. Integrating research and monitoring into activities to guide the creation of fire- and climate-resilient forests and fire-adapted communities across ownerships, and to inform future landscape management and policies.
4. Supporting the development of biomass and wood utilization facilities to make economic use of the solid wood and wood byproducts of ecologically based forest restoration.
5. Accelerating planning, permitting, and implementation of high-priority projects.
6. Increasing and leveraging federal, state, local, and private funding.
7. Obtaining private investment in headwaters restoration to yield an improvement in ecological services.
8. Developing a strong relationship between this landscape and nearby areas that benefit from the ecological and economic benefits that originate in the TCSI landscape so that FS Agreement No. I 7-MU-11052000-094 downstream decision-makers and interested parties can see firsthand the benefit of restoration activities in their upstream headwaters.

While the Memorandum of Understanding does not provide the authority to obligate funds, the TCSI Partners may develop specific agreements to address funding and resource sharing as appropriate and feasible on a case-by-case basis (TCSI 2017).

2.8.1.9 Yuba Forest Network

The Yuba Forest Network (YFN) is a forest health collaborative comprised of non-profit organizations, regional, state, and federal agencies, private businesses, academic groups, special districts and municipalities, and Tribes working towards forest restoration within the Yuba and Bear River watersheds. The YFN was formed in 2020 out of an identified need for development of a large-scale cohesive strategy addressing forest health issues across the landscape. The YFN aims to increase collaboration by connecting stakeholders, projects, and resources to accelerate the pace and scale of forest health projects across Yuba forests. The mission, vision, and goals of the YFN emphasize cross-boundary collaboration between organizations for the health and resiliency of Yuba forests. The YFN is a central networking hub that promotes a united regional identity around the forests of the Yuba watershed and uplifts and connects the voices of active stewards of the landscape.

The goals of the YFN are as follows:

- Create a community of collaboration among practitioners
- Develop a consolidated resource-sharing and networking platform
- Identify areas of greatest need for forest health work
- Increase forest health and resilience across the Yuba watershed

In 2021, members of the YFN authored a Resilience Strategy for Yuba Forests, a collaborative document outlining a shared vision of forest health and resilience as well as regional desired outcomes for forest restoration. The Strategy supports YFN stakeholders and practitioners across the region in project identification, planning, and implementation in alignment with resilience goals. The Strategy is a living document and will continue to be adapted as stakeholder needs and actions develop and as the conditions of the region change with ongoing climatic, fire, drought, and social and cultural well-being changes.

2.8.2 Programs

2.8.2.1 Firewise Communities

The Firewise USA program is administered by the National Fire Protection Association (NFPA) and is co-sponsored by the USDA Forest Service and the National Association of State Foresters. While the NFPA administers this program, individuals and communities participate voluntarily. Any community that meets a set of voluntary criteria on an annual basis and retains an “In Good Standing Status” may identify itself as being a Firewise Site. As administrators of this national program, NFPA may use the information provided by communities in a variety of ways, including research, to obtain risk reduction success stories and to provide value-added benefits to participants through its work with private sector entities. The Firewise USA program was produced in cooperation with the USDA Forest Service and is co-sponsored by the USDA Forest Service, the U.S. Department of the Interior, and the National Association of State Foresters (NFPA n.d.). Residents can use the searchable map on the ReadyNevadaCounty.org website under the [Community Resources](#) tab to see if they reside within a Firewise Community.

The Fire Safe Council of Nevada County coordinates the [Firewise Communities USA](#) program. The mission of the Fire Safe Council is to reduce the risk of life and property loss from wildfire. Firewise Communities raise awareness, organize at the community level, coordinate work parties, and take action to create fire-adapted communities through the implementation of defensible space standards (County of Nevada n.d.b). As of May 1, 2024, the Fire Safe Council of Nevada County is the Regional Coordinator for 104 Firewise USA Communities in Nevada County (FSCNC 2024a). Additionally, residents use the searchable map on [Nevada County's Firewise website](#) to find Firewise communities by address.

In addition to the Fire Safe Council of Nevada County, Truckee Fire Protection District has provided direct Firewise coordination, support, services, and programming to communities in the Truckee/Donner FZ since 2022.

2.8.2.2 Defensible Space Programs

Nevada County

Defensible Space Inspections

Defensible space around the home and along the home's roadways is required by the County of Nevada Hazardous Vegetation Abatement Ordinance, of which the specifics can be found in Nevada County Ordinance 2477. The County provides helpful resources on its Defensible Space website to support access to information for residents. The County also provides Defensible Space inspections to those who request them, which can be found on the same website (County of Nevada n.d.c).

Defensible Space Assistance for Seniors & People Living with Disabilities

The County previously offered the Defensible Space Assistance program, also known as the Access & Functional Needs Program, to qualifying residents throughout Nevada County. This program provided 100 feet of defensible space clearing services to residents who are either 65+ or disabled and low-income. Eligible applicants were required to supply proof of residency, medical disability, and income. Income qualifications are based on the U.S. Department of Housing and Urban Development/California Department of Housing and Community Development criteria.

The program was implemented in two phases. In Phase I, Defensible Space treatment was completed for 68 properties that had previously expressed interest and been determined to be eligible. Additionally, community engagement and eligibility verification for an additional 775 homes to receive treatment in Phase II were conducted.

Environmental and Cultural review of 775 eligible properties is taking place in Phase II. Once this review is complete, defensible space implementation will commence on these properties. Each property to receive treatment will receive a pre-inspection to verify the need for treatment as well as a post-inspection to confirm that defensible space compliance has been achieved.

In total, once Phases I and II are complete, Nevada County will have provided defensible space assistance to nearly 850 residents who met income requirements, who are elderly, and/or who are living with disabilities. The project was designed to meet a need identified by the community which is that not all

residents are in a physical or financial position to implement defensible space around their homes. The goal of this project is to increase wildfire resilience for community members who may not otherwise be able to reduce the threat of wildfire within 100 feet of their homes.

The County received funding for this program through the Hazard Mitigation Grant Program. Hazard Mitigation Grant Program funds are made available by FEMA. The Fire Safe Council of Nevada County was contracted as the local partner on this project to implement Phase I. This grant program requires a 25% local match, which is coming from a variety of sources including the United Way of Nevada County, County staff match, as well as Fire Safe Council match (County of Nevada n.d.d).

CAL FIRE

Defensible Space Inspections

CAL FIRE's Nevada-Yuba-Placer (NEU) Unit implements its Defensible Space Inspection Program. Under this program, NEU defensible space inspectors visit residences each year to verify compliance with California Public Resources Code (PRC) 4291. Non-compliant landowners are provided an opportunity to perform necessary fuel treatment prior to re-inspection. Second and third inspections are performed to determine the need for law enforcement action.

Nevada City

Defensible Space Inspections

In May 2024, the City of Nevada City began inspections of all city parcels. The inspections are designed to be educational and help residents identify and correct conditions that make their property susceptible to wildfire. The [inspection checklist](#) checks property characteristics against adherence to or violation of the City's Defensible Space and Vegetation Management Ordinance, which (City of Nevada City 2024). Nevada City completed inspections of every parcel in the City utilizing Fire Aside. The City also employs a fuels reductions crew and has been proactively treating vegetation along roadsides and on City-owned parcels to meet the standards outlined in their ordinance.

Grass Valley

Vegetation Management and Inspection Program

The City of Grass Valley operates a vegetation management and inspection program that involves conducting evaluations of each parcel in the City using the Fire Aside app. The inspections provide education to property owners on home hardening and defensible space practices. A program manager and 1-2 staff members implement the program with the assistance of a contracted vendor conducting baseline inspections. The program is focused on fuel reduction in and around the City and also includes grants for residences and businesses to assist with vegetation management/fuel reduction and home hardening. The City also conducts vegetation management/fuel reduction on City-owned properties.

Truckee

Defensible Space Inspections

Truckee Fire has a comprehensive and industry-leading defensible space program. Truckee Fire breaks its district into zones to ensure each home is inspected least once every 3 years. Residents may request a free educational defensible space inspection, which is then conducted on the Fire Aside platform, giving residents a holistic view of actions that need to be taken to reduce structure ignitability and conform with state defensible space laws and local ordinances. Residents can complete defensible space actions and schedule a reinspection or submit photos for resolution to attain compliance. Residents may also neatly stack green waste piles generated from defensible space work on the curbside of a public roadway and reserve a green waste pickup to remove the material for free.

Fire Safe Council of Nevada County

The Fire Safe Council of Nevada County offers a variety of defensible space programs to assist community members with preparing their properties for wildfire season (FSCNC 2024b).

Defensible Space Advisory Visit

The Defensible Space Advisory Visit program provides a one-on-one consultation at a resident's home with a trained Volunteer Advisor from the Fire Safe Council. The Advisor will walk around the home with the homeowner and provide friendly, knowledgeable advice on what the homeowner can do to reduce the threat of losing their home in a wildfire. Defensible Space Advisory Visit consultation covers what a homeowner can do to make their house and other structures more fire-resistant or "hardened" and how to treat the vegetation around their house and other structures to meet the legal defensible space requirements found in California Public Resource Code 4291.

A visit usually takes about an hour. The Advisor will help the homeowner procure an action plan, including specific recommendations about hardening their home and improving the 100 feet surrounding their home. A Defensible Space Advisory Visit is designed to take the mystery out of what to do and help people understand exactly what needs to be done. Advisors conduct "visits," not inspections, as there is no threat of enforcement; they have no authority to issue citations, and as such, the visits are just that—"advisory." Advice is for homeowner use only, shared only with the homeowner or resident, and it is not reported to anyone (e.g., insurance companies).

Defensible Space Clearing Service

The Fire Safe Council accepts requests for the Defensible Space Clearing Service. A member of the team will assess the desired work and formulate a reduced cost estimate that will help the landowner gain defensible space at the lowest rate possible while still supporting The Fire Safe Council of Nevada County and all of their programs.

Chipping Program

The Fire Safe Council of Nevada County will chip brush that is cleared from the defensible space of any permanent structure and/or from any roadside or driveway used for evacuation purposes. Most

residential properties can be chipped in 1 hour to 4 hours if piles meet the requirements of the program. The majority of residential properties are completed within 1 hour. The current rate for chipping is \$175 per hour. The chipping professionals can schedule either a free estimate or simply come out to complete the work with the drive-by program. For the drive-by program, no specific time or date is given. As long as program guidelines are met, there is no need for a resident to be home when piles are chipped. Refer to the Fire Safe Council website for prohibited items and program requirements.

2.8.2.3 Fire Protection Partnerships

Eleven fire districts serve Nevada County: Grass Valley Fire Department, Higgins Fire Protection District, Nevada City Fire Department, Nevada County Consolidated Fire District⁴, North San Juan Fire Protection District, Ophir Hill Fire District, Peardale-Chicago Park Fire Protection District, Penn Valley Fire Protection District, Rough and Ready Fire District, Truckee Fire Protection District, and Washington Fire Department. Nevada County also maintains partnerships with adjoining fire agencies through automatic and mutual aid agreements. These protocols intend to supply adequate fire suppression resources during an escalating wildfire in the County. Aiding jurisdictions include CAL FIRE, the U.S. Forest Service (USFS) Wildland Fire Protection, Placer County Fire Department, Placer Hills Fire District, and Butte County Fire Department. Fire suppression assistance can be requested through the following agreements:

Automatic Aid: Automatic aid agreements dispatch firefighting personnel closest to the incident regardless of jurisdictional boundaries. Fire agencies in Nevada County maintain several regional automatic aid agreements to ensure a timely and adequate response to wildfires throughout the County (County of Nevada 2005).

Master Mutual Aid Agreements: Master Mutual Aid Agreements create cross-jurisdictional partnerships to provide aid during a time of crisis. The California Disaster and Civil Defense Master Mutual Aid Agreement managed by the California Office of Emergency Services (Cal OES) provides for voluntary aid among local jurisdictions and the state without the expectation of reimbursement. The County is within Region IV of the California Master Mutual Aid Plan and the Inland administration region of Cal OES. Mutual aid coordinators at the operational, regional, and state levels coordinate to process mutual aid requests.

California Fire Assistance Agreement: The California Fire Assistance Agreement is a protocol for coordinating the reimbursement of local government fire resources during wildfire events. The agreement involves the State of California, Cal OES, CAL FIRE, and federal agencies including the USFS, National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service, and Bureau of Indian Affairs.

Assistance by Hire: Local jurisdictions can request further support not provisioned in existing mutual aid agreements. Requests for additional assistance can be filed by Incident Commanders through the unified ordering center at a wildfire incident. Requests are pushed to the Regional Cal OES coordination center if the Operational Area fails to meet the needs requested. Equipment and resources ordered through “assistance for hire” are reimbursed by the requesting fire agency or shared amongst other involved agencies.

⁴ Nevada County Consolidated Fire District, Rough and Ready Fire District, and Penn Valley Fire Protection District are currently in the process of consolidating into one district.

The Fire Management Assistance Grant: This grant is managed through FEMA and provisions reimbursements to local governments and agencies for costs incurred from wildfire. Fire Management Assistance Grant requests are processed by Cal OES and checked for specific qualifying criteria. Fire Management Assistance Grants generally cover 75% of costs incurred from a wildfire for qualified requests.

2.9 Planning and Regulatory Environment

The following section provides a summary of the existing fire planning and regulatory environment applicable to the Plan Area.

2.9.1 Federal

2.9.1.1 Healthy Forests Restoration Act of 2003

The HFRA is the legislative component of the Healthy Forest Initiative. The HFRA provides provisions for expediting the preparation and implementation of hazardous fuels reduction projects on federal land and assisting states, rural communities, and landowners with restoring healthy forest and watershed conditions. As a key component of the HFRA, a Community Wildfire Protection Plan (CWPP) serves as a mechanism for community input and identification of areas presenting high wildfire risk, as well as identification of potential projects intended to mitigate such risk. The HFRA places a priority on fuel treatments identified by communities in their CWPPs.

2.9.1.2 National Fire Plan

The National Fire Plan was a presidential directive in 2000 in response to severe wildland fires that had burned throughout the United States. The National Fire Plan focuses on reducing fire impacts on rural communities and providing assurance of sufficient firefighting capacity in the future. The National Fire Plan addresses five key points: firefighting, rehabilitation, hazardous fuels reduction, community assistance, and accountability. The plan continues to provide technical, financial, and resource guidance and support for wildland fire management across the United States. The USFS and the Department of the Interior are working to implement the key points outlined in the National Fire Plan.

2.9.1.3 National Incident Management System

The National Incident Management System is a system that guides all levels of government, nongovernmental organizations, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from incidents. The National Incident Management System provides guidance regardless of the cause, size, location, or complexity of the incident, and provides shared vocabulary, systems, and processes as well as defines operational systems used during incidents.

2.9.1.4 Disaster Mitigation Act

The Disaster Mitigation Act of 2000 created incentives for state and local entities to coordinate hazard mitigation planning and implementation. The act is an important source of funding for fuel reduction and fire hazard reduction efforts through federal hazard mitigation grants.

2.9.1.5 National Historic Preservation Act

The National Historic Preservation Act protects and preserves historic and cultural sites. The act also created the National Register of Historic Places, the list of National Historic Landmarks, and the State Historic Preservation Offices.

2.9.1.6 Endangered Species Act

The Endangered Species Act of 1973 protects species that are listed as endangered or threatened throughout all or a significant portion of their range. The act also protects critical habitats on which the listed species depend.

2.9.1.7 Tahoe National Forest Land and Resource Plan (1990)

The TNF covers approximately 850,000 acres of public land within Sierra, Placer, Nevada, Yuba, Plumas and El Dorado Counties. TNF public lands provide diverse recreational opportunities and places of interest, including the South Yuba River, Basin Peak, and the Grouse Ridge area in Nevada County

The purpose of the TNF Land and Resource Plan is to guide the management of the TNF and address local and regional issues (USFS 1990). Sections of the plan include a summary of current management, public issues and concerns, future management direction, and a plan for monitoring and evaluation. The plan identifies goals to reduce wildfire hazard which include fuels management (roadside treatments, ridgeline fuel breaks, prescribed burning, timber removal and utilization, prescribed burning), pest management, law enforcement, fire prevention, and fire suppression. The plan includes specific management goals for recreation which include but are not limited to the following:

1. Provide a broad spectrum of dispersed and developed recreation opportunities in accordance with identified needs and demands.
2. Recreation management will be in concert and cooperation with appropriate city, County, State, and other Federal agencies.
3. Manage the North Fork American Wild River in accordance with Public Law 95-625, which documents the Congressional designation of the river. Implement the management and development plan, the Wild Trout Plan, and the habitat management plan for the North Fork.

2.9.1.8 Sierra Proposed Resource Management Plan Tahoe National Forest Land and Resource Plan (1990)

The Bureau of Land Management (BLM) prepared the Sierra Proposed Resource Management Plan (PRMP) and Final Environmental Impact Statement (FEIS) to provide direction for managing public lands administered by the Folsom Field Office and to analyze the environmental effects resulting from implementing the alternatives presented. The PRMP includes BLM lands in Nevada County, which are mostly concentrated in and near the Bear, Yuba, and South Yuba River corridors, with some larger

contiguous ownerships near Osceola Ridge and Deadman's Flat. The purpose of the Plan is to guide management on BLM-managed surface and subsurface land to:

1. Lead to land ownership and access patterns in response to urban growth issues and to consolidate BLM land management responsibilities;
2. Guide and focus recreational activities;
3. Protect significant natural and cultural resources; and
4. Make recommendations regarding the management of important river corridors.

2.9.1.9 Quadrennial Fire Review

The Quadrennial Fire Review is a strategic risk assessment that is conducted every 4 years, with the most recent assessment carried out in 2014. The purpose of the review is to forecast the conditions that may present the greatest challenge for wildland fire management over the next 10 to 20 years.

2.9.1.10 National Cohesive Wildland Fire Management Strategy

The National Cohesive Wildland Fire Management Strategy is a push to work collaboratively among interested parties across landscapes to create resilient landscapes, fire-adapted communities, and safe and effective wildfire response.

2.9.1.11 Federal Wildland Fire Management Policy

The Federal Wildland Fire Management Policy was developed in 1995, updated in 2001, and again in 2009 by the National Wildfire Coordinating Group, a federal multi-agency group that establishes consistent and coordinated fire management policy across multiple federal jurisdictions. An important component of the Federal Wildland Fire Management Policy is the acknowledgment of the essential role of fire in maintaining natural ecosystems. The Federal Wildland Fire Management Policy and its implementation are founded on the following guiding principles, found in the Guidance for Implementation of Federal Wildland Fire Management Policy (NWCG 2009):

- Firefighters and public safety are the first priority in every fire management activity.
- The role of wildland fire as an essential ecological process and natural change agent will be incorporated into the planning process.
- Fire management plans, programs, and activities support land and resource management plans and their implementation.
- Sound risk management is a foundation for all fire management activities.
- Fire management programs and activities are economically viable, based on values to be protected, costs, and land and resource management objectives.
- Fire management plans and activities are based upon the best available science.
- Fire management plans and activities incorporate public health and environmental quality considerations.
- Federal, state, tribal, local, interagency, and international coordination and cooperation are essential.

Standardization of policies and procedures among federal agencies is an ongoing objective. The Wildland Fire Management Strategy is a push to work collaboratively among interested parties across landscapes to create resilient landscapes, fire-adapted communities, and safe and effective wildfire response.

2.9.1.12 International Fire Code

Created by the International Code Council, the International Fire Code addresses a wide array of conditions hazardous to life and property, including fire, explosions, and hazardous materials handling or usage (although not a federal regulation, but rather the product of the International Code Council). The International Fire Code emphasizes prescriptive and performance-based approaches to fire prevention and fire protection systems. Updated every 3 years, the International Fire Code uses a hazards classification system to determine the appropriate measures to be incorporated to protect life and property (these measures often include construction standards and specialized equipment). The International Fire Code uses a permit system (based on hazard classification) to ensure that required measures are instituted.

2.9.1.13 International Wildland-Urban Interface Code

The International Wildland-Urban Interface Code is published by the International Code Council and addresses wildfire issues in the WUI. It is a model code that is intended to be adopted and used supplemental to the adopted building and fire codes of a jurisdiction. The International Wildland-Urban Interface Code establishes minimum special regulations for development in the WUI to safeguard life and property from wildfire hazards.

2.9.1.14 National Fire Protection Association Codes, Standards, Practices, and Guides

(NFPA codes, standards, recommended practices, and guides are developed through a consensus development process approved by the American National Standards Institute. This process brings together professionals representing varied viewpoints and interests to achieve consensus on fire and other safety issues. NFPA standards are recommended guidelines and nationally accepted good practices in fire protection but are not laws or codes unless adopted or referenced as such by a state, county, city, or other fire code or local fire agency.

NFPA 1140, Standard for Wildland Fire Protection (2022)

This standard provides the minimum requirements for wildland fire management and the associated professional qualifications for wildland fire positions. It is intended to specify the minimum requirements for fire protection and emergency services infrastructure in wildland, rural, and suburban areas; wildland fire management practices and policies; methods of assessing wildland fire ignition hazards; and job performance requirements for wildland fire positions.

NFPA 1141, Standard for Fire Protection Infrastructure for Land Development in Wildland, Rural, and Suburban Areas (2017)

This standard addresses the requirements for fire protection infrastructure in wildland, rural, and suburban areas where there is an intended change of land use or intended land development. It is intended to develop fire protection and emergency services infrastructure to reduce the impact of land use changes in wildland, rural, and suburban areas.

NFPA 1142, Standard on Water Supplies for Suburban and Rural Firefighting (2022)

This standard addresses a method for determining the minimum requirements for alternative water supplies for structural firefighting purposes in areas where the authority having jurisdiction determines that adequate and reliable water supply systems for firefighting purposes do not otherwise exist. It is intended to assist the authority having jurisdiction in establishing the minimum water supply necessary for structural firefighting purposes in areas where it has been determined that there is no water or inadequate water for firefighting.

NFPA 1143, Standard for Wildland Fire Management (2018)

This standard provides minimum requirements to fire protection organizations on the management of wildland fire, including prevention, mitigation, preparation, and suppression. It is intended to specify management practices and policies necessary for a fire protection organization to develop a wildland fire management program.

NFPA 1144, Standard for Reducing Structure Ignition Hazards from Wildland Fire (2018)

This standard provides a methodology for assessing wildland fire ignition hazards around existing structures, residential developments, and subdivisions, and improved property or planned property improvement that will be located in a WUI area and provides minimum requirements for new construction to reduce the potential of structure ignition from wildfires. It is intended to assess fuel sources in the structure ignition zone for their potential to ignite structures and to identify possible mitigation measures to reduce the possibility of structure ignition.

2.9.2 State

The County is generally characterized by a Mediterranean climate with hot, dry summers followed by cool, wet winters.

2.9.2.1 California Strategic Fire Plan

The 2018 Strategic Fire Plan for California reflects CAL FIRE's focus on (1) fire prevention and suppression activities to protect lives, property, and ecosystem services, and (2) natural resource management to maintain the state's forests as a resilient carbon sink to meet California's climate change

goals and to serve as important habitat for adaptation and mitigation. Strategic Fire Plan goals include the following (CAL FIRE 2018):

1. Identify and evaluate wildland fire hazards and recognize life, property, and natural resource assets at risk, including watershed, habitat, social, and other values of functioning ecosystems. Facilitate the collaborative development and sharing of all analyses and data collection across all ownerships for consistency in type and kind.
2. Promote and support local land use planning processes as they relate to (a) protection of life, property, and natural resources from risks associated with wildland fire, and (b) individual landowner objectives and responsibilities.
3. Support and participate in the collaborative development and implementation of local, county, and regional plans that address fire protection and landowner objectives.
4. Increase fire prevention awareness, knowledge, and actions implemented by individuals and communities to reduce human loss, property damage, and impacts to natural resources from wildland fires.
5. Integrate fire and fuels management practices with landowner/land manager priorities across jurisdictions.
6. Determine the level of resources necessary to effectively identify, plan, and implement fire prevention using adaptive management strategies.
7. Determine the level of fire suppression resources necessary to protect the values and assets at risk identified during planning processes.
8. Implement post-fire assessments and programs for the protection of life, property, and natural resource recovery.

2.9.2.2 CAL FIRE Strategic Plan

In 2024, CAL FIRE released its Strategic Plan. The plan is updated from the 2019 CAL FIRE Strategic Plan and focuses on the department's mission, vision, and values. Four goals were identified in the plan: (1) improve the core capabilities, (2) enhance internal operations, (3) ensure health and safety, (4) and build an engaged, motivated, and innovative workforce (CAL FIRE 2024f).

2.9.2.3 California Fire Service and Rescue Emergency Mutual Aid Plan

The California Fire Service and Rescue Emergency Mutual Aid Plan is an extension of the California Emergency Plan. The plan supports the Incident Command System, the Integrated Emergency Management System, and multi-hazard response planning. The plan provides more detailed operational plans that support fire and rescue resources at the state, regional, and local levels.

2.9.2.4 California State Multi-Hazard Mitigation Plan

Approved by FEMA in September 2018 as an Enhanced State Mitigation Plan, the 2018 State Multi-Hazard Mitigation Plan update continues to build upon California's commitment to reduce or eliminate the impacts of disasters caused by natural, technological, accidental, and adversarial/human-caused hazards and further identifies and documents progress made in hazard mitigation efforts, new or revised

state and federal statutes and regulations, and emerging hazard conditions and risks that affect the State of California.

2.9.2.5 California Forest Carbon Plan (2018)

The California Forest Carbon Plan provides an assessment of current and predicted future California forestland conditions based on estimated Climate Change impacts which include temperature increases, changes in both the amount and distribution of precipitation, higher likelihood of forest pest and disease impacts, and exacerbated wildfire risks. The goal of the Plan is to ensure the future sustainability of California's forestlands as a net carbon sink based on resilience towards expected climate change impacts. The plan outlines the following six goals to restore resilience to the state's forestlands and provides actions and strategies for implementation by a target date of 2030 (California Natural Resources Agency 2018):

1. Significantly increase the pace and scale of forest and watershed improvements on nonfederal forest lands through incentives and other mechanisms.
2. Support Federal goals and actions to improve forest and watershed health and resiliency.
3. Prevent forest land conversions through easements and acquisitions, as well as land use planning.
4. Innovate solutions for wood products and biomass utilization to support ongoing forest management activities.
5. Support key research, data management, and accountability needs.
6. Protect and enhance the carbon sequestration potential and related benefits of urban forests.

2.9.2.6 California Government Code (incl Section 66474.02)

California Government Code Sections 51175 through 51189 provide guidance for classifying lands in California as fire hazard areas and provide requirements for the management of property within those lands. CAL FIRE is responsible for classifying FHSZs based on statewide criteria and makes the information available for public review. Further, local agencies must designate, by ordinance, VHFHSZs within their jurisdiction based on the recommendations of CAL FIRE.

Section 51182 sets forth requirements for maintaining property within fire hazard areas, such as defensible space, vegetative fuels management, and building materials and standards. Defensible space around structures in fire hazard areas must consist of 100 feet of fuel modification on each side of a structure, but not beyond the property line unless findings conclude that the clearing is necessary to significantly reduce the risk of structure ignition in the event of a wildfire. Clearance on adjacent property is only conducted following written consent by the adjacent owner. Further, trees must be trimmed from within 10 feet of the outlet of a chimney or stovepipe, vegetation near buildings must be maintained, and roofs of structures must be cleared of vegetative materials. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

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Section 66474.02 details the findings that the legislative body of a county shall make before approving a tentative map or parcel map (if no tentative map was needed) for an area located in the SRA of VHFHSZ. The three findings are listed below:

- 1) A finding supported by substantial evidence in the record that the design and location of each lot in the subdivision, and the subdivision as a whole, are consistent with any applicable regulations adopted by the State Board of Forestry and Fire Protection pursuant to Sections 4290 and 4291 of the Public Resources Code.
- 2) A finding supported by substantial evidence in the record that structural fire protection and suppression services will be available for the subdivision through any of the following entities:
 - a. A county, city, special district, political subdivision of the state, or another entity organized solely to provide fire protection services that are monitored and funded by a county or other public entity.
 - b. The Department of Forestry and Fire Protection by contract entered into pursuant to Section 4133, 4142, or 4144 of the Public Resources Code.
- 3) A finding that to the extent practicable, ingress and egress for the subdivision meets the regulations regarding road standards for fire equipment access adopted pursuant to Section 4290 of the Public Resources Code and any applicable local ordinance.

Upon approval of the map, the legislative body of a county shall transmit a copy of the findings and accompanying maps to the State Board of Forestry and Fire Protection. This section does not supersede regulations established by the State Board of Forestry and Fire Protection or local ordinances that provide equivalent or more stringent minimum requirements than those contained within this section.

The above findings do not apply to the approval of maps that include the following:

- Tentative maps or parcel maps that divide land designated in the general plan's open space element for resource production (including but not limited to forest land, rangeland, agricultural land, and areas of economic importance for the production of food or fiber).
- If the resulting parcels are 40 acres or smaller, those parcels are subject to a binding and recorded restriction prohibiting the development of a habitable, industrial, or commercial building or structure. All other structures shall comply with defensible space requirements described in Section 51182 of this code or Sections 4290 and 4291 of the Public Resources Code.
- Any later approval to remove a binding restriction placed as a condition of a tentative map, or a parcel map, which would allow the development of a building or structure for a parcel that has previously been exempted from the requirements of the previously listed findings pursuant to the first bullet in this section shall be subject to the requirements of the previously listed findings.

2.9.2.7 California Public Resources Code

(PRC Section 4290 requires minimum fire safety standards related to defensible space that are applicable to residential, commercial, and industrial building construction in SRA lands and lands classified and designated as VHFHSZs. These regulations include road standards for fire apparatus access, standards for signs identifying roads and buildings, fuel breaks and green belts, and minimum water supply requirements. These regulations do not supersede local regulations that equal or exceed the minimum regulations required by the state.

PRC Section 4291 requires a reduction of fire hazards around buildings adjacent to a mountainous area, forest-covered lands, brush-covered lands, grass-covered lands, or land that is covered in flammable material. It is required to maintain 100 feet of defensible space around all sides of a structure, but not beyond the property line unless required by state law, local ordinance, rule, or regulations. Further, PRC Section 4291 requires the removal of dead or dying vegetative materials from the roof of a structure, and trees and shrubs must be trimmed from within 10 feet of the outlet of a chimney or stovepipe. Exemptions may apply for buildings with an exterior constructed entirely of nonflammable materials.

PRC Section 4741 states that CAL FIRE shall assist local governments in preventing future wildland fire and with vegetation management problems by making its wildland fire prevention and vegetation management expertise available to local governments.

PRC Sections 4292-4296 and 14 California Code of Regulations (CCR) 1246 address vegetation clearance standards for electrical utilities. They include standards for clearing around energy lines and conductors.

2.9.2.8 California Code of Regulations

Title 14, Natural Resources

CCR Title 14, Division 1.5, Chapter 7, Subchapter 3, Fire Hazard, sets forth requirements for defensible space and provides alternate options if the required distances cannot be achieved. For example, options that have similar practical effects include noncombustible block walls or fences; 5 feet of

noncombustible material horizontally around a structure; installing hardscape landscaping or reducing exposed windows on the side of structures with less than 30-foot setbacks; or additional structure hardening, such as those required in the California Building Code, CCR Title 24, Part 2, Chapter 7A.

Title 19, Public Safety

CCR Title 19 addresses public safety and includes State Fire Marshal requirements (CCR, Title 19, Division 1), which incorporate general fire and safety standards regarding fire department access and egress, fire alarms, emergency planning, and evacuation procedures.

Title 19, Division 2, Chapter 1, Standardized Emergency Management System Regulations

The Standardized Emergency Management System (Emergency System) regulations are described in CCR Title 19, Division 2, Chapter 1. The Emergency System is required by the California Emergency Services Act to manage multi-agency and multi-jurisdictional responses to emergencies in California and to coordinate among all levels of government and affected agencies. The Emergency System unifies all elements of California's emergency management community into a single, integrated system, and standardizes key elements.

Title 24, California Building Standards Code

The California Building Standards Code (CCR Title 24) contains provisions for building and safety standards, including fire safety standards for new buildings that are provided in the California Building Code (CCR Title 24, Part 2) and the California Fire Code (CFC) (CCR Title 24, Part 9). These standards apply to all occupancies in California, except where state agencies and local governing bodies adopt more stringent standards.

Title 24, Part 2, California Building Code

The California Building Code includes several chapters relevant to fire safety and protection that address types of construction, fire and smoke protection features, construction materials and methods, and rooftop construction. Typical CFC safety requirements include fire sprinklers in all high-rise buildings; fire-resistance standards for fire doors, building materials, and particular types of construction; debris and vegetation clearance within a prescribed distance from occupied structures within wildfire hazard areas; and fire-flow requirements, fire hydrant spacing, and access road specifications.

Chapter 7A of the California Building Code regulates building materials, systems, and/or assemblies used in the exterior design and construction of new buildings within a fire hazard area. Fire hazard areas as defined by the California Building Code include areas identified as a FHSZ within an SRA or a WUI fire area. The purpose of Chapter 7A is to establish minimum standards for the protection of life and property by increasing the ability of structures in a fire hazard area to resist the intrusion of flames or embers projected by a wildfire and to contribute to a systematic reduction in structural losses from a wildfire. New buildings in such areas must comply with the ignition-resistant construction standards outlined in Chapter 7A.

Title 24, Part 9, California Fire Code

Part 9 of Title 24 contains the CFC, which incorporates by adoption of the International Fire Code with necessary California amendments. The purpose of the CFC is to establish the minimum requirements to safeguard the public health, safety, and general welfare from the hazards of fire, explosion, and dangerous conditions in new and existing buildings, structures, and premises, and to provide safety and assistance to firefighters and emergency responders during emergency operations. CFC Chapter 49 contains minimum standards for development in the WUI and fire hazard areas.

The CFC and Office of the State Fire Marshal provide regulations and guidance for local agencies in the development and enforcement of fire safety standards. The CFC is updated and published every 3 years by the California Building Standards Commission.

2.9.2.9 2019 California Fire Code with July 2021 Supplement

The 2019 CFC (CCR Title 24, Part 9) establishes regulations to safeguard against the hazards of fire, explosion, or dangerous conditions in new and existing buildings, structures, and premises. The CFC also establishes requirements intended to provide safety for and assistance to firefighters and emergency responders during emergency operations. The provisions of the CFC apply to the construction, alteration, movement, enlargement, replacement, repair, equipment, use and occupancy, location, maintenance, removal, and demolition of every building and structure throughout California. The CFC includes regulations regarding fire-resistance-rated construction, fire protection systems such as alarm and sprinkler systems, fire services features such as fire apparatus access roads, means of egress, fire safety during construction and demolition, and WUI areas.

2.9.2.10 Assembly Bill 3074

Assembly Bill 3074 was passed into law in 2020 and requires a third zone of defensible space. The law requires the Board of Forestry and Fire Protection to develop regulations for the ember-resistant zone (Zone 0) within 0 feet to 5 feet of a structure by January 1, 2023. Within this zone, fuel reduction would be more intense and be designed to keep fire and embers from ignition material that could spread fire to a structure.

2.9.2.11 Assembly Bill 38

Assembly Bill 38 established that, as of July 1, 2021, sellers of property located in a High FHSZ or VHFHSZ are required to provide the buyer with documentation that the property is in compliance with defensible space requirements.

2.9.2.12 Senate Bill 571

Senate Bill 571, which was primarily authored by Senator Allen, coauthored by Senator Stern, and introduced into the California Senate on February 15, 2023, discusses topics relating to fire safety and ingress and egress route recommendations. The June 24, 2024, amendments note the bill as an act to add Section 65040.25 of the Government Code relating to fire safety. The bill would require the Office of Planning and Research to conduct a study and prepare a report, including recommendations, which

evaluates potential improvements to state standards for ingress and egress and evacuation routes for development in the event of a wildfire. The report would have to be submitted on or before January 1, 2027. This bill would also repeal Section 4290 of the PRC on January 1, 2031, pursuant to Section 10231.5. Section 4290 of the PRC requires minimum fire safety standards related to defensible space that are applicable to residential, commercial, and industrial building construction in SRA lands and lands classified and designated as VHFHSZs.

Existing law regarding development projects and emergency preparedness requires that, through the Planning and Zoning Law, cities and counties adopt comprehensive general plans which include elements like land use and safety. Existing law requires the safety element to address fire risk in SRAs and VHFHSZs, and outlines goals, policies, and measures to protect communities from wildfire risks.

New requirements put forth in Senate Bill 571, as initially introduced on February 15, 2023, would require that new developments located in SRA high of VHFHSZ in either SRA or LRA would require an evacuation plan with their application. The evacuation plan would undergo independent approval by local government, law enforcement, fire agencies, and the California Highway Patrol if the proposed evacuation routing utilizes state or federal highways. Senate Bill 571 would also require that the evacuation plan include a wildfire behavior study, a traffic engineering study, and the best available routes for evacuation egress by populations within the development when threatened by wildfire. By imposing new duties on local governments in reviewing and approving developments in high FHSZs and VHFHSZs, the bill would impose a state-mandated local program.

Local governments must preserve, maintain, and consolidate evacuation plan data in a county-wide database. This data would be used by local fire, law, and emergency service agencies to execute efficient evacuations and mass notifications. The county would be required to review and update evacuation plans on an annual basis.

By imposing new duties on local governments in reviewing and approving developments in high and VHFHSZs and by imposing new duties on counties in maintaining and updating evacuation plans, the bill would impose state-mandated local programs. The changes proposed by the bill would apply to all cities, including charter cities because it addresses a statewide concern related to emergency preparedness. The bill remains in progress.

2.9.2.13 1961 California FAIR Plan Act

The California FAIR Plan Act is composed of all insurer's licenses to write property insurance in California. The insurance pool was established to ensure the availability of property insurance to people who, beyond their control, have been unable to obtain insurance in the voluntary insurance market.

2.9.2.14 California Wildfire and Forse Resilince Task Force – California's Strategic Plan for Expanding The Beneficial Use of Fire (2022)

The Strategic plan for expanding the beneficial use of fire provides a roadmap for significantly increasing the pace and scale of these forest management activities through 2025. The Strategic Plan establishes acreage targets for a broad spectrum of state and federal agencies, California Native American tribes,

and nongovernmental partners. Land managers will seek to deploy beneficial fire on 400,000 acres annually by 2025.

2.9.3 County

2.9.3.1 Nevada County General Plan – Safety Element (2019)

The Safety Element of the County General Plan aims to reduce short- and long-term harm including loss of life, injuries, and property damage due to natural and human-caused public safety hazards present within the County (Nevada County Community Development Agency, 2019). Existing hazards with the potential to threaten human life and property are identified within the following categories:

- Emergency Preparedness (EP)
- Geologic Hazards/Seismic Activity (GH)
- Flood Hazards (FH)
- Airport and Military Airspace Hazards (AH)
- Hazardous Materials and Mining Hazards (HM)
- Public Safety Services and Facilities (SF)
- Fire Hazards and Protection (FP)
- Severe Weather Hazards (WH)
- Climate Change Resiliency and Mitigation (CC)
- Environmental Justice (EJ)

Hazards within these categories have the potential to affect the future development of the County. The Safety Element identifies which hazards can be mitigated through emergency planning and preparedness and those best minimized through County development standards and land use planning, including where both private and public land use decisions need to be receptive to potentially hazardous conditions.

2.9.3.2 Nevada County Local Hazard Mitigation Plan (2017) – Update

Nevada County’s LHMP intends to reduce long-term risks to people and property from hazard present within the County (County of Nevada 2017). The 2017 LHMP supersedes the 2011 FEMA-approved LHMP and was developed in accordance with the Disaster Mitigation Act of 2000, allowing the County to be eligible for federal disaster assistance including FEMA’s Hazard Mitigation Grant Program.

The LHMP identifies hazards present within the County and identifies previous and likely future impacts, sets mitigation goals, and provides strategies to achieve these goals. A risk assessment was conducted to identify and determine the severity of hazards in the County. A complete list of identified hazards and their significance is provided below in Table 15.

Table 15. Hazards Identified in the Nevada County LHMP and Their Significance

Hazard	Significance
Avalanche	Low
Dam Failure	Low
Drought and Water Shortage	High
Earthquake	Low
Extreme Cold	Medium
Extreme Heat	High
Flood	Low
Hazardous Materials Release	Low
Landslide, Debris & Mudflows	Low
Volcano	Low
Wildfire (smoke, tree mortality, conflagration)	High
Winter Storm	High

Source: County of Nevada 2024.

Notes: Significance levels: Low = Minimal potential impact; Medium = Moderate potential impact; High = Widespread potential impact.

Six goals to mitigate hazards in the County are identified in addition to corresponding objectives which involve strategies to meet the mitigation goals. These goals are as follows:

1. Minimize risk and vulnerability of Nevada County to natural hazards protect lives and prevent losses to property, public health, economy, and the environment.
2. Increase community outreach, education, and awareness of risk and vulnerability to hazards and promote participation and voluntary compliance to reduce hazard-related losses.
3. Improve communities’ capabilities to prevent/mitigate hazard-related losses and to be prepared for, respond to, and recover from a disaster event.
4. Reduce fire severity and intensity in Nevada County.
5. Improve community resiliency to flooding in Nevada County.
6. Maintain FEMA eligibility for grant funding.

2.9.3.3 READY Nevada County Extreme Climate Event Mobility and Adaptation Plan (2022)

The READY Nevada County Extreme Climate Event & Mobility Plan aims to build upon ongoing coordination and emergency planning efforts of the Nevada County, Grass Valley, Nevada City, and Truckee by identifying climate-related challenges to the transportation network in Nevada County and strategies to address them (Nevada County Transportation Commission 2022). This plan would create a blueprint to respond to flooding, wildfires, increasing temperatures, earthquakes, landslides, and other climate events that may affect transportation and evacuation. The goals of this plan include the following:

- Understand the vulnerability of Nevada County transportation infrastructure and systems to extreme weather and climate events
- Develop strategies that will allow Nevada County to adapt to changing conditions and withstand, respond to, and recover from extreme climate events
- Gather community feedback to develop strategies that meet community needs
- Protect the rural qualities and historic character of Nevada County, while enabling the agencies within the County to be prepared for extreme climate events.

The plan recommends strategies to address mobility issues, focusing on planning, operational, and hardening strategies.

2.9.4 Environmental Review

2.9.4.1 National Environmental Policy Act

The National Environmental Policy Act (NEPA) is a U.S. federal law that requires government agencies to assess the environmental impacts of their proposed actions before making decisions. For federal land management projects, NEPA ensures that potential effects on the environment are thoroughly evaluated and considered.

Environmental Impact Statement (EIS): For major federal actions that significantly affect the environment, an EIS is required. This comprehensive document analyzes the potential impacts of the proposed project and project alternatives while also suggesting mitigation measures.

Environmental Assessment (EA): For actions that may not have significant environmental effects, an EA is conducted. It determines whether a full EIS is necessary or if a Finding of No Significant Impact (FONSI) can be issued.

Public Involvement: NEPA requires that the public be involved in the decision-making process. This means that federal agencies must provide opportunities for public comment on EISs and EAs.

Alternatives Analysis: NEPA mandates that agencies evaluate a range of alternatives to the proposed action, including a no-action alternative, to ensure that the chosen approach is the most environmentally sound.

Forest Management Projects: On federal lands, such as those managed by the U.S. Forest Service, NEPA processes are used for projects like timber harvesting, road construction, and habitat restoration. These projects must adhere to NEPA regulations to balance ecological health with land use objectives.

2.9.4.2 California Environmental Quality Act

Proposed projects on non-federal lands may require compliance with the California Environmental Quality Act (CEQA). Private landowners conducting defensible space projects under PRC Section 4291 guidelines are not subject to CEQA review requirements. Non-defensible space fuel treatment projects on non-federal lands that are discretionary and are carried out or approved by public agencies would be subject to CEQA review and documentation (CEQA Guidelines 21080(a)). CEQA review for non-defensible space fuel reduction projects would be instituted during the project planning process. Typically, the lead

agency under CEQA is the public agency with discretionary authority over a project (i.e., principal responsibility for carrying out or approving the project). The appropriate level of CEQA analysis will be decided by the lead agency, which could be a Categorical Exemption, Initial Study/Mitigated Negative Declaration, Environmental Impact Report, or a document tiered from the California Vegetation Treatment Program (CalVTP) Program Environmental Impact Report (EIR), which is further discussed below.

2.9.4.3 California Vegetation Treatment Program

The California Board of Forestry and Fire Protection developed the CalVTP to address California's ongoing wildfire issues. The CalVTP includes the use of prescribed burning, mechanical treatments, manual treatments, herbicides, and prescribed herbivory activities to reduce hazardous vegetation, construct fuel breaks, and restore healthy ecological fire regimes. The CalVTP Program EIR was prepared in accordance with CEQA and was approved by the Board of Forestry and Fire Protection in December 2019. The Program EIR provides a programmatic analysis of potential impacts related to vegetation treatment activities within the Treatable Landscape, which is defined by the CalVTP. Project proponents may tier from the CalVTP Program EIR to analyze project-related impacts for future projects within the Treatable Landscape. Fuel management projects occurring in the Treatable Landscape can complete a streamlined CEQA review via the Project Specific Analysis process outlined in the CalVTP Program EIR. Project planning efforts would examine the project's location relative to the CalVTP Treatable Landscape to determine suitability for analysis under the CalVTP Program EIR.

2.9.4.4 California Forest Practice Rules

CAL FIRE enforces the California Forest Practice Act (14 CCR, Chapters 4, 4.5, and 10) which regulates commercial timber harvesting on non-federal lands in California. A Timber Harvesting Plan, Exemption, or Emergency Notice must be prepared by a Registered Professional Forester for timber harvesting on non-federal lands in the state. Timber Harvesting Plans are prepared for timber operations and must be consistent with applicable laws and regulations. Timber Harvesting Plans have been certified to serve as a functional equivalent of an EIR under CEQA, require public noticing and solicitation of public input, and include feasible mitigation measures and an evaluation of alternatives that would lessen or avoid adverse environmental impacts. Timber operations would require the preparation of a Timber Harvesting Plan, Exemption, or Emergency Notice by a Registered Professional Forester prior to operations. Timber operations include cutting/removal of trees for commercial purposes (where the resulting material would be sold, bartered exchanged, or traded). Timber operations would not include the removal of smaller trees for fuel management or non-commercial purposes, with specific criteria outlined in California PRC Section 4527(b).

2.9.4.5 Agency Consultation / Permitting

Regulatory permits may also be required for fuel treatment actions that would adversely impact riparian areas under the jurisdiction of the U.S. Army Corps of Engineers, the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife. It is anticipated that the U.S. Army Corps of Engineers may require a fill permit under Clean Water Act Section 404. The California Department of Fish and Wildlife may require a streambed alteration agreement under California Fish and Game Code Section 1602. The RWQCB may require a water quality certification under Clean Water Act Section 401. Vegetation management/fuel reduction projects would also be subject to the RWQCB's Timber Waiver program, even if activities do not occur in timber areas. Additionally, it is anticipated that the U.S. Army

Corps of Engineers would consult with the U.S. Fish and Wildlife Service pursuant to federal Endangered Species Act Section 7 during the Section 404 permitting process for potential impacts to special-status plants/wildlife and their habitats. Applications for each of these regulatory permits can be processed concurrently; however, some may take longer than others to process and obtain.

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