# 8 Grass Valley/Nevada City Forecast Zone

## 8.1 Forecast Zone Description

The Grass Valley/Nevada City Forecast Zone (FZ) is centrally located in Nevada County and is where the majority of people in Nevada County reside. This FZ is dominated by community development that ranges in density and often exists intermixed with the environment. The FZ is marked by river canyons such as the South Yuba River, Deer Creek, Bear River, Greenhorn Creek, and Wolf Creek.


*Downtown Nevada City*

### 8.1.1 Location

The Grass Valley/Nevada City Forecast Zone (FZ) covers 136,166 acres, making it the third-largest FZ. It is bound on the west by the Higgins/Penn Valley FZ, on the east by the Tahoe National Forest (TNF) Area FZ, on the north by the South Yuba River, and the south by the Bear River.

### 8.1.2 Land Ownership

Grass Valley/Nevada City FZ is largely comprised of privately owned land, accounting for 109,565 acres or roughly 80% of the FZ. The second largest landowner is the United States Bureau of Land Management which owns various-sized parcels across the FZ.

Land ownership in the Grass Valley/Nevada City FZ is presented in Table 41.

**Table 41. Land Ownership in the Grass Valley/Nevada City Forecast Zone**

| Land Ownership | Total Acreage | Percent |
|---|---|---|
| Private Ownership | 109,565 | 80% |
| United States Bureau of Land Management | 12,989 | 10% |
| United States Forest Service | 6,425 | 5% |
| California Department of Parks and Recreation | 5,660 | 4% |
| Nevada Irrigation District | 1,341 | 1% |
| Bear Yuba Land Trust | 754 | 1% |
| Nevada City, City of | 180 | <1% |
| Grass Valley, City of | 114 | <1% |
| California Heritage: Indigenous Research Project | 33 | <1% |

**Table 41. Land Ownership in the Grass Valley/Nevada City Forecast Zone**

| Land Ownership | Total Acreage | Percent |
|---|---|---|
| North Star Historic Conservancy | 14 | <1% |
| Nevada, County of | 11 | <1% |
| Grass Valley School District | 9 | <1% |
| United States Army Corps of Engineers | 5 | <1% |
| Yuba County Water Agency | <1 | <1% |

**Source:** CAL FIRE 2024d.

# 8.2 Fire Hazard

## 8.2.1 Climate

Temperature, climate, and winds are influenced by the diversity of terrain throughout the Grass Valley/Nevada City Forecast Zone (FZ). The Grass Valley and Nevada City areas tend to experience temperatures between 68°F and 86°F during the summer months, from June through September. Typical winter temperatures from November through March, average below 59°F. Rainfall is minimal in the summer months, from June through September, averaging about 0.1 inches. Average monthly precipitation, from October through May, ranges from 0.50 inches to 6.0 inches. The dominant wind direction is from the south February through September, and from September through February, the wind direction is most often from the east. The average hourly wind speed in this FZ averages around 6 mph throughout the year (Weather Spark 2024b).

## 8.2.2 Terrain

The terrain in the Grass Valley/Nevada City FZ is extremely diverse. Much of the FZ contains areas with slopes ranging from 0% to 46% degrees; areas containing slopes at 46% to 70% and above can be found within the multiple river drainages located in the FZ. The Middle Yuba River runs along the northern border of the FZ, along the northernmost portion of the San Juan Ridge, while the South Yuba River runs below the San Juan Ridge. The Deer Creek River runs through the center of FZ through the City of Nevada City. The Bear River is located along the southeastern border of the FZ. These rivers serve as drainages within the FZ. The Rollins Reservoir is also located along the southern border of the FZ.

## 8.2.3 Vegetation and Fuels

The predominant vegetation community in the Grass Valley/Nevada City FZ is mixed conifer/hardwood, followed by conifer forest/woodland, hardwood forest/woodland, and then urban, shrub and herbaceous. The western and southern portions of San Juan Ridge are where the hardwood forest/woodland communities are most concentrated, but they are also interspersed throughout the FZ. Common species include canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizenii*), California black oak (*Quercus kelloggii*), madrone (*Arbutus menziesii*), white alder (*Alnus rhombifolia*), bigleaf maple (*Acer macrophyllum*), willow (*Salix spp.*), ponderosa pine (*Pinus ponderosa*), Jeffrey pine (*Pinus jeffreyi)*, gray pine (*Pinus sabiniana*), incense cedar (*Calocedrus decurrens*), and Douglas-fir (*Pseudotsuga menziesii)*, manzanita (*Arctostaphylos spp.*), poison oak (*Toxicodendron diversilobum*), coffeeberry (*Rhamnus*

*californica*), and ceanothus (*Ceanothus spp*.) The Grass Valley/Nevada City FZ contains the most urban areas out of the four FZs of Nevada County. Table 42 displays all vegetation communities and their acreages, while Figure 5, Vegetation Communities, provides a visual display of these communities within the Grass Valley/Nevada City FZ and comparatively to the rest of Nevada County.

**Table 42. Grass Valley/Nevada City Forecast Zone Vegetation Communities**

| Vegetation Community | Total Acreage | Percent |
|---|---|---|
| Mixed Conifer/Hardwood | 59,246 | 44% |
| Conifer Forest/Woodland | 32,913 | 24% |
| Hardwood Forest/Woodland | 22,738 | 17% |
| Urban | 6,465 | 5% |
| Shrub | 5,708 | 4% |
| Herbaceous | 4,454 | 3% |
| Barren/Other | 2,499 | 2% |
| Agricultural | 1297 | 1% |
| Water | 847 | 1% |

**Source:** USFS 2019a, 2019b.

### 8.2.4 Fire and Ignition History

From 1909 through 2022, the Grass Valley/Nevada City FZ has experienced 57 fires. These fires burned approximately 39,649 acres within the FZ, with the northern areas along San Juan Ridge and the southeastern portion of the FZ accounting for most of this acreage (Figure 19, Fire History – Grass Valley / Nevada City). The largest fires that have occurred in this FZ are the 1988 49er Fire (36,343 acres total, but most of this fire burned within the Higgins/Penn Valley FZ—3,709 acres burned within the Grass Valley/Nevada City FZ), an unnamed fire in 1924 (27,081 acres total; 3,673 acres in the FZ), an unnamed fire in 1917 (26,767 acres total; 6,241 acres in the FZ), and the 1960 NSJ Fire (23,951 acres total; 5,835 acres in the FZ). The most recent fires that have occurred in this FZ of notable size are the 2009 Yuba Fire (9,061 acres total; 830 acres in the FZ), the 2015 Lowell Fire (2,304 acres total; 2,295 acres in the FZ), the 2021 River Fire (2,619 acres total; 413 acres in the FZ), and the 2022 Rices Fire (921 total acres and all in this FZ). The average fire return interval within the Grass Valley/Nevada City FZ was calculated to be approximately every 2 years. However, 13 of these 57 fires occurred within the past 10 years. Table 43 summarizes the Grass Valley/Nevada City FZ fire history per decade, with recorded history dating back to 1909. Fire History for the FZ is presented in Figure 19, Fire History – Grass Valley/Nevada City.

**Table 43. Grass Valley/Nevada City Forecast Zone Fire History by Period**

| Years | Total Acreage | Number of Fires |
|---|---|---|
| <1980 | 30,195 | 33 |
| 1980–1990 | 3,734 | 2 |
| 1991–2000 | 336 | 2 |
| 2001–2010 | 929 | 5 |
| 2011–2020 | 3,030 | 11 |
| 2021–2023 | 1,424 | 4 |

**Table 43. Grass Valley/Nevada City Forecast Zone Fire History by Period**

| Years | Total Acreage | Number of Fires |
|---|---|---|
| **Total:** | **39,648** | **57** |

**Source:** CAL FIRE 2024c.

### Ignition History

While the largest areas of wildfire appear to have occurred along the northern areas and the southeastern portion of the FZ, fire ignitions tend to be concentrated along the roads and especially in and around the urban centers of the FZ such as Grass Valley and Nevada City, North San Juan, and Cedar Ridge/Peardale (Figure 20, Ignition History – Grass Valley/Nevada City FZ). Ignition density tends to overlap where the Nevada County Wildland Urban Intermix is. The WUI area is presented in Figure 21 (Wildland-Urban Interface – Grass Valley/Nevada City FZ) and the Defensible Space Area is presented in Figure 22 (Defensible Space – Grass Valley/Nevada City FZ). Similarly, Figure 20 also shows that, when compared to the middle and southern portions of the FZ where the Grass Valley and Nevada City areas are located, the eastern and southern area along the San Juan Ridge contain the least amount of ignitions, due to possible lack of road access and fewer communities built out in those areas.

## 8.3 High Value Resources and Assets at Risk

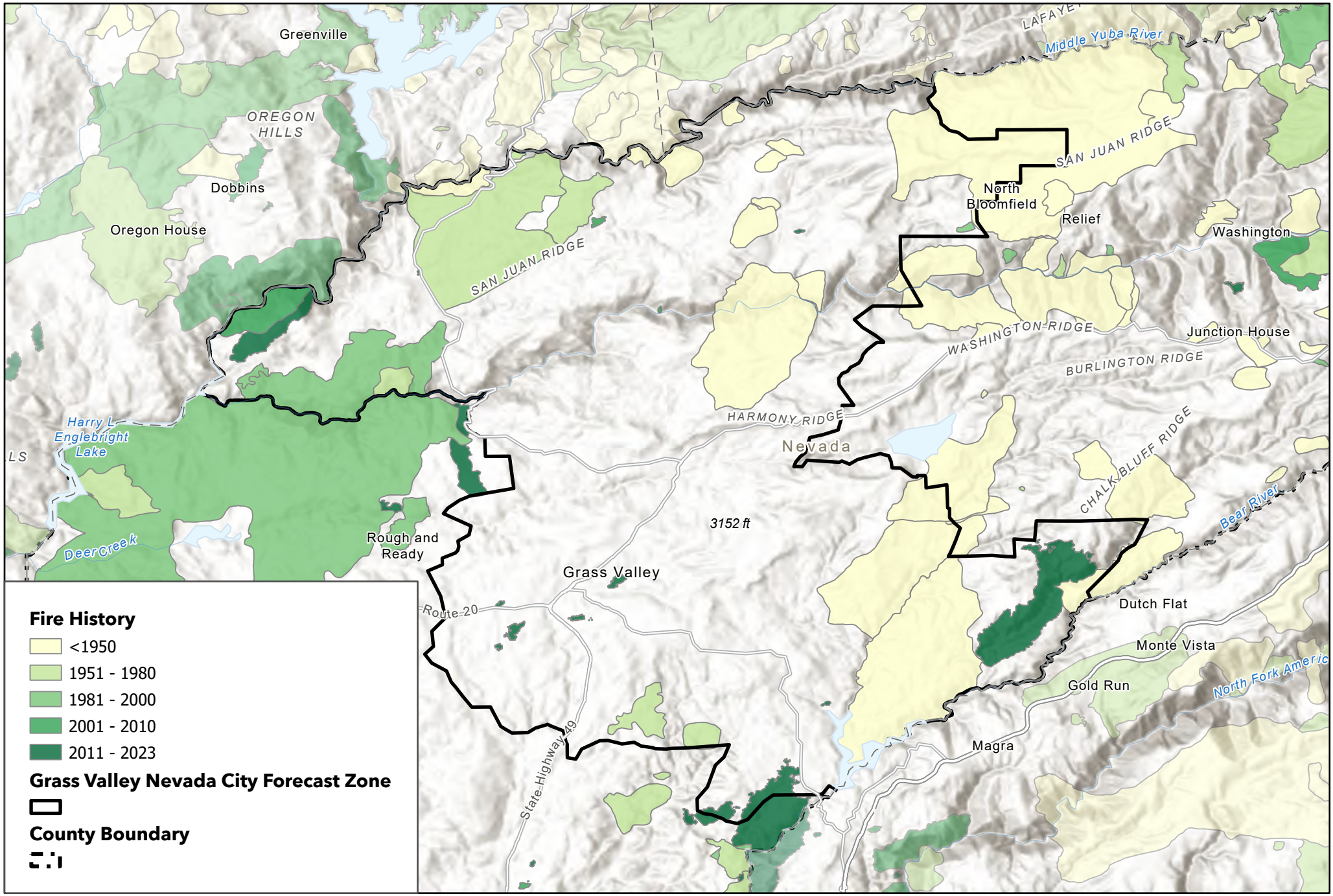
### 8.3.1 Community Lifelines

Community Lifelines are critical assets to a community and are the fundamental services of a community that enable all other aspects of society. Community Lifelines include:

- **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.

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).

# Figure 19 - Grass Valley/Nevada City Forecast Zone - Fire History



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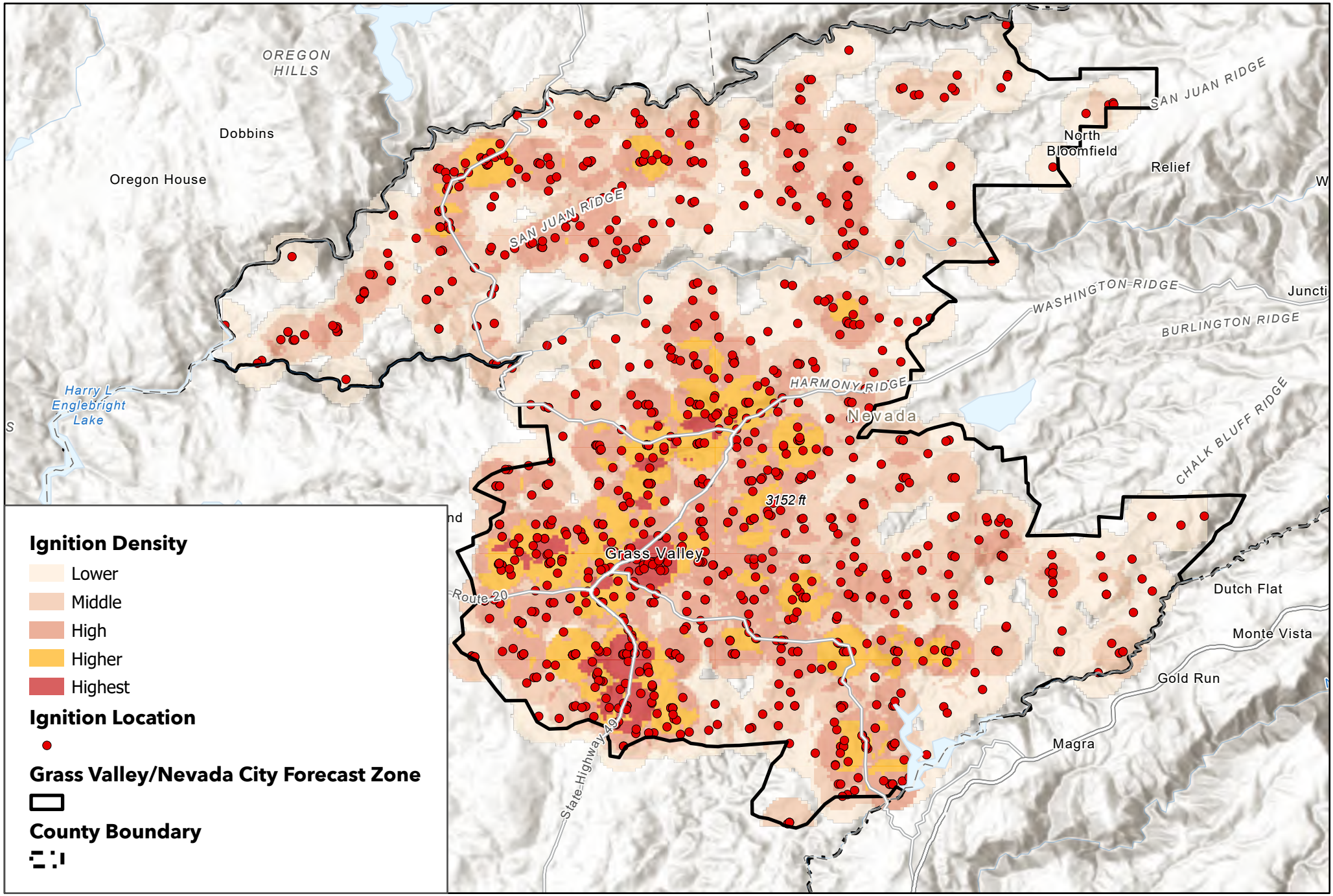
# Figure 20 - Grass Valley/Nevada City Forecast Zone - Ignition History




NEVADA COUNTY CALIFORNIA

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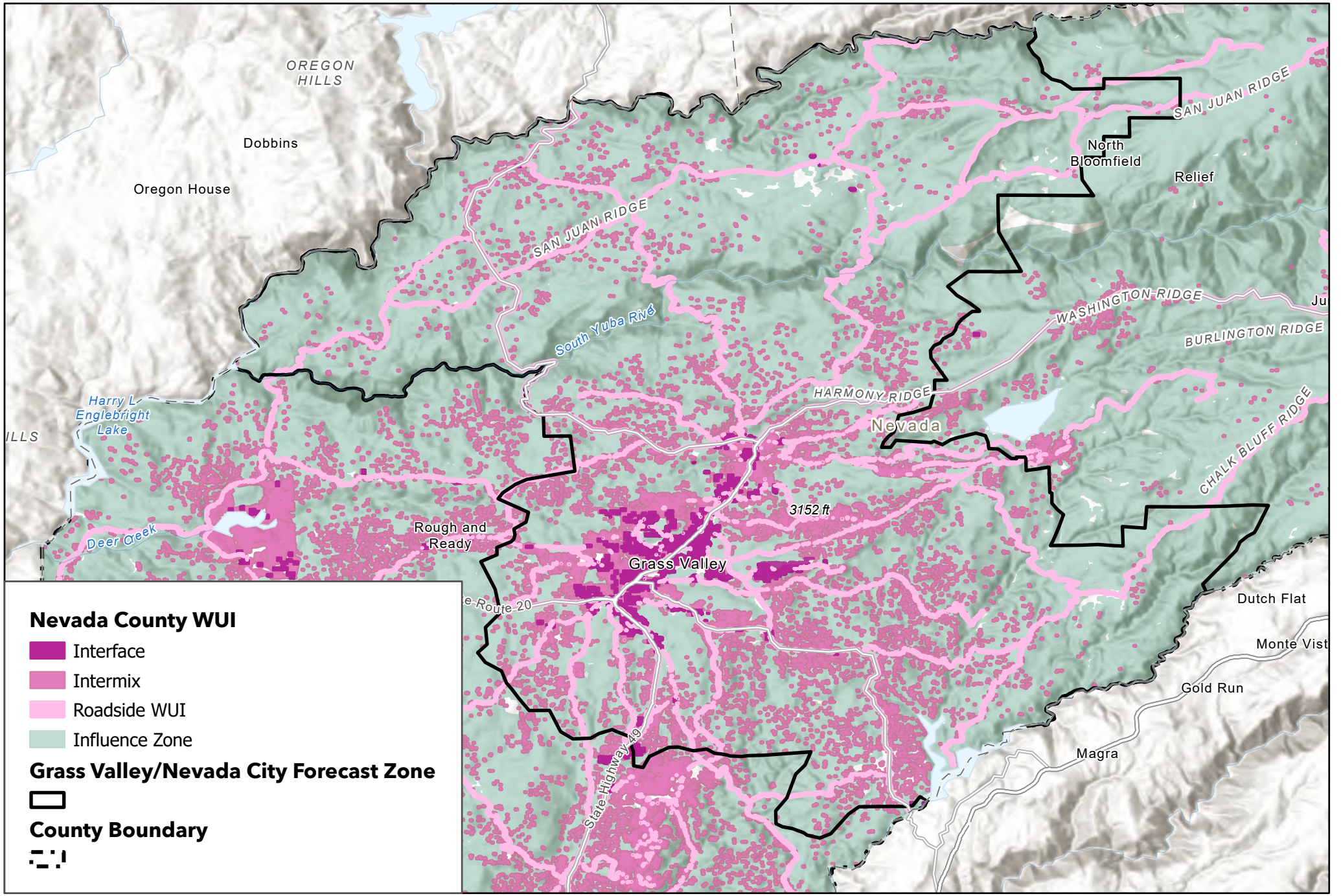
# Figure 21 - Grass Valley/Nevada City Forecast Zone - Wildland-Urban Interface

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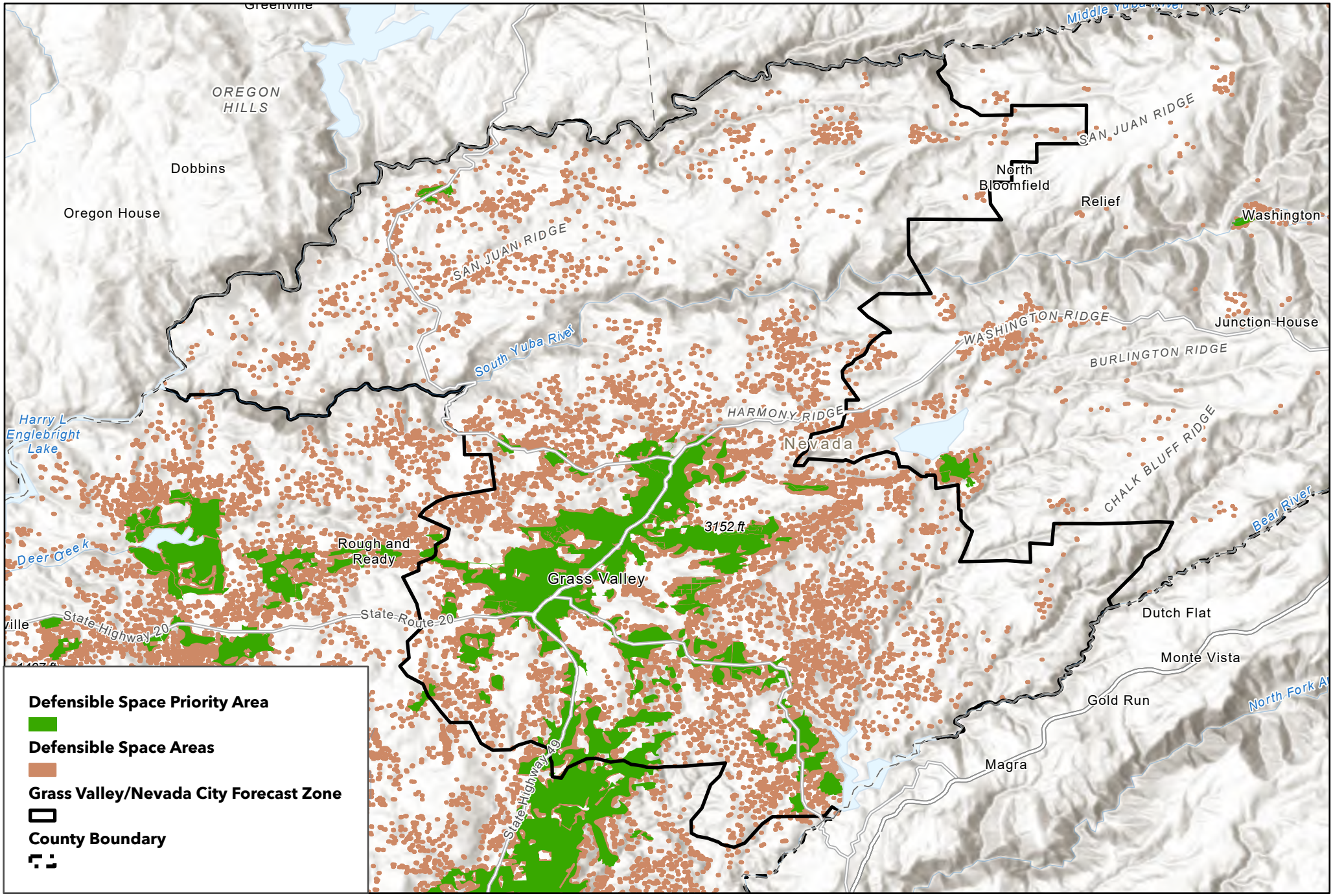
# Figure 22 - Grass Valley/Nevada City- Defensible Space Areas

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#### 8.3.1.1 Communities

The Grass Valley/Nevada City FZ includes two incorporated cities the city of Grass Valley and the city of Nevada City as well as communities located in unincorporated Nevada County. The community makeup varies across the FZ and includes working landscapes, rural lifestyle, subdivisions, and commercial/highly developed communities. Some of the major communities with the FZ are Grass Valley, North San Juan, Nevada City, Banner Mountain, Greenhorn, and Lower Colfax.

*Residential areas in the Grass Valley/Nevada City FZ*

Communities in the Grass Valley/Nevada City FZ are distributed across the FZ at varying densities, with the exception of the central portion of the FZ along the South Yuba River canyon. Building density (Jaffee et al. 2024) within this FZ is variable, with notable concentrations of high building density (approximately 500-1,000 buildings/km$^2$) in and near Grass Valley, Nevada City, North San Juan, the Wolf Creek area, Union Hill, and Cedar Ridge. Building density is moderate (approximately 100-500 buildings/km$^2$) in and near Orchard Springs, Pinecrest, Burma Road, portions of Lower Colfax Road, LaBarr Meadows, Forest Springs, Banner Mountain, Willow Valley, and Bloomfield. Building density is low (approximately 5-100 buildings/km$^2$) in and near You Bet, Lower Colfax Road, Greenhorn, Lake Vera/Round Mountain, Cement Hill, Cruzon Grade, Old Mill, Lake City-Grizzly Hill, Outer Jackass Flats, Ponderosa Road, Robinson Road, French Corral, and portions of Banner Mountain. Structure age in this FZ is predominantly older, with approximately 93% of construction occurring prior to 2007 (after which current California Building Code ignition-resistant construction requirements went into effect) (County of Nevada 2024c). Buildings are typically wood frame construction with wood siding. Numerous outbuildings (barns, stables, utility buildings) are located on parcels throughout the FZ, especially in low-density areas where parcel sizes are larger.

Communities defined as at risk from wildfire by the Office of the State Fire Marshal and CAL FIRE Nevada-Yuba-Placer Unit within the Grass Valley/Nevada City FZ are presented in Table 44.

**Table 44. Office of the State Fire Marshal and CAL FIRE Communities at Risk in the Grass Valley/Nevada City Forecast Zone**

| Community Name | Incorporated Community |
|---|---|
| Alta Hill | No |
| Ananda | No |
| Banner Mountain | No |
| Cedar Ridge | No |
| Cherokee | No |
| Chicago Park (Pine Crest) | No |
| Cruzon Grade | No |
| Deer Creek Watershed | No |
| Dog Bar/Wolf Creek | No |
| Forest Knolls – Banner Mountain | No |
| French Corral | No |
| Glenbrook | No |
| Gold Flat | No |
| Grass Valley | Yes |
| La Barr Meadows | No |
| Lake City | No |
| Lake Vera | No |
| Newtown | No |
| Nevada City | Yes |
| North Bloomfield | No |
| North Columbia | No |
| North San Juan | No |
| Peardale | No |
| Red Dog | No |
| Retrac Road/Sunnyvale Lane | No |
| Sherwood Forest | No |
| South Yuba River Canyon | No |
| Sweetland | No |
| Tyler-Foote | No |
| Union Hill | No |
| Willow Valley – Cascade Shores | No |
| You Bet | No |

**Source:** OSFM 2024, CAL FIRE 2024e.

The FZ includes essential community services such as post offices, gas stations, grocery stores, schools, and fire stations. There are four post offices in the FZ located in Grass Valley, Nevada City, Cedar Ridge, and North San Juan. There are 21 gas stations in the FZ and 26 grocery stores. Schools are an important community resource and service. Grass Valley/Nevada City FZ has the most schools out of the four Forecast Zones. In total, there are 31 schools in the FZ, and they are listed in Table 45.

### Table 45. Grass Valley/Nevada City Forecast Zone Schools

| Name | Address |
|---|---|
| Sierra Christian School | 175 Ridge Road |
| Charis Youth Center | 714 West Main Street |
| Grass Valley Charter School | 255 South Auburn Street |
| Echo Ridge Christian School | 15504 Liberty Circle |
| Ananda Living Wisdom School | 14618 Tyler Foote Crossing Road |
| Twin Ridges Home Study Center | 111 New Mohawk Road |
| Forest Charter School | 470 Searls Avenue |
| Yuba River Charter School | 505 Main Street |
| Mountain Valley Child and Family Services | 24077 CA-49 |
| Deer Creek Elementary School | 805 Lindley Avenue |
| Nevada City Home Study Charter School | 750 Hoover Lane |
| Seven Hills Intermediate School | 700 Hoover Lane |
| Earle Jamieson Educational Options | 12338 McCourtney Road |
| Nevada Union High School | 11761 Ridge Road |
| North Point Academy | 11761 Ridge Road |
| Sierra College | 250 Sierra College Drive |
| Chicago Park Elementary School | 15725 Mount Olive Road |
| Terence K. McAteer Family Resource Center | 400 Hoover Lane |
| Sierra Academy of Expeditionary Learning | 340 Buena Vista |
| Bell Hill Academy | 342 South School Street |
| Silver Springs High School | 140 Park Avenue |
| Nevada County Adult Education | 11761 Ridge Road |
| William & Marian Ghidotti High School | 250 Sierra College Drive |
| Bitney College Preparatory High School | 135 Joerschke Drive |
| Grizzly Hill School | 16661 Old Mill Road |
| Union Hill Middle School | 11638 Colfax Highway |
| Union Hill Elementary Charter School | 11638 Colfax Highway |
| Lyman Gilmore Middle School | 10837 Rough and Ready Highway |
| Margaret G. Scotten Elementary School | 10821 Squirrel Creek Road |
| Chicago Park Community Charter School | 15725 Mount Olive Road |
| Mount Saint Mary Academy | 400 S Church Street |

There are 17 fire stations in the FZ. This includes local fire districts and CAL FIRE. Fire stations in the Grass Valley/Nevada City FZ are presented in Table 46.

### Table 46. Grass Valley/Nevada City Forecast Zone Fire Stations

| Name | Address |
|---|---|
| CAL FIRE Station 20 – Nevada City | 10242 Ridge Road |
| CAL FIRE Station 42 – Columbia Hill | 19076 Tyler Foote Crossing Road |

**Table 46. Grass Valley/Nevada City Forecast Zone Fire Stations**

| Name | Address |
|---|---|
| CAL FIRE Emergency Command Center | 13120 Loma Rica Drive |
| CAL FIRE Air Attack Base | 13083 John Bauer Avenue |
| Grass Valley City Station 1 | 472 Brighton Street |
| Grass Valley City Station 2 | 213 Sierra College Drive |
| NCC Station 83 | 14700 North Bloomfield Graniteville Road |
| NCC Station 84 | 640 Coyote Street |
| NCC Station 86 | 12337 Banner Lava Cap Road |
| NCC Station 88 | 14400 Golden Star Road |
| Nevada City Station 5 | 201 Providence Mine Road |
| NSJ Station 1 | 10057 Reservoir Street |
| NSJ Station 2 | 20399 Pleasant Valley Road |
| NSJ Station 3 | 13200 Tyler Foote Crossing Road |
| Ophir Hill Station 52 | 12668 Highway 174 |
| Peardale-Chicago Park Station 257 | 15057 Colfax Highway |
| Peardale-Chicago Park Station 57 | 18934 Colfax Highway |

**Source:** Nevada County 2024a
**Notes:** NCC = Nevada County Consolidated; NSJ = North San Juan.

#### 8.3.1.2 Vulnerable Populations

Vulnerable populations are important to consider in wildfire planning as they are more likely to have less access to wildfire risk reduction resources and/or a harder time recovering from wildfires. Within the Grass Valley/Nevada City FZ there are ten nursing home facilities which are mostly within the Grass Valley area. As with Higgins/Penn Valley, the Grass Valley/Nevada City FZ includes mobile home communities along Highway 49 and around Grass Valley. These communities face challenges with wildfire due to the ignitable nature of their structures, limited home hardening resources, limited ability to complete defensible space, and evacuation challenges. Grass Valley/Nevada City FZ also includes shelter resources for the unhoused community. Finally, the FZ includes communities that have been identified as low-income and/or disadvantaged by the State or Federal government.

### 8.3.1.3 Critical Water Infrastructure

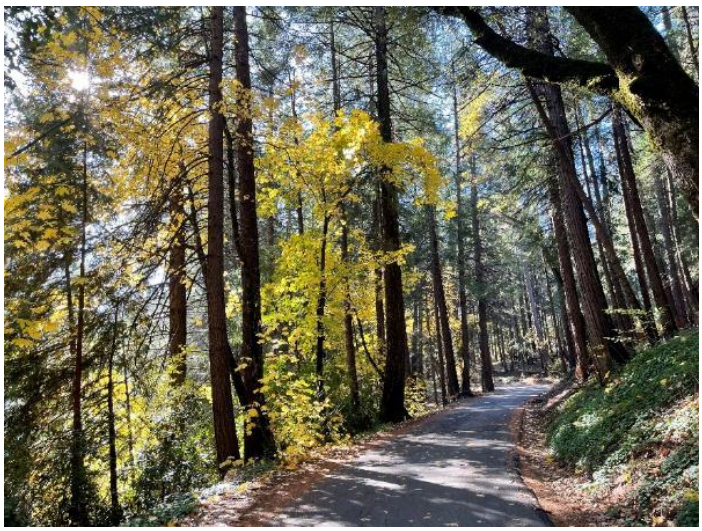
Critical water infrastructure includes canals, dams, public and private water storage, water or wastewater treatment sites, and areas likely on well or septic systems all of which exist in the Grass Valley/Nevada City FZ. Canals exist throughout the FZ and provide residential communities, businesses, agriculture land, and rangelands with water. These canals are also important resources for the community in terms of social value.

*Grass Valley Wastewater Plant*

There are seven dams in the FZ (1) Bellett Dam on the San Juan Ridge, (2) Loma Rica Dam on Empire Reservoir, (3) Lake Vera Dam on Lake Vera, (4) Pine Grove north of Little Shady Creek, (5) Chicago Park Forebay at the Chicago Park Powerhouse, (6) the dam at the Nevada City Raw Water Reservoir, and (7) Anderson Dam south of Excelsior Ditch Camp Road. There are also over 560 public or private water storage resources including Rollins Reservoir, Alta Hill Reservoir, Banner Reservoir, and Deer Creek Reservoir within the FZ. Water treatment is an important part of the water infrastructure system. There are five facilities in the FZ that treat residential water or residential wastewater. They are located in Grass Valley, Nevada City, and North San Juan. Finally, with Grass Valley/Nevada City FZ there are communities that are more likely to only be on a well or septic system and have no access or potential access to public water systems.

### 8.3.1.4 Critical Transportation Infrastructure

Critical Transportation is a key component of communities. Transportation infrastructure plays a role in ignition prevention, evacuations, and community recovery. In Nevada County, this includes airports, bridges, highways, railroads, major County roads, and yearlong USFS roads. In Grass Valley/Nevada city FZ there are important critical transportation infrastructures both for the FZ but also for the County as a whole. One of these resources is the Nevada County Airport which is also the CAL FIRE Air Attack Base. There are 97 bridges in the FZ some of which provide critical crossings over rivers for vehicles, such as the Highway 49 bridge over the South Yuba River or the multiple bridges in downtown Nevada City over Deer Creek. Communities in this FZ have experienced ingress/egress challenges when bridges are washed out such as You Bet and Greenhorn. Within the FZ are two major highways for Nevada County, Highway 20 and Highway 49. These are major



*Road through WUI area in the Grass Valley/Nevada City FZ*

evacuation corridors and are the two main roads that lead in and out of the County. These roads are also very important for the transportation of goods and resources. There are major local roadways in the FZ such as Tyler Foote Road, North Bloomfield Road, Broad Street, Red Dog Road, Banner Lava Cap Road, Idaho Maryland Road, You Bet Road, Brunswick Road, Main Street, Ridge Road, La Barr Meadows Road, and McCourtney Road. Local roads are often primary ingress/egress routes for communities connecting them to essential services and to larger transportation infrastructures such as highways. Unlike, the Higgins/Penn Valley FZ there are year-round USFS roads in Grass Valley/Nevada City FZ - Rock Creek Road, and Madrone Springs Road. Finally of the 101 Community Evacuation Projects that were identified as priorities for evacuation improvement by communities in the 2024 Evacuation Study Appendix A, 77 are within Grass Valley/Nevada City FZ.

#### 8.3.1.5 Critical Power and Communication Infrastructure

Power and communication infrastructure play important roles in wildfires. Power infrastructure can be an ignition risk but also a critical component of community recovery. Communication infrastructure is crucial for wildfire response allowing first responders to communicate in wildfire events, emergency alerts to be disseminated, and more. Powerlines exist across the FZ providing electricity to residents and businesses as well as major high voltage powerlines transportation corridors. Additionally, there are two powerplants in the Grass Valley/Nevada City FZ one located at Chicago Park and the other located at Wolf Creek. Finally, there are over 180 communication sites within the FZ. These sites include radio towers (public and private), emergency communication sites, cellular communication towers, and microwave transmission sites.

### 8.3.2 Community Health

Community health focuses on factors that impact the overall health of a community and potentially could result in secondary impacts from a wildfire that impede community recovery. Community Health includes the following:

- **Wildfire Smoke Emission Potential** 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** are sites that are currently listed hazardous waste sites.
- **Hospitals and Sheltering Facilities** which include local hospitals, schools, community centers, veteran halls etc.
- **Solid Waste Management Facilities**

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).

#### 8.3.2.1 Wildfire Smoke Emission Potential

Wildfire Smoke Emission Potential refers to areas that were identified the U.S. Forest Service as having A High potential for emitting harmful levels of PM 2.5 if burned in a wildfire. PM 2.5 is one of the air

pollutants in wildfire smoke that can be harmful to communities. If these areas burn, they not only have the potential to negatively impact the Grass Valley/Nevada City FZ but also adjacent communities and areas outside the County. Within the FZ there are 112,516 acres classified as having a high potential for emitting harmful levels of wildfire smoke.

#### 8.3.2.2 Soil Vulnerability

Soil Vulnerability refers to soils in Nevada County that are more likely to be subject to post-fire erosion due to either their natural composition or human activities (i.e., hydraulic mining). Mass wasting events after a wildfire can be devastating. They can affect the community that burned or the community that is located downslope of the burn scar. Fire scars are regularly monitored for these types of events because of the potential impacts on communities. In Grass Valley/Nevada City FZ there are 8,079 acres of historic hydraulic and hard rock mine sites which can be more vulnerable to erosion and mass wasting events. They are located adjacent to water waterways and river canyons. There are several areas on the San Juan Ridge such as in French Corral, North San Juan, Jackass Flats, and Malakoff Diggins State Historic Park. Other areas include Round Mountain, Hirshman Pond, Deer Creek, Little Deer Creek, and You Bet. The Grass Valley/Nevada City FZ is where the majority of the historic mine sites are located which is consistent with historic gold mining activity. In terms of areas naturally more likely to experience a landslide there are 24,912 acres within the FZ naturally more vulnerable to landslide events and they are concentrated at the South Yuba River and the eastern half of the FZ.

#### 8.3.2.3 Listed Hazardous Waste Sites

Hazardous waste sites can present challenges to community health if burned. They can emit toxic fumes and impede recovery efforts by requiring more stringent clean-up processes due to site contamination. Currently, there are 66 known hazardous waste clean-up sites in the Grass Valley/Nevada City FZ.

#### 8.3.2.4 Hospital and Sheltering Facilities

Hospital and sheltering facilities are included in Community Lifelines as components of communities. However, they also serve to support Community Health. They support secondary impacts from fire such as smoke impacts, sheltering sites, recovery centers, resource support, and more. These sites are often already within the community service as other functions such as schools, libraries, community centers, or churches. The Grass Valley/Nevada City FZ is where the only hospital in western Nevada County, Sierra Nevada Memorial Hospital is located. As previously mentioned, there are 31schools in the Grass Valley/Nevada City FZ and 4 libraries, Sierra College Library, Madelyn Helling Library, Grass Valley Library, and Doris Foley Library. Resources that have been used for sheltering in past events are also within the FZ such as the Nevada City Veterans Hall, Grass Valley Veterans Hall, and the Nevada County Fairgrounds.

#### 8.3.2.5 Solid Waste Management Facilities

As with the other HVRAs in Community Health Solid Waste Management facilities are important to consider from a prevention and recovery perspective. Like hazardous waste sites, these facilities can present complications related to contamination if burned. They are also important for community recovery. Loss in solid waste infrastructure can cause community residents to have to drive long

distances to dispose of their garbage. In the Grass Valley Nevada City FZ there are six current or previous solid waste management facilities including the North San Juan Transfer Station.

## 8.3.3 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 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. The Natural Resources Primary-HVRA includes the following:

- **Outdoor Recreation Resources** which include recreation areas such as public parks, trails, campsites, seasonal roads, ski resorts, and the Tahoe National Forest.
- **Watersheds**
- **Significant Species**
- **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).

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).

### 8.3.3.1 Outdoor Recreation Resources

*Empire Mine State Historic Park*

Outdoor Recreation Resources are important to Nevada County from multiple perspectives, especially considering their often-hazardous fuel conditions and community value. They include things like public parks, trails, and campsites. There are several outdoor recreation resources such as parks, campgrounds, and trails in Grass Valley/Nevada City FZ. Trails exist across the FZ and are very popular with community members and visitors. These include trails such as Independence Trail, Deer Creek Tribute Trail, trails within State Parks (Empire Mine State Historic Park, South Yuba State Park, and Malakoff Diggins State Historic Park), Hoyt Crossing Trail, Pioneer Trail, Little Deer Creek Trail, Cascade Canal Trail, and Overland Emigrant Trail. There are 15 parks in the FZ some of which are publicly owned by local, state, and federal government presented in Table 47.

**Table 47. Parks within Grass Valley/Nevada City FZ**

| Park Name | Park Ownership |
|---|---|
| Dow Alexander Park | City of Grass Valley |
| Elizabeth Daniels Park | City of Grass Valley |
| Veterans Memorial Park | City of Grass Valley |
| Minnie Park | City of Grass Valley |
| DeVere Mautino Park | City of Grass Valley |
| Condon Park | City of Grass Valley |
| Oak Tree Community Park | Oak Tree Community Park and Recreation District |
| Calanan Park | City of Nevada City |
| Glenn Jones Park | City of Grass Valley |
| South Yuba River State Park | California Department of Parks and Recreation |
| Malakoff Diggins State Historic Park | California Department of Parks and Recreation |
| Empire Mine State Historic Park | California Department of Parks and Recreation |
| Pioneer Park | City of Nevada City |
| Scotts Flat Lake | Nevada Irrigation District |
| Tobiassen Park | Nevada County |

There are eight seasonal U.S. Forest Service Roads in the Grass Valley/Nevada City FZ and 5,737 acres of the Tahoe National Forest.

#### 8.3.3.2 Watersheds

Watersheds include public water bodies, wetlands, Clean Water Act 303(d) listed water bodies, and rivers/streams/creeks. These resources are critical in supporting our environment and the community. There are 67 public water bodies in the Grass Valley/Nevada City FZ this includes reservoirs such as Rollins Reservoir which is not only a component of the Bear Watershed but also a popular recreation site. There are 494 acres of wetlands that are scattered throughout the FZ. Two water bodies in the FZ are on the Clean Water Act 303(d) list, meaning their water quality is impaired for one or more constituents such as mercury. They include Rollins Reservoir and Englebright Lake. Finally, there are 605 miles of rivers, streams, and creeks in the Grass Valley/Nevada City FZ.

#### 8.3.3.3 Significant Species

At the time of this CWPP there is known critical habitat identified in the Grass Valley/Nevada City FZ. However, critical habitat and the presence of significant species regularly change. Further, critical habitat data is only publicly available for animal species and does not include botanical species. This means that biological and botanical surveys are very likely to still be required for risk reduction activities.

#### 8.3.3.4 Oak Woodlands

Oak Woodlands are one of the dominant vegetation communities in Grass Valley/Nevada City FZ. There are over 22,000 acres of Oak Woodlands and common species include canyon live oak (*Quercus chrysolepis*), interior live oak (*Quercus wislizenii*), blue oak (*Quercus douglasii*), and California black oak

(*Quercus kelloggii*). The vegetation community can be found around Rollins Reservoir, in Banner Mountain, east of Round Mountain, along the South Yuba River, and in French Corral.

#### 8.3.3.5 Areas of High Climate Change Resilience

There are 386 acres of Areas of High Climate Change Resilience (Thorne et al. 2016) in the Grass Valley/Nevada City FZ. These are acres identified by the State as having a higher likelihood of being resilient to climate change impacts.

### 8.3.4 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**

It is important to note that the main driver of the economy in Nevada County is tourism, especially recreation-based tourism directly tied to the natural environment. This means that the County's main economic resource is the environment itself. Therefore, it is not possible to separate Economic Resources in a meaningful way, as they are components of all the HVRAs. Further, as a result, the Economic Resources HVRA is very vulnerable to wildfire given that any impact on the other identified HVRAs also has the potential to impact the Economic Resources in Nevada County. For these reasons, the results from the Economic Resources risk assessments are not further analyzed in the WRA beyond the County-scale discussion of the risk assessments, and the information below is provided for community context.

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).

#### 8.3.4.1 Recreation

Recreation resources include the previously described Outdoor Recreation Resources in Section 8.3.3.1. These resources are not only components of the environment/Natural Resources in Nevada County but function as a crucial element in Nevada County's economy.

#### 8.3.4.2 Historic and Cultural Districts

Within Grass Valley/Nevada City FZ is the Historic District of downtown Nevada City and the Cultural District of downtown Grass Valley. These areas are important from a community value standpoint and from an economic one as they are tourist attractions.

#### 8.3.4.3 Government Buildings

While government facilities were included in Community Lifelines they were specified in Economic Resources since the largest employer in the County is government (local, state, and federal). In the Grass Valley/Nevada City FZ there are 172 government buildings which include CAL FIRE facilities, CA State Park-owned buildings, and locally owned buildings. Some of the resources include CAL FIRE Air Attack Base, U.S Forest Service Tahoe National Forest headquarters, Grass Valley City Hall, Nevada City City Hall, Nevada County Eric Rood Administration Building, Nevada County Emergency Operations Center, and Brighton Greens.

## 8.4 Risk Assessment Result Summary

As discussed in Section 3.2 a Quantitative Wildfire Risk Assessment (QWRA) was completed for High Value Resources and Assets at Risk (HVRA) within each Forecast Zone (FZ). The following is a summary of the results from the QWRAs completed in the Grass Valley/Nevada City FZ. It is important to note this is not the final component of the Wildfire Risk Assessment (WRA). More detailed information on the QWRA results can be found in Appendix A Wildfire Risk Assessment.

The percentage of pixels that are classified as Non-Burnable[11] across all fire scenarios (12%). The percentage of Burnable but Not Burned[12] pixels ranges from 1-2% for the fire scenarios. Pixels classified as No Impact[13] range from 5% to 79% for each HVRA.

The Grass Valley/Nevada City Forecast Zone (FZ) is generally where the majority of communities in Nevada County are concentrated. Therefore, the results from the Community Lifelines risk assessment are more continuous in this FZ. Over 75% of burnable pixels in the Community Lifelines risk assessment were either High or Very High Priority Risk. Areas that are classified as either High or Very High Priority Risk tend to occur adjacent to communities. For example, this includes the communities in North San Juan and the Wildland Urban Interface (WUI) boundary around the cities of Grass Valley and Nevada City. The results from the risk assessment for Community Health in the Grass Valley/Nevada City FZ follow a similar pattern to the Community Lifelines results, meaning that there is an overlap in the occurrence of either High or Very High Priority Risk areas between the two HVRA categories.

[11] Non-burnable indicates an area mapped with a non-combustible fuel/vegetation type classification (e.g., rock, water, pavement).

[12] Burnable but Not Burned indicates an area that did not burn in the fire behavior modeling component but is mapped as a combustible fuel/vegetation type (e.g., grass, brush) and has the capacity to burn. This classification does not mean such areas cannot burn, but rather modeled fires did not reach these areas.

[13] No Impact classifications indicate areas that are not classified as an HVRA but did burn in the wildfire behavior modeling component.

The results from the Natural Resources risk assessment in the Grass Valley/Nevada City FZ are not as distributed across the FZ. Areas that are identified as either having a High Priority or Very High Priority Risk from wildfire or even a Very High Priority Benefit, tend to occur where there are concentrations of natural resources. This is expected given that the majority of Grass Valley/Nevada City is where the Community Lifelines and Community Health HVRAs are concentrated because of the amount of development in this FZ. In the Natural Resources risk assessment, up to 3% of the burnable pixels are found to have a potential priority benefit. Only 1% of pixels are considered to be Very High Priority Benefit in the wind-driven scenarios for the Natural Resources risk assessment, and 1-2% are classified as High Priority Benefit. However, over 20% of the burnable pixels in the Natural Resources risk assessment are High or Very High Priority Risk.

## 8.5 Project Priority Areas

As described in Section 4 the main goal of the Wildfire Risk Assessment (WRA) is to identify the Project Priority Areas. The Project Priority Areas are the final result of the WRA as they identify and prioritize areas on the landscape for multi-beneficial wildfire risk reduction activities. These areas represent the overlap between wildfire risk and assets and resources the community values in protecting from wildfire. The Project Priority Areas are organized into High and Highest Priority. High Priority is where there is overlap between Community Lifelines and Community Health at high risk from wildfire and Highest is where there is overlap between Community Lifelines, Community Health, and Natural Resources at high risk from wildfire. This prioritization was determined based on the results from the WRA, stakeholder outreach, and community outreach.

In the Grass Valley/Nevada City Forecast Zone (FZ), 100,054 acres are classified as Project Priority Areas, accounting for 74% of the FZ's total area. These 100,054 acres are classified as High Priority. Of these, 29,982 acres are also classified as Highest Priority. Project Priority areas in the Grass Valley-Nevada City FZ are presented in Table 48 and shown graphically in Figure 23. The risk reduction approaches identified in Section 8.8 would be prioritized in these areas.

**Table 48. Grass Valley/Nevada City Forecast Zone Priority Project Areas**

| Name | Acres |
|---|---|
| Highest Priority (Community Lifelines, Community Health, and Natural Resources) | 29,982* |
| High Priority (Community Lifelines and Community Health) | 100,054 |

**Note:**
* Areas designated as highest priority are also considered high priority areas.

## 8.6 Community Engagement Results

### 8.6.1 Community Wildfire Protection Plan Survey

As described in Section 5.1.1. the Community Wildfire Protection Plan (CWPP) process was initiated by a CWPP Public Survey. The survey was used to understand community priorities, wildfire risk reduction priorities, wildfire risk perception, and evacuation behavior. Of the 2,267 survey responses, over 1,000 were from the Grass Valley/Nevada City FZ.

Survey respondents viewed the County's risk from wildfire as Very High and felt that the most important risk reduction actions for the County to address were (1) Evacuation Route Improvements, (2) Defensible Space Assistance, and (3) Roadside Vegetation Removal. In the FZ the highest priority to protect from wildfire was Community Lifelines, followed by Community Health, Natural Resources, and Economic Resources.

When asked about their personal wildfire risk the majority of respondents felt that their risk was high. They also on average rated their defensible space as a score of 3/5. Even so, respondents felt that the main challenges in reducing their wildfire risk were (1) fuel on neighboring properties, (2) cost of defensible space/fuel reduction, and (3) cost of home hardening.

In terms of evacuation, the majority of respondents had never been evacuated in Nevada County before and felt that they would leave as early as possible if they needed to evacuate in the future. The three primary evacuation concerns for respondents in the Grass Valley/Nevada City FZ were (1) getting trapped on the road, (2) getting out early or traffic accidents, and (3) losing their home or property.

A full report on the survey results for Grass Valley/Nevada City FZ is available in Appendix C.

### 8.6.2 Community Workshop Results

The workshops for the Grass Valley/Nevada City FZ took place on January 18 and 30 and February 7, 2024, and included 77 total attendees. The workshops included a brief overview of the project followed by self-guided and active engagement activities aimed at facilitating discussion and gaining input from community members. A summary of the activities and community input received is provided in the following sections.

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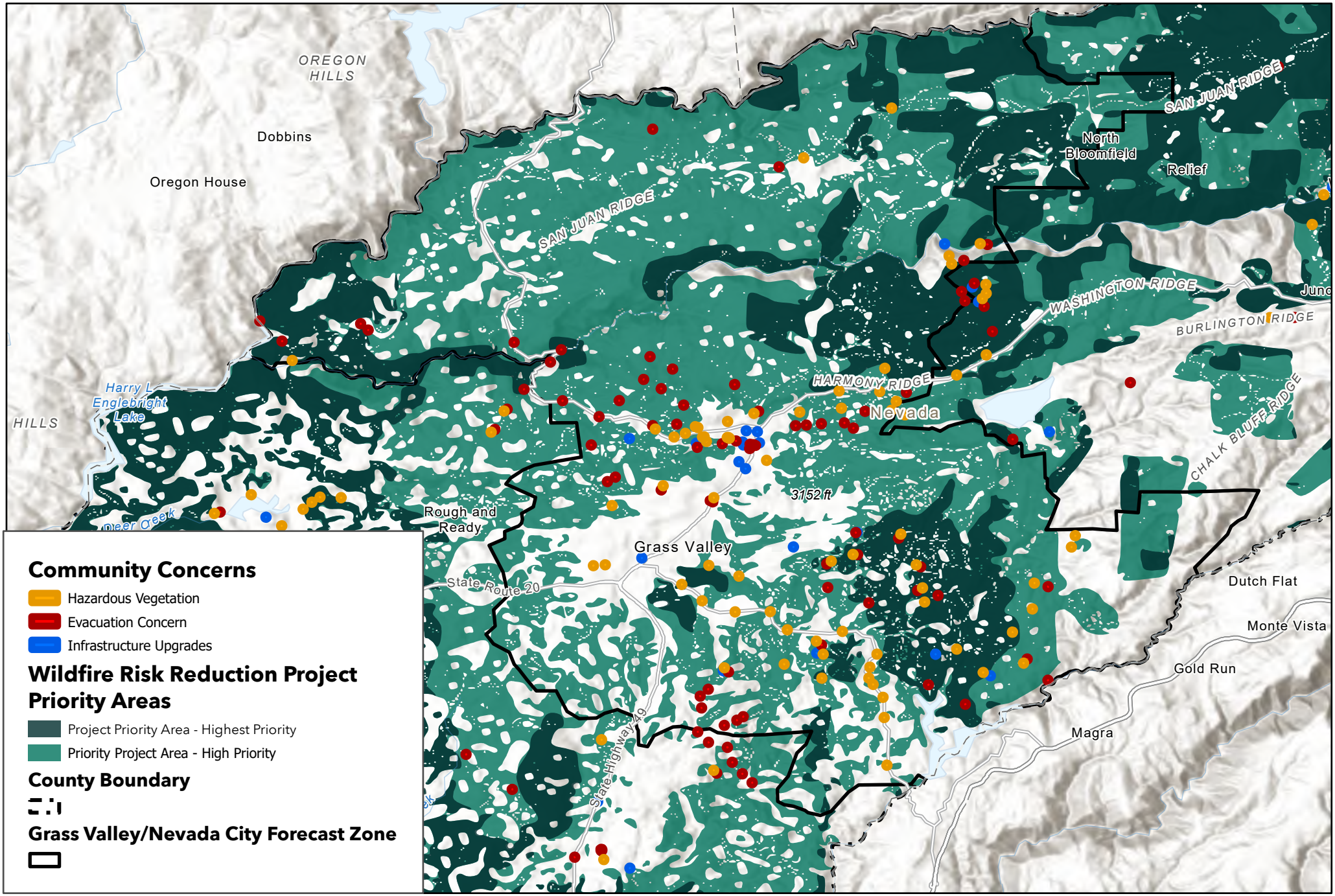
# Figure 23 - Grass Valley/Nevada City - Community Concerns




NEVADA COUNTY CALIFORNIA

DUDEK

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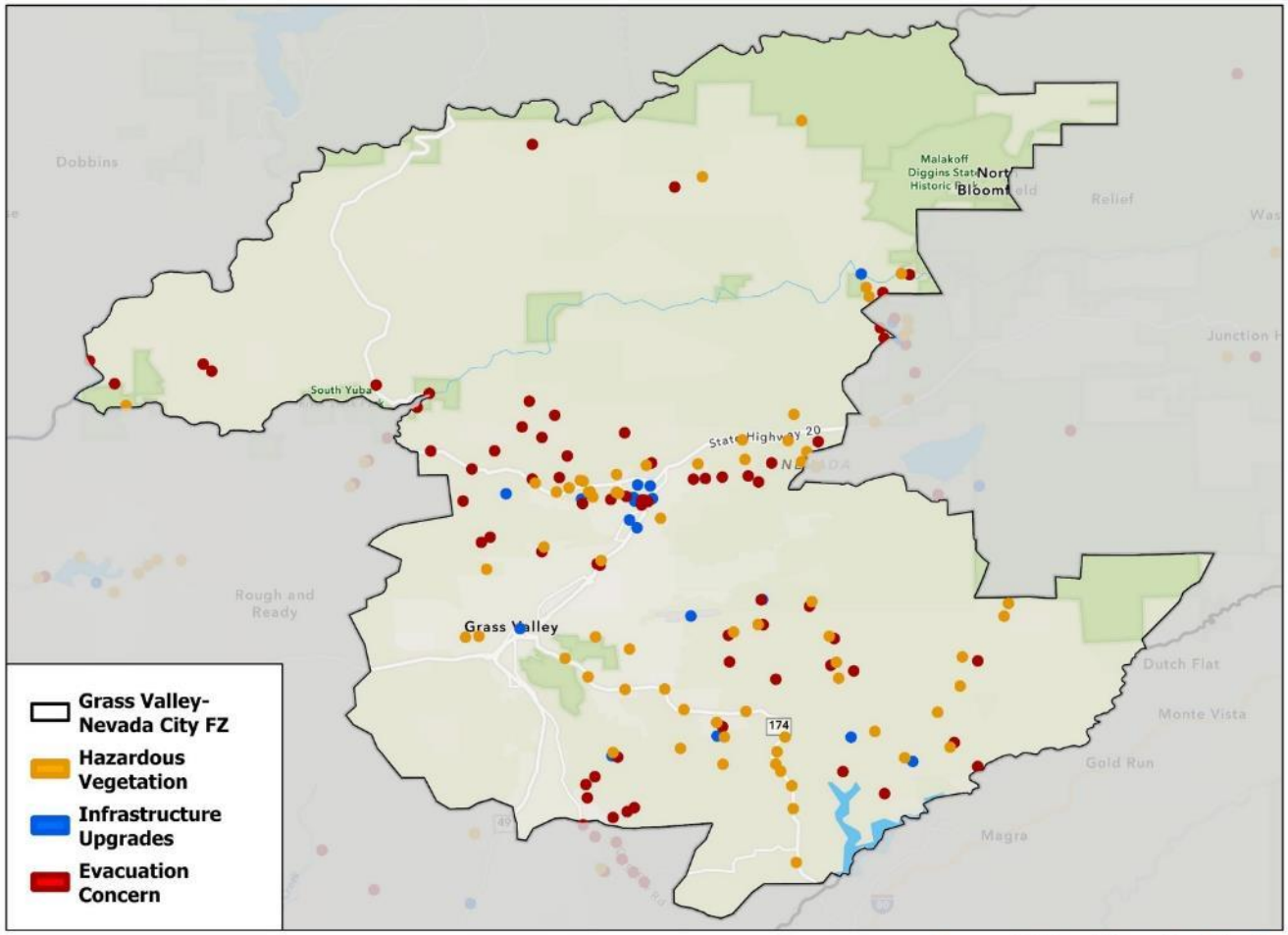
### 8.6.2.1 Self-Guided Activities

The self-guided activities included a map activity where community members could identify areas of concern using pins on a map, including limited evacuation routes, hazardous vegetation, and areas where structural hardening is needed. Areas pinned by community members are shown in Exhibit 12. Many of the pins were placed in areas that participants lived in or were familiar with, which gave great insight into those areas. This includes many pins regarding evacuation concern along State Highways 20 and 174. However, there are gaps for areas where community representation was missing at the workshops.

**Exhibit 12.** Community-identified areas of concern for the Grass Valley/Nevada City Forecast Zone




The self-guided activities also included a bead activity which allowed residents to prioritize wildfire risk reduction methods for the community and to identify which vegetation management techniques they wanted to see in the community. Exhibit 13 presents community preferences for wildfire risk reduction activities.

**Exhibit 13.** Preferred wildfire risk reduction methods for the Grass Valley/Nevada City Forecast Zone

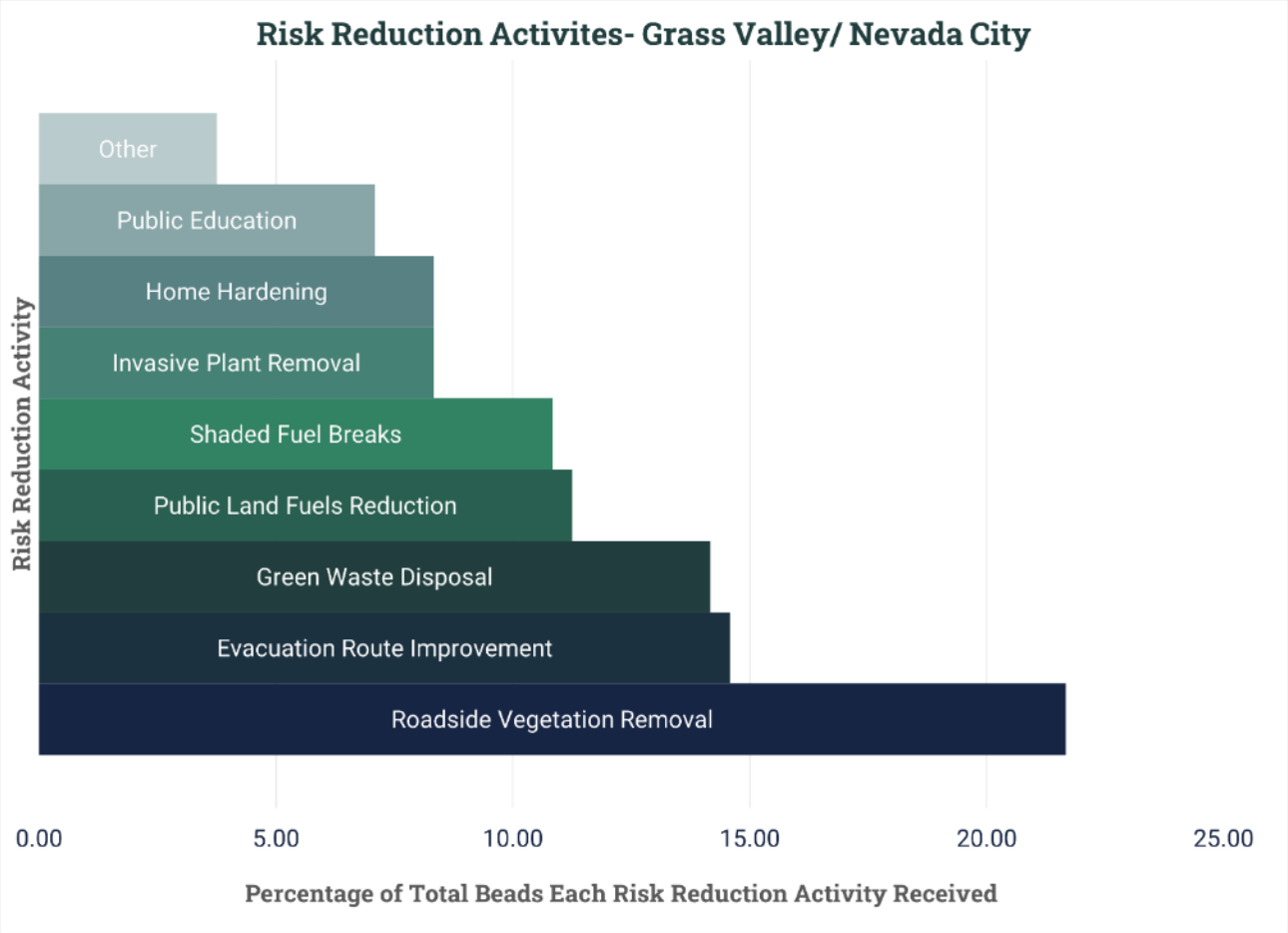
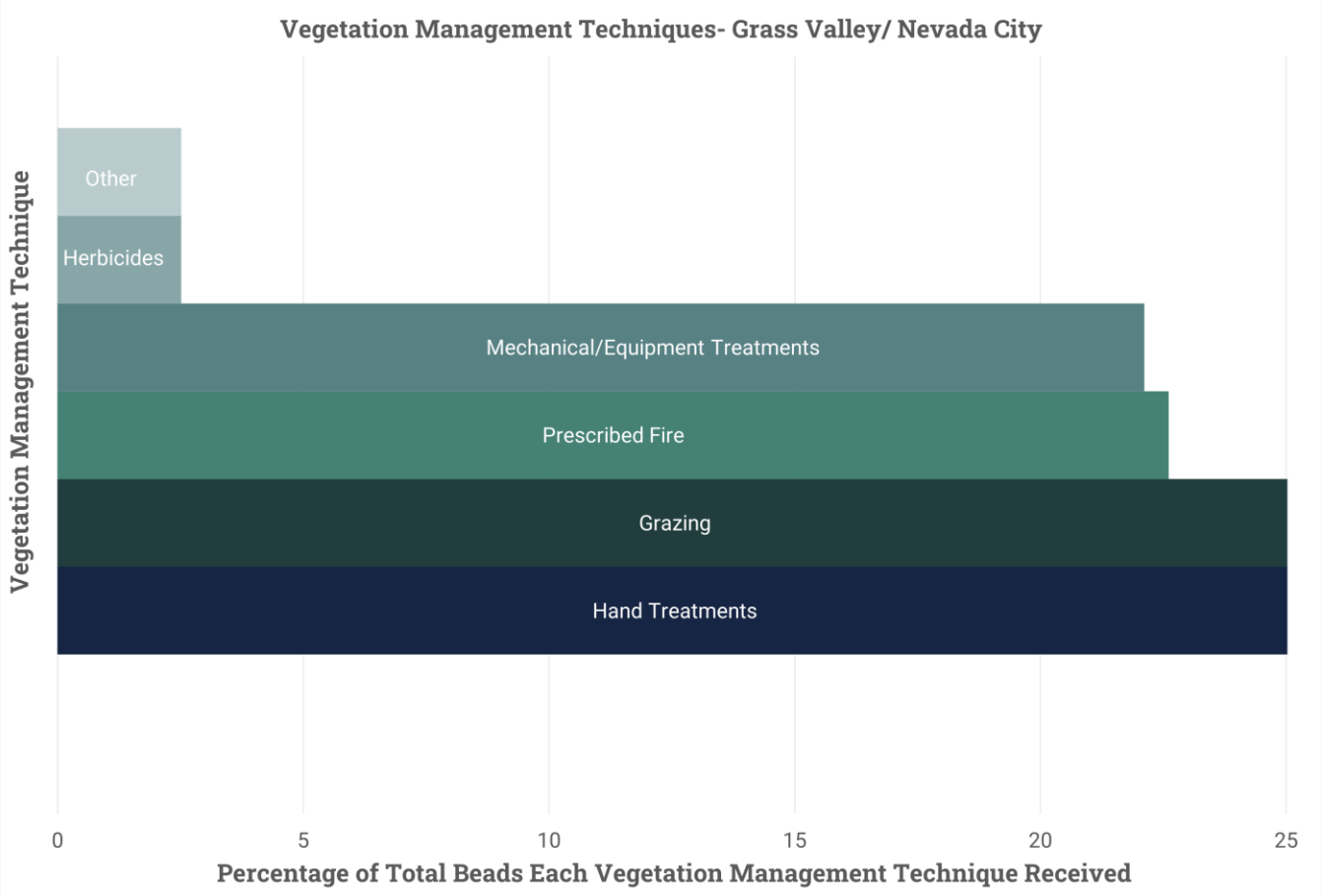


Exhibit 14 presents community preferences for vegetation management techniques.

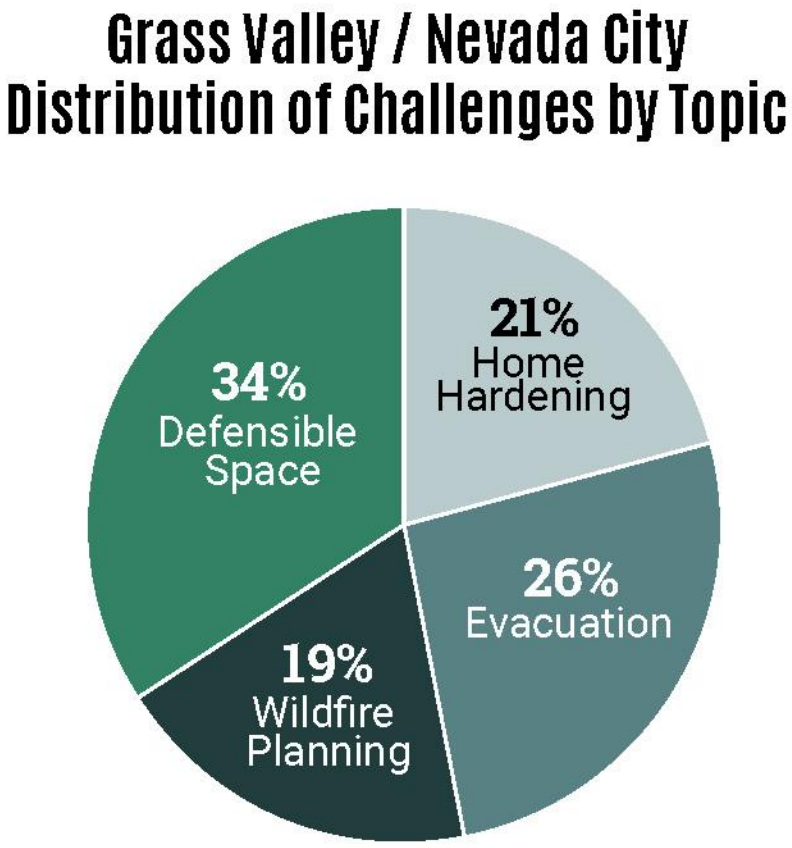
**Exhibit 14.** Preferred vegetation management techniques for the Grass Valley/Nevada City Forecast Zone




### 8.6.2.2 Community Discussions

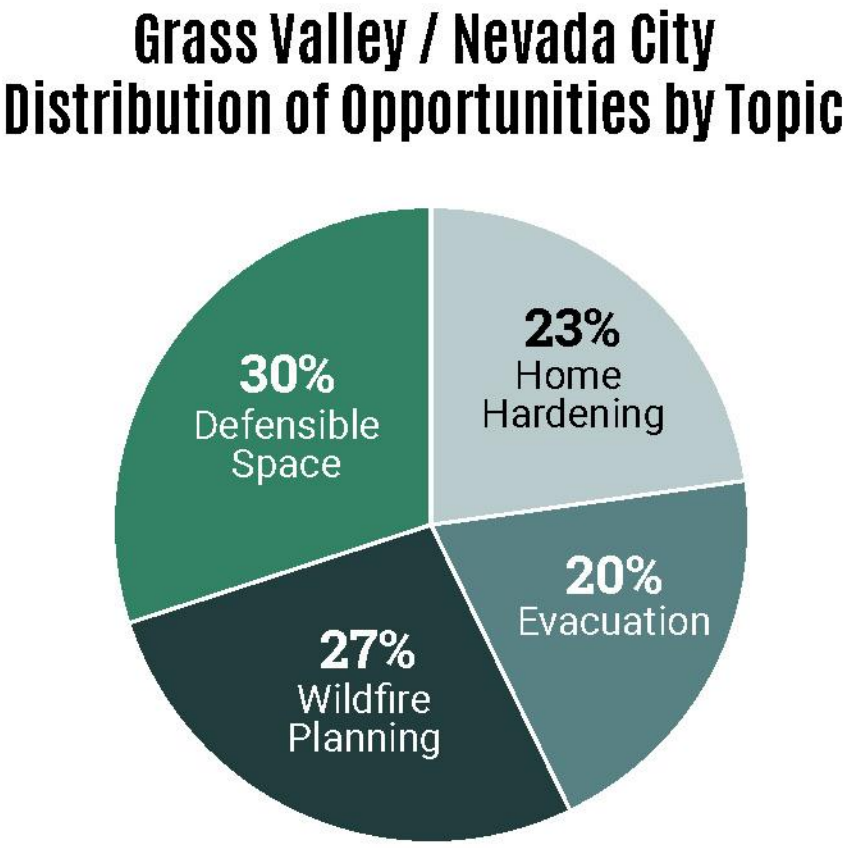
To analyze the community group discussions, two methods were taken. The data was first categorized by challenges and opportunities. As further described in Section 5.1.2, this data was then categorized by the four discussion topics to help show the distribution of issues for each FZ. Exhibit 15 shows the distribution of challenges by topic for the Grass Valley/Nevada City FZ. This shows how the majority of the written comments refer to Defensible Space and Evacuation, with fewer comments regarding Home Hardening and Wildfire Planning.

**Exhibit 15.** Community-identified challenges for the Grass Valley/Nevada City Forecast Zone




Additionally, as shown in Exhibit 16, when looking at opportunities, community members in the Grass Valley/Nevada City FZ were focused primarily on Defensible Space and Wildfire Planning. The proportions of challenges did not always translate to the proportion of opportunities. For example, although Evacuation had 26% of the comments regarding challenges, it only represented 20% of the comments regarding opportunities.

**Exhibit 16.** Community-identified opportunities for the Grass Valley/Nevada City Forecast Zone



The data was also categorized by issue topic. Exhibit 17 shows the distribution of overall challenges by issue category.

**Exhibit 17.** Community-identified challenges by issue category for the Grass Valley/Nevada City Forecast Zone

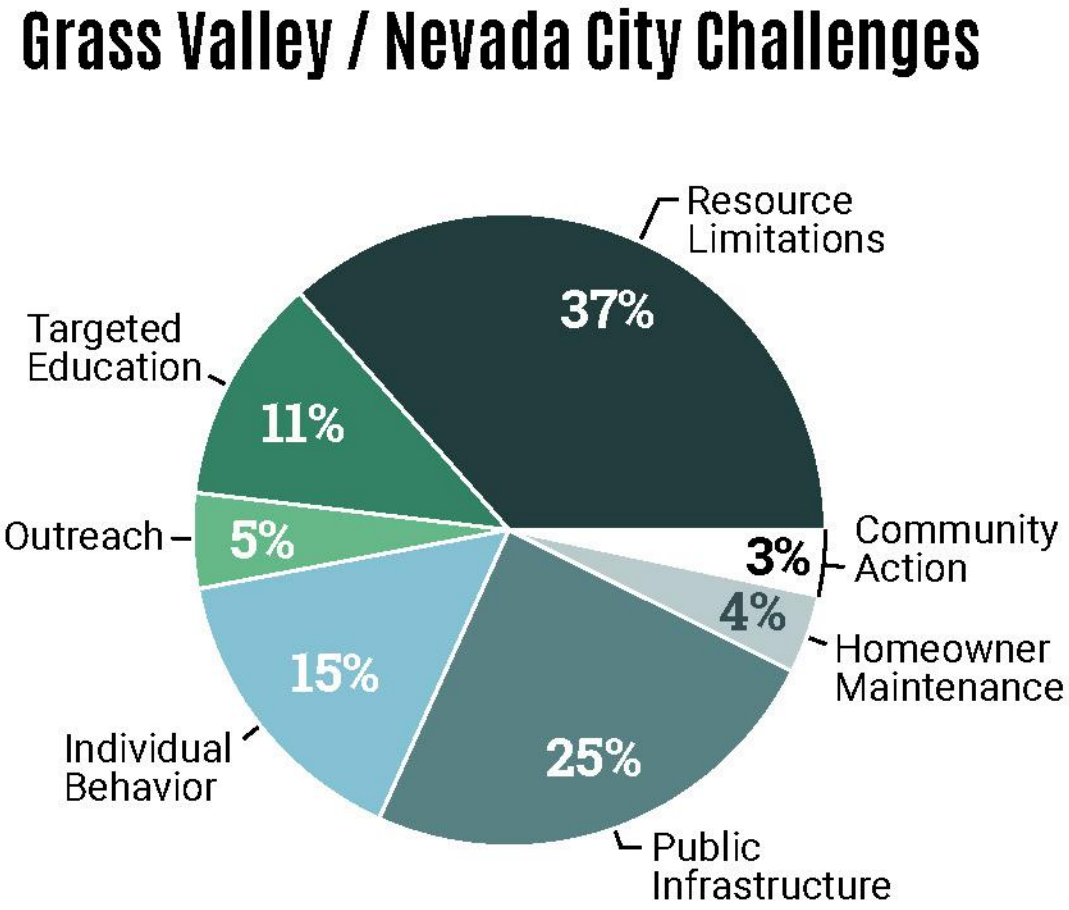
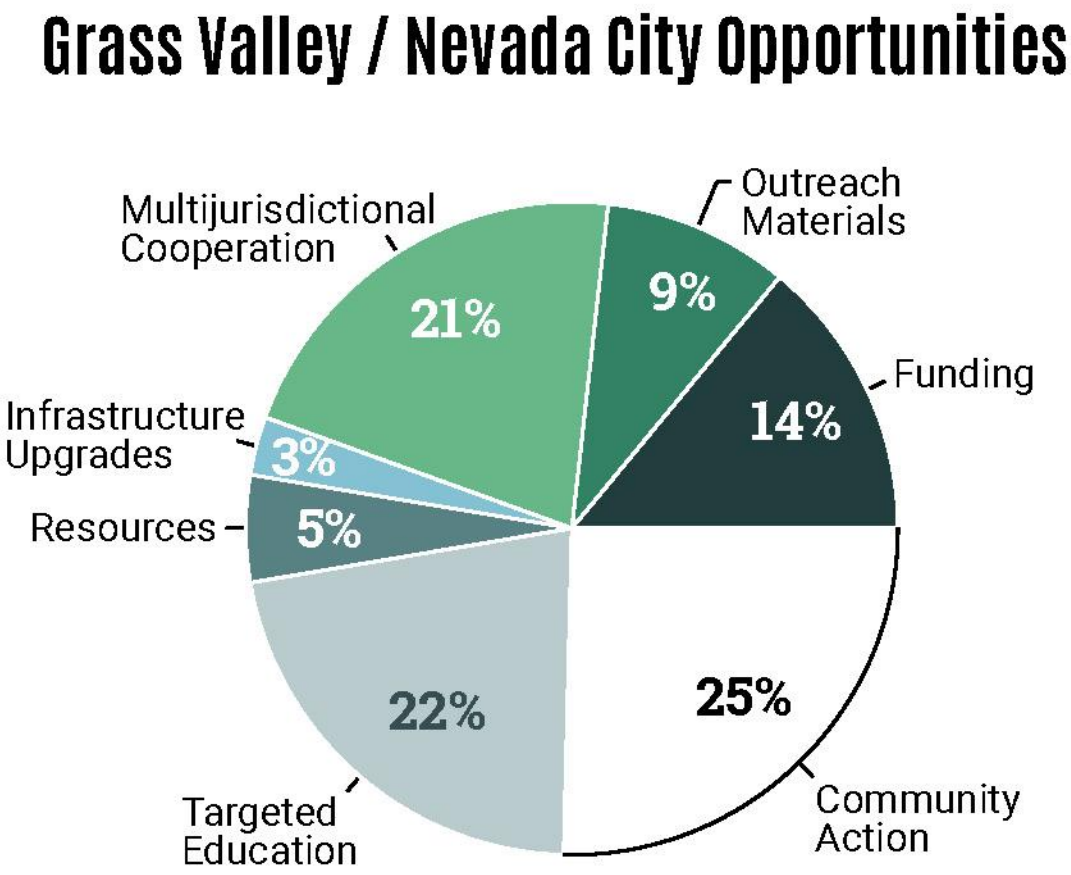



Exhibit 17 emphasizes how community members in the Grass Valley/Nevada City FZ are very concerned about resource limitations that prevent people and communities from preparing for wildfire. This includes the costs associated with hardening their homes or implementing defensible space, not having the time or physical ability to implement improvements, or not having enough contractors to do the work. Other main concerns include needing more public infrastructure including more cell towers and the desire for more evacuation routes, in addition to influencing individual behavior.

As shown in Exhibit 18, community members in the Grass Valley/Nevada City FZ primarily focused their discussions on opportunities for Multijurisdictional Cooperation and Community Action.

**Exhibit 18.** Community-identified opportunities by issue category for the Grass Valley/Nevada City Forecast Zone




For Multijurisdictional Cooperation, community members in the Grass Valley/Nevada City FZ wanted to better understand how local and county agencies work together before and during wildfire events and wanted to more clearly see the results of that cooperation. Community members in this FZ also wanted to have more opportunities for communities to get involved to help increase awareness for some of the issues that the County is facing including having workshops teaching residents more about home hardening and defensible space. **For full results of each discussion topic and the full community workshop analysis, please see Appendix D.**

## 8.7 Issues Specific to the Grass Valley/Nevada City Forecast Zone

The following list summarizes the major issues present within the Grass Valley/Nevada City Forecast Zone (FZ). These issues were obtained from community member input, collaboration with interested parties, field visits, and a review of wildfire-related spatial data.

### Wildfire Hazard

- Areas of High and Very High wildfire hazard are present throughout this FZ. Wildfire Hazard in this FZ was modeled to generally be highest in the northern region of the FZ within the Middle and South Fork drainages of the Yuba River, in addition to the southeastern region of the FZ near the Greenhorn Creek drainage.
- The majority of the South Yuba River drainage has not experienced wildfire according to the historical wildfire record. This has resulted in significant fuel accumulation likely to increase wildfire severity in this region.
- The Middle Yuba River has experienced multiple fires, with the area north of North San Juan having burned three times.

### Wildfire Ignitions

- Similar to the Higgins/Penn Valley FZ, the number of vegetation fire ignitions per acre is roughly twice as high compared to the Tahoe National Forest (TNF) Area and Truckee/Donner FZs.
- A review of vegetation fire ignition history shows that ignitions are more common in the open space areas surrounding Grass Valley, along Highway 49 south of Grass Valley, west of Nevada City, and near North San Juan.
- The FZ attracts many recreationists to high hazard areas during fire season, creating ignition concerns.

### Evacuation and Access Challenges

- This FZ exhibits the highest population compared to other FZs. This presents evacuation issues due to heavier traffic.
- Heavy timber and substantial canopy cover are present within many community areas, with tree canopies often overhanging roadways.
- This FZ includes the greatest number of communities limited by a single-access road.
- The South Yuba River State Park attracts many recreationists during fire season, creating emergency access issues due to parked cars, and evacuation challenges.
- Large public events (e.g., First Friday Art Walk, Summer Nights, Thursday Night Market, 4th of July Parade) are common in this FZ creating access issues due to parked cars and evacuation concerns.

#### Community Participation and Education

- This FZ includes many temporary residents, presenting challenges for wildfire outreach and community member participation in wildfire risk mitigation activities.

#### Structure Exposure

- Heavy timber and substantial canopy cover are present within many community areas, with dense vegetation often near structures.

#### Financial Barriers

- Financial barriers commonly prevent community members from creating defensible space and conducting structural hardening measures.

#### Jurisdiction and Land Ownership

- Due to diverse land ownership in this FZ, community and landscape level fuel reduction and structural hardening activities may be contingent on cooperation across many adjacent property owners.

# 8.8 Action Plan

## 8.8.1 Risk Reduction Approaches

Wildfire often impacts a wide range of assets. Risks to identified assets can be mitigated through the implementation of a variety of risk reduction approaches. The following sections identify wildfire risk reduction approaches that may be considered within Project Priority Areas

### 8.8.1.1 Reducing Structural Ignitability

Terrain, vegetation, and climatic conditions in the Plan Area combine to create a unique situation capable of supporting large-scale, high-intensity, and sometimes damaging wildfires. There are two main components to reducing structural ignitability: structural hardening and defensible space. The following sections identify actions that can be implemented by homeowners on private properties to reduce the potential for structure ignitions caused by wildfires.

#### 8.8.1.1.1 Structural Hardening

Although fire-resistant construction standards are mandatory for new buildings, hardening of existing structures is voluntary. Hardening of the homes and other structures to enhance survivability during a wildfire would include retrofitting the most vulnerable home features, including roofs, vents, eaves and soffits, windows, walls, decks, rain gutters, patio covers, chimneys, garages, and fences. Adopting mandatory home hardening provisions through building and fire codes is problematic because existing, nonconforming structures were typically approved and built to the codes in effect at the time of construction. A burning structure contributes to wildfire spread via radiant heat generation (to nearby

structures) and ember generation (to downwind structures). Retrofits to existing structures can reduce fire risk, and some cost-sharing and grant programs are available to offset costs. Resources for hardening structures can be found on the following websites:

- Wildfire Home Retrofit Guide
- Protect Your Property from Wildfire
- Prepare for Wildfire
- Low-Cost Retrofit List
- Preparing Your Home

Recommendations for the reduction of structural ignitability in the Grass Valley/Nevada City FZ are presented in Table 49.

### Table 49. Grass Valley/Nevada City Forecast Zone Recommendations for Reducing Structural Ignitability

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Encourage structural retrofits through inspections, community education, and grant funding opportunities. | Structure Exposure<br><br>Community Participation and Education<br><br>Financial Barriers | Community |
| Target contiguous community areas to provide maximum benefit towards reducing structure-to-structure ignitions. | Structure Exposure<br><br>Financial Barriers | Community |
| Evaluate opportunities for engaging residents and landowners in structural retrofit programs. | Structure Exposure<br><br>Community Participation and Education<br><br>Financial Barriers | Community |
| Work to encourage home hardening self-assessments through community education. | Structure Exposure<br><br>Community Participation and Education | Community<br><br>Individual |
| Prioritize the most cost-effective structural hardening actions in community education and outreach materials and campaigns. Prioritize this outreach in financially challenged communities. | Structure Exposure<br><br>Community Participation and Education<br><br>Financial Barriers | Community |
| Encourage structure inspections in tandem with existing defensible space inspection programs. | Structure Exposure | Community |

**Table 49. Grass Valley/Nevada City Forecast Zone Recommendations for Reducing Structural Ignitability**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Explore opportunities for residents who live in historic homes or areas governed by historic ordinances to complete home hardening activities that reduce structural ignitability and maintain historical characteristics. | Structure Exposure | Community<br><br>Individual |
| Educate residents on structure hardening options for mobile homes and prefabricated homes, especially in mobile home communities. | Structure Exposure | Community<br><br>Individual |

#### 8.8.1.1.2 Defensible Space

Reducing structure exposure to wildfire is also achieved via vegetation management/fuel reduction in defensible space areas. Five zones are identified for defensible space areas. Recommendations for management actions that can be taken by homeowners in each of these zones can be found on Nevada County's website at https://nevadacountyca.gov/3004/Defensible-Space. Recommendations for Grass Valley/Nevada City FZ are described in Table 50.

**Table 50. Grass Valley/Nevada City Forecast Zone Defensible Space Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Encourage local government, fire agencies, and NGOs to identify staffing needs in order to facilitate a high level of defensible space inspections annually. | Structure Exposure<br><br>Wildfire Hazard | Community |
| Focus efforts to increase defensible space inspection rates, education, and compliance levels in communities with higher wildfire risk exposure. Focus these efforts on disadvantaged communities with high wildfire risk exposure. | Structure Exposure<br><br>Wildfire Hazard | Community |
| Increase defensible space education and resource deployment in vulnerable populations with high wildfire risk exposure. | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community |
| In areas outside of Nevada County jurisdiction where creating 100 feet of defensible space is not possible for a single property due to property size, develop a process for property owners to partake in collaborative vegetation management. Provide residents with information on alternative methods and materials that can be implemented to increase | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community<br><br>Individual |

**Table 50. Grass Valley/Nevada City Forecast Zone Defensible Space Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| fire safety when 100 feet of defensible space is not feasible (e.g., fire wall, enhanced structural hardening measures).<br><br>Most applicable in medium to higher-density communities where parcel sizes are smaller. | | |
| Promote community-scale defensible space projects within the County Defensible Space Home Hardening Zone. | Structure Exposure<br><br>Wildfire Hazard | Community |
| Develop a training course for landscape contractors on defensible space standards, common issues, and best practices. Maintain a list of contractors who have completed the training course. | Structure Exposure<br><br>Community Participation and Education | Community |
| Emphasize the importance of creating an Ember Resistant Zone (Zone 0) around all structures. | Structure Exposure<br><br>Wildfire Hazard<br><br>Wildfire Ignitions<br><br>Community Participation and Education | Community<br><br>Individual |
| Emphasize the importance of storing firewood away from structures during fire season. | Structure Exposure<br><br>Community Participation and Education | Community<br><br>Individual |
| Develop Community-based volunteer programs where community members can assist one another with defensible space creation. | Structure Exposure<br><br>Community Participation and Education | Community<br><br>Individual |
| Emphasize the relationship between winter storm debris and defensible space. Promote defensible space as a year-round activity. | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community<br><br>Individual |
| Educate residents on wooden fencing and wood structures such as trellises and their impact on defensible space. | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community<br><br>Individual |
| Educate residents on the impact of noxious species on defensible space and the importance of | Structure Exposure | Community |

**Table 50. Grass Valley/Nevada City Forecast Zone Defensible Space Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| removing these species from defensible space zones. | Wildfire Hazard<br><br>Community Participation and Education | Individual |
| Educate and encourage residents to remove and prevent vegetation from growing on structures. | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community<br><br>Individual |
| Educate residents about the issue of large trees growing in close proximity to homes and the challenge of removing large trees. Encourage residents whenever possible to remove saplings/seedlings growing in the defensible space zone. | Structure Exposure<br><br>Wildfire Hazard<br><br>Community Participation and Education | Community<br><br>Individual |

### 8.8.1.2 Vegetation Management/Fuel Reduction

Vegetation management/fuel reduction actions outside of defensible space/fuel modification areas (see Section G-IV 7.3 of County Hazardous Vegetation Abatement Ordinance) may be conducted by fire and land management agencies, organizations, or private landowners for the purposes of wildfire risk reduction. Vegetation Management/Fuel Reduction recommendations for the Grass Valley/Nevada City FZ are described in Table 51.

**Table 51. Grass Valley/Nevada City Forecast Zone Vegetation Management/Fuel Reduction Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Promote partnership between federal agencies, state agencies, and private landowners to collaborate in cross-ownership vegetation management/fuel reduction projects. | Wildfire Hazard<br><br>Jurisdiction and Land Ownership | Community<br><br>Individual |
| Provide community education focused on the post-fire benefits of active vegetation management/fuel reduction on watershed function, slope stability, and forest health/vegetation community resilience. | Community Participation and Education | Community |
| Conduct roadside vegetation management/fuel reduction along major evacuation routes and where roadside ignitions are common. | Wildfire Ignitions<br><br>Evacuation and Access Challenges | Community<br><br>Individual |

**Table 51. Grass Valley/Nevada City Forecast Zone Vegetation Management/Fuel Reduction Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Create or maintain fuel breaks/hazardous fuel reduction areas along strategic ridgelines. | Wildfire Hazard | Landscape |
| Identify and address obstacles to implementing prescribed fire on public and private land. | Wildfire Hazard | Community |
| Conduct vegetation management/fuel reduction around critical infrastructure and critical resources. | Wildfire Hazard<br><br>Wildfire Ignitions | Community |
| Conduct vegetation management/fuel reduction projects around high-use recreation facilities to decrease the potential for ignitions. | Wildfire Ignitions<br><br>Evacuation and Access Challenges<br><br>Wildfire Hazard | Community |
| Encourage the development of wildfire risk reduction projects that also promote climate resilience. | Wildfire Hazard | Community |
| Encourage the development of wildfire risk reduction projects that also address tree mortality. | Wildfire Hazard | Community |
| Explore opportunities for vegetation removal within riparian zones. | Wildfire Hazard | Community |
| Encourage vegetation removal in open spaces and parks adjacent to or within communities. | Wildfire Hazard | Community |

**Notes:** USFS = U.S. Forest Service; CalVTP = California Vegetation Treatment Program.

## Vegetation Management/Fuel Reduction Monitoring and Evaluation Strategies

Vegetation management/fuel reduction activities may occur over long periods of time and require substantial investment and resources. In addition, these activities often require adaptive management due to changing conditions and subsequent treatments to ensure their effectiveness and longevity. Therefore, it is necessary to have a strategy to measure, both quantitatively and qualitatively, whether the goals and objectives of vegetation management/fuel reduction activities are being met as expected.

The 2024 Truckee Community Wildfire Protection Plan (CWPP) identified monitoring strategies that may be employed during vegetation management/fuel reduction projects throughout the County. Monitoring strategies aid in reaching management objectives and ensure that treatments address prior goals. Additionally, effective monitoring of vegetation management/fuel reduction projects addresses environmental damages that can be caused by vegetation removal such as soil erosion and invasive species recruitment. Post-treatment monitoring of treated areas also assists in the identification of appropriate treatment intervals based on the regrowth of vegetation following treatments.

Monitoring for each vegetation management/fuel reduction project will be tailored to the specific site and vegetation management/fuel reduction goals. The monitoring activities listed below serve different objectives, require varying amounts of time, and are suitable for different groups. These include:

#### Minimum- Level 1: Pre-and Post-Project Photographs

This monitoring strategy is considered a minimum standard and assists in comparing pre- and post-treatment vegetation conditions. This strategy captures vegetation conditions soon after treatment and therefore does not address vegetation regrowth over time.

*Targeted Group: Homeowners conducting fuel reduction projects on private property.*

#### Moderate – Level 2: Multiple Permanent Photo Points

Permanent photo points allow vegetation conditions to be assessed over time at set locations. This ensures consistency and ensures photo monitoring remains consistent. This monitoring strategy is best utilized over multiple years.

*Targeted Group: Enthusiastic homeowners or agencies conducting small-scale projects.*

#### High – Level 3: Basic Vegetation Plots

Vegetation plots are utilized to assess vegetation conditions including species, canopy cover, and vegetation frequency, in addition to environmental conditions including slope, aspect, soil type, and elevation. Using pre-established measurement protocols, vegetation conditions can be assessed pre- and post-treatment. Plot locations can be recorded, allowing continual monitoring over time to assess vegetation regrowth and identify treatment frequency standards.

*Targeted Group: Agencies conducting fuel treatments in forestlands.*

#### Intense – Level 4: Basic Vegetation Plots Plus Dead and Downed Fuels Inventory

In addition to the basic vegetation pots described above**,** conducting an inventory of dead and down fuels at each plot provides additional insights into fuel loading. This would include an assessment of dead and down fuels that may contribute to increased wildfire severity. Over time, these fuels build up in forested areas and may decrease the level of fuel treatment effectiveness if not maintained over time.

*Targeted Group: Agencies tracking detailed changes in vegetation following fuel treatments in forestlands.*

### 8.8.1.3 Community Outreach and Education

Community outreach and education is an important component in community wildfire hazard reduction efforts. Such efforts increase the community's knowledge and awareness of wildland fire, can assist in prevention and preparedness efforts, and are an important component in planning and implementing vegetation management/fuel reduction projects. Given the size of the County, it is important the outreach messages around wildfire preparedness are consistent amongst communities. Information on existing County programs can be found in Section 6.2.4. The actions presented in Table 52 are recommended to address community outreach and education in the Grass Valley/Nevada City FZ.

### Table 52. Grass Valley/Nevada City Forecast Zone Community Outreach and Education Recommendations

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Continue to distribute wildfire education and awareness materials at community events. Partner with nonprofits and other agencies to engage with the public about wildfire-related issues. | Community Participation and Education | Community |
| Continue to prioritize in-person wildfire education and awareness events that meet the community where they are at. | Community Participation and Education | Community |
| Support the development of fire planning efforts in incorporated cities through information and data sharing. | Jurisdiction and Land Ownership | Community |
| Identify key locations and coordinate with appropriate agencies to install signage to notify the public of an area's high fire hazard, including in recreational areas and within neighborhoods. | Community Participation and Education | Community |
| Develop outreach strategies to engage with seasonal residents, absentee landowners, and visitors. | Community Participation and Education | Community |
| Develop wildfire awareness materials (e.g., handouts, signage, QR codes) for display and/or distribution at high-use recreation areas (campgrounds, trailheads, day-use areas) to increase awareness of wildfire hazards. | Community Participation and Education | Community |
| Work with camps, recreational facilities, and other guest-oriented businesses to develop evacuation plans and enhance wildfire preparedness. | Jurisdiction and Land Ownership | Community |
| Conduct outreach specific to address wildfire hazards, emergency communications, and evacuation procedures with vulnerable populations. | Community Participation and Education | Community |
| Support the development of new Firewise Communities in areas where they are needed and encourage the creation of Community Focus Groups intended to engage community members and identify local priority projects. | Community Participation and Education | Community |
| Develop outreach and education strategies that promote all-hazard disaster preparedness. | Community Participation and Education | Community |

**Table 52. Grass Valley/Nevada City Forecast Zone Community Outreach and Education Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Develop outreach and education to support land management and land management planning for public and private landowners. | Community Participation and Education | Community |
| Develop outreach and education to engage with stakeholders and communities around climate and wildfire resilience. | Community Participation and Education | Community |
| Develop outreach strategies to engage with seasonal residents, absentee landowners, and visitors. | Community Participation and Education | Community |

#### 8.8.1.4 Evacuation

The Plan Area presents unique challenges for evacuation, including narrow and windy roads, single access communities, rural communities located far from major evacuation routes, steep and variable terrain, and hazardous vegetation near roadways. In the Plan Area, the Nevada County Sheriff's Office (NCSO) is responsible for coordinating emergency notifications and evacuations in their jurisdiction within the County's operational area in addition to the County's unincorporated areas. This includes alerting and warning the public, coordinating evacuations, enforcing laws and emergency orders, establishing safe traffic routes, ensuring that security is provided at incident facilities, ensuring access control to damaged areas, ordering, and coordinating appropriate mutual aid resources, and assuming responsibility for the coroner function. NCSO communicates the need for evacuation to the public using various communication methods as described further in Section 2.6 and Section 6.2.5.

The actions presented in Table 53 are recommended to address evacuation in the Grass Valley/Nevada City FZ.

**Table 53. Grass Valley/Nevada City Forecast Zone Evacuation Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Leverage and extend the 2024 Evacuation Study by identifying key ingress/egress routes that should be prioritized for improvements to facilitate emergency egress (e.g., widening, road surface improvements, bridge improvements, vegetation management/fuel reduction, signage, and refuge sites). Prioritize roadways that function as the sole evacuation route for communities. | Evacuation and Access Challenges<br><br>Wildfire Ignitions | Community |
| Leverage Appendix A of the 2024 Evacuation Study to support the implementation of community-identified evacuation priorities. | Evacuation and Access Challenges | Community |

### Table 53. Grass Valley/Nevada City Forecast Zone Evacuation Recommendations

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Coordinate with private landowners to implement roadside vegetation removal along private roadways. | Wildfire Ignitions<br><br>Jurisdiction and Land Ownership | Community<br><br>Individual |
| Prioritize efforts to address community evacuation priorities as identified in the Nevada County Evacuation Study. | Evacuation and Access Challenges | Community |
| Evaluate opportunities for installing and maintaining fireboxes at entry gates to communities and large ranches with road networks. Fire boxes could include hard copy maps, pertinent community/site information, and/or scannable QR codes for access to digital maps and community/site information. Boxes should be secured with a Knox Key. | Evacuation and Access Challenges<br><br>Jurisdiction and Land Ownership | Community |
| Where secondary evacuation routes exist, seek opportunities to improve road conditions to conditions suitable for low-clearance vehicles. | Evacuation and Access Challenges | Community |
| Coordinate with relevant agencies to manage access to areas with large expanses of open space during Red Flag Warnings, or other high fire hazard periods, to minimize ignition potential. | Evacuation and Access Challenges<br><br>Jurisdiction and Land Ownership<br><br>Wildfire Ignition | Community |
| Identify high-use roadways and parking areas where parking restrictions during fire season or Red Flag warnings are needed to improve emergency ingress and evacuation. | Evacuation and Access Challenges | Community |
| Encourage community-wide evacuation drills to prepare community members for emergency situations. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |
| In communities lacking secondary access, install reflective road signs to direct those to primary egress routes. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |
| Educate residents on the importance of developing individualized evacuation plans. | Evacuation and Access Challenges<br><br>Community Participation and Education | Individual |

**Table 53. Grass Valley/Nevada City Forecast Zone Evacuation Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Continue to educate residents about Evacuation Zones and nexus with emergency alerts. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community<br><br>Individual |
| Encourage communities to replace wooden street signs with non-burnable materials and that all house addresses are clearly visible and reflective. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community<br><br>Individual |
| Evaluate opportunities to decrease road congestion and heavy street parking during special events. | Evacuation and Access Challenges | Community |

### 8.8.1.5 Emergency Communication Alerts

Emergency Communication Alerts are a critical way to communicate relevant emergency information to residents in the Plan Area. With the Plan Area having a diverse population including in age, race, ethnicity, native language, and access to technology it is crucial that emergency notifications accommodate that. This includes a diversity of media sources, languages, and methods of delivery of these notifications to reach most residents in the Plan area. The actions presented in Table 54 are recommended to address emergency communication alerts for the Grass Valley/Nevada City FZ.

**Table 54. Grass Valley/Nevada City Forecast Zone Emergency Communication Alerts Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Pursue methods for disseminating evacuation information at high-use recreation areas where cell phone reception is limited. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |
| Identify areas with limited telecommunications facilities and capabilities and explore opportunities for enhancing communications to residents and visitors prior to, during, and following wildfire events. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |
| Improve early warning systems and emergency communications to reach everyone, including non-English speakers, and develop materials or tools to facilitate emergency communications in appropriate languages. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |

**Table 54. Grass Valley/Nevada City Forecast Zone Emergency Communication Alerts Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Install remote-operated electronic emergency signs in communication-limited areas to inform community members of emergency alerts including evacuation information and active wildfire information | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |
| Pursue strategies to increase community familiarity with Hi-Lo Sirens used during evacuations. | Evacuation and Access Challenges<br><br>Community Participation and Education | Community |

#### 8.8.1.6 Post-Fire Recovery

The Grass Valley/Nevada City FZ has been subject to wildfires that have necessitated evacuations, impacted road systems, reduced soil stability, and damaged infrastructure and natural resources. Post-fire runoff, flooding, and debris flows are possible and can cause further damage and impacts downstream of the burn area. Issues associated with post-fire recovery include repair and re-opening of access roads, repairs to utilities and other infrastructure, instability of slopes, proliferation of invasive species, and the need to rebuild damaged or destroyed structures, amongst others. Post-fire recovery actions are difficult to complete in advance because the location and extent of a burn area are unknown, and the level of burn severity drives much of the required actions. The Cal OES provides resources for post-fire recovery at https://wildfirerecovery.caloes.ca.gov/. Additionally, the Natural Resources Conservation Service provides information about post-fire assistance and recovery at: https://www.nrcs.usda.gov/wps/portal/nrcs/main/ca/newsroom/features/.

The actions presented in Table 55 are recommended to address post-fire recovery in the Grass Valley/Nevada City FZ.

**Table 55. Grass Valley/Nevada City Forecast Zone Post-Fire Recovery Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Develop post-fire rehabilitation guidelines for property owners and landowners in cooperation with appropriate federal, state, and local agencies that address post-fire effects of flooding and soil erosion. Prioritize reducing the importation of invasive species and restoring native habitats where applicable. | Community Participation and Education | Community |
| Develop post-fire rehabilitation guidelines for property owners and landowners in cooperation with appropriate federal, state, and local agencies that address post-fire effects on potable water, wastewater, hazardous materials, and the clean-up process. | Community Participation and Education | Community |

**Table 55. Grass Valley/Nevada City Forecast Zone Post-Fire Recovery Recommendations**

| Action/Recommendation | Issue | Scale |
|---|---|---|
| Continue to aid those affected by wildfire through post-fire recovery guidance including insurance recommendations, how to apply for federal assistance, and guidance for post-fire cleanup, property reassessment, and rebuilding.<br>https://nevadacountyca.gov/1241/Disaster-Recovery | Community Participation and Education<br><br>Financial Barriers | Individual |
| Identify opportunities for post-fire social resilience, including, but not limited to, support for housing and employment access, health resource access, and access to mental and emotional support services. | Community Participation and Education<br><br>Financial Barriers | Community<br><br>Individual |
| Support the community by providing post-fire educational resources related to physical recovery, monetary support, and social services. | Community Participation and Education | Community |
| Encourage residents and property owners to participate in wildfire insurance reduction programs. | Community Participation and Education | Community<br><br>Individual |
| Educate residents on how unpermitted structures impact post-fire recovery options. | Community Participation and Education | Community<br><br>Individual |

#### 8.8.1.7 Additional Approaches

In addition to those discussed in the previous sections, other wildfire risk reduction approaches can be effective on a case-by-case basis depending on assets at risk and resource availability. The following identifies additional wildfire risk mitigation approaches that may be considered within Project Priority Areas:

- **Fire Road Maintenance:** Activities, including minor grading or natural material resurfacing, to ensure that existing roads are drivable by fire agency apparatus.
- **Ignition and Spread Prevention:** Modifications to areas prone to wildfire ignitions (e.g., roadsides) including flashy fuel treatment, restoration, installation of ignition-resistant materials, and use modifications/restrictions.
- **Utility Hardening/Undergrounding:** Undergrounding of power lines/utilities, or retrofitting overhead power line networks to minimize arcing, conductor contact, etc.
- **Inspection/Monitoring:** Staff time allocated to conducting defensible space or structural hardening inspections or monitoring open space areas for trespass or fire activity.
- **Chipper Programs:** Services where a chipper is provided for residential areas to incentivize defensible space and fuel modification area maintenance work on residential properties.

- **Equipment Acquisition:** Purchase of tools, vehicles, or other equipment used in vegetation management/fuel reduction, restoration, firefighting, data collection, mapping, and public education related to wildfire hazard reduction.
- **Infrastructure:** Purchase, installation, permitting, and maintenance of equipment intended to alert the community about wildfires (e.g., fire detection cameras), or provide data to fire managers (e.g., remote automated weather stations).
- **Staffing:** Funds for permanent or seasonal/temporary personnel focused on firefighting or fire prevention activities.
- **Patrols:** Funding for permanent or seasonal/temporary personnel to patrol large open space areas during periods of high fire hazard to detect and report fire starts.