City of Placerville Community Wildfire Resilience Strategy

Administrative Draft

January 2025

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The Placerville Community Wildfire Resiliency Strategy was prepared in collaboration with the El Dorado Resource Conservation District and the City of Placerville. It also involved a Technical Advisory Committee of over 40 different stakeholder groups.

The Placerville Community Wildfire Resiliency Strategy was prepared by WSP USA, Spatial Informatics Group (SIG), and Wildfire Services Group (WSG).

1. Introduction

The 2020 fire season was characterized by numerous record-setting wildfires across the state of California. At the end of the year, nearly 10,000 fires had burned over 4 million acres, which is more than 4% of the state's roughly 100 million acres of land; 11,116 structures were destroyed; and five of the six largest fires were burning at the same time (CAL FIRE 2024). This fire season forced thousands of people to evacuate, exposed millions of people to hazardous air pollution, and resulted in the largest wildfire recorded in California's modern history (CAL FIRE 2024).

In August 2021, the Caldor Fire burned 221,835 acres across the Eldorado National Forest in El Dorado, Amador, and Alpine counties. The fire destroyed 1,005 structures near the Grizzly Flats community and was the second fire known to cross the Sierra Nevada mountain range, following the Dixie Fire, which crossed the range a few days earlier in August (CAL FIRE 2024). The fire resulted in a major evacuation order that required more than 20,000 people to evacuate before the fire's progression was contained. This event was followed by the Mosquito Fire in September 2022, which was the State's largest wildfire of the next fire season, having burned 76,788 acres in Placer and El Dorado counties.

Wildfires are a recurring and significant concern in El Dorado County and the Placerville area, with increasing frequency, intensity, and size observed over the past 25 years across California. Development patterns, climate change (rising temperatures, shifting wind and precipitation patterns), and forestry disease and infestations all contribute to this trend, making it difficult to predict where and how fires will occur. Historically, wildfires were primarily caused by lightning, but in recent years, human activity has become a leading cause of ignitions, including equipment malfunctions, vehicle accidents, and electrical failures. The regional landscape is especially vulnerable, with vegetation growing during the wet season and drying out in the summer and fall, raising the risk of ignition. Hot temperatures and high winds further heighten the danger, allowing fires to spread quickly.

Overall, these state and local catastrophic wildfire disasters highlight the growing wildfire threat in the region and the need for an effective wildfire resilience strategy for the Placerville area. *The Placerville Community Wildfire Resiliency Strategy (CWRS)* meets this need by developing a roadmap for the El Dorado Resource Conservation District (RCD) and the City of Placerville (City) that outlines landscape-level forest health and vegetation management activities focused on selected and prioritized fuels reduction treatments to reduce fire hazards, protect communities, and ensure long-term resilience.

1.1. Purpose of the Strategy

The recent and catastrophic wildfires are the key drivers behind the need to take action to increase the pace and scale hazardous fuels reduction treatment projects that support forest health management, reduce greenhouse gas (GHG) emissions, and increase the carbon sequestration potential of the forests, and improve the resiliency of the Placerville communities. The purpose of the CWRS is to assess the wildfire hazards and risk and protection priorities of the community, bring together responsible wildfire management and suppression agencies and organizations to support the wildfire mitigation strategies, and provide a framework for the future identification and prioritization of landscape-level fuels treatment projects.

1.2. Goal of the Strategy

The goal of the Placerville CWRS is built upon the goals of the Regional Forest and Fire Capacity Program (RFFCP), which is designed to support the development and implementation of regional priority plans to improve forest health and fire resiliency, consistent with the recommendations of the *California Wildfire and Forest Resilience Action Plan* and the *Forest Carbon Plan* administered by the California Department of Conservation (DOC). The RFFCP seeks to increase regional capacity by developing, prioritizing, and implementing projects that improve forest health and fire resiliency, facilitate GHG emissions reductions, and increase carbon sequestration in forests throughout California.

The RFFCP was modelled after the Sierra Nevada Conservancy's (SNC) Watershed Improvement Program (WIP), as it serves as an example of a coordinated, integrated, collaborative initiative to restore the health of large watersheds. The RFFCP also works to increase the pace and scale of investments in the Sierra Nevada to address critical watershed needs and includes a regional strategy to:

- Assess restoration and climate resiliency needs,
- Increase investments in the region,
- Address key policy issues affecting the region, and
- Identify and implement projects.

Like the RFFCP, the goal of the Placerville CWRS is to minimize the risk of wildfire to the city and the surrounding communities and the identified assets at risk by seeking to increase the capacity to develop, prioritize, and implement landscape-level fuel treatment projects on a geographic scale that achieves community wildfire resiliency.

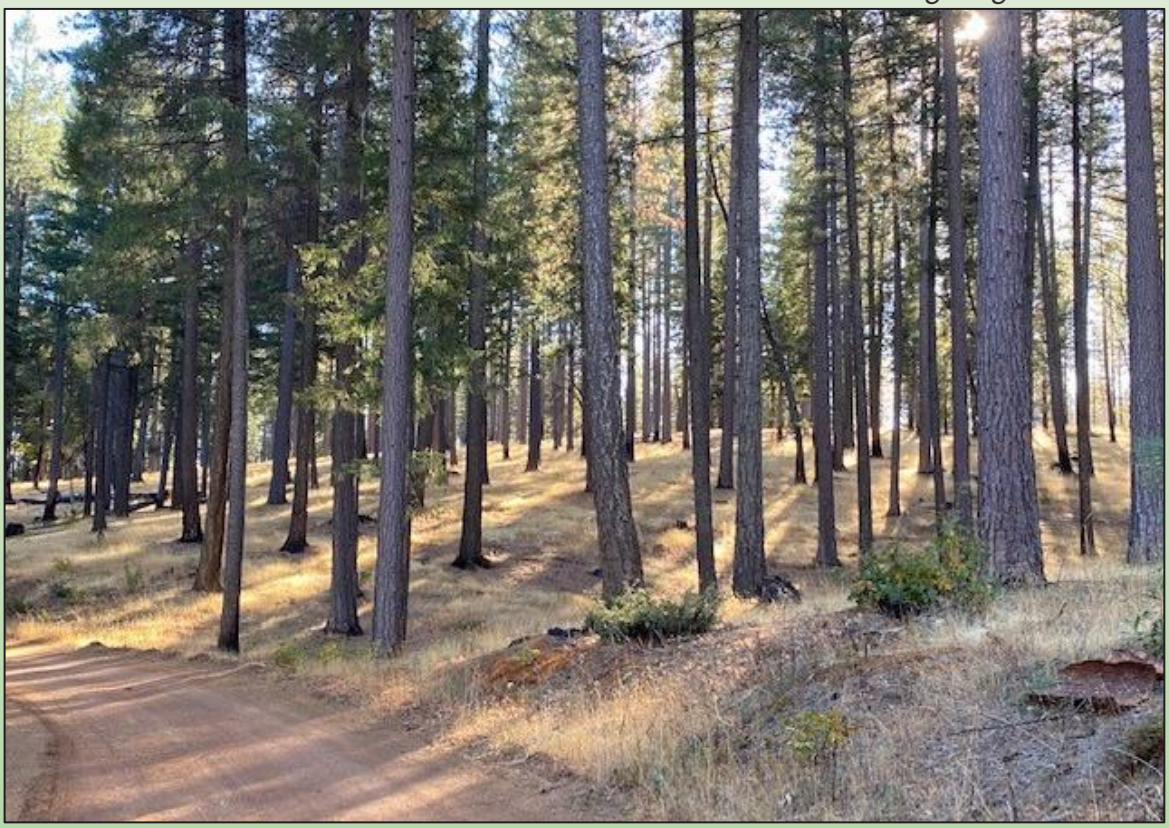
This increased capacity will further the city and the El Dorado RCD's ability to work together with private landowners and public land managers by building trust to implement targeted hazardous fuels treatment projects that reduce wildfire emissions and protect the community and environmental values.

These goals, developed in coordination with the city, El Dorado RCD, and input from a

Technical Advisory Committee (TAC), align with the goals outlined in the RFFCP. They represent a broad vision and long-term roadmap to enhance public health and safety in relation to wildfire risk. The city, El Dorado RCD, and TAC also developed objectives that define the specific and measurable steps to attain the goals. The specific objectives that support this goal include:

- Prioritize, design, and implement landscape-level forest health and wildfire resiliency projects that have broad support by stakeholders in and affected by wildfire in the region.
- Complete pre-project planning and permitting to ensure projects can move forward under adopted National Environmental Policy Act/California Environmental Quality Act (NEPA/CEQA) decisions.
- Adopt a multi-year schedule of implementation-ready projects that meet the goals of the Project and are available for funding consideration.

> *The below image shows a fuels treatment area near Pollock Pines that changed the intensity of the Caldor Fire and provided firefighters with an opportunity for community defense and the use of a specific tactic known as a backfire. A backfire is a carefully planned and deliberate process where firefighters set fire to fuels to slow down a rapidly approaching fire. This tactic moved the Caldor Fire away from neighborhoods and into the fuel treatment area. The backfire also created a buffer of very little burnable material between the active Caldor Fire and the surrounding neighborhood.*



Source: WSP 2024

1.3. Key Objectives

The Placerville CWRS will address numerous key wildfire issues within the Placerville area:

- Raising public awareness about wildfire risks and the ecological role of fires in the ecosystem in and around the Placerville area through the use of digital and online educational materials.
- Creating a platform for regular and consistent messaging for residents on completed, in-progress, and planned landscape-level fuel treatment projects.
- Identifying wildfire hazards and ways to reduce wildfire risks through land use and regulatory planning tools and defensible space and home hardening, and with a focus on landscape-level fuel treatments such as strategic fuel breaks between wild areas and communities, forest thinning, and vegetation management, and a complementary focus on outreach and education.
- Selecting and prioritizing landscape-level hazardous fuels reduction treatments in the Wildfire Urban Interface (WUI).
- Considering forestry health and vegetation management approaches that protect the "whole community" and all assets at risk, including the protection of watershed health, forest health and diversity, wildlife habitat, and water quality and supply.
- Integrating current climate change science data related to increased temperatures, increased precipitation variability, drought conditions, forestry pests and disease outbreaks, and other climate projections into the wildfire hazard assessment.

> *The RCD executes fuel reduction projects to promote forest health and reduce fire risk. These include brush and vegetation management, thinning and chipping, and fuel break initiatives. Notable RCD projects include treatments in the Coloma Lotus area, along Georgetown Marshall Road, and near Spanish Flats along Georgetown Road.*

Source: El Dorado County RCD, 2024.

1.4. Regulatory Framework

- The Placerville CWRS is developed to comply with and support several federal, state, and local laws and regulations, standards, and guidelines that govern wildfire mitigation, land management, and public safety. The following guidelines are described below.

Federal Environmental Standards

- **National Cohesive Wildland Fire Management Strategy:** This federal strategy promotes a collaborative approach to wildfire management across federal, state, and local entities. The CWRS aligns with its goals of resilient landscapes, effective fire response, and creating fire-adapted communities
- **National Environmental Policy Act (NEPA):** NEPA mandates environmental assessments for projects on federal land or with federal funding. The CWRS complies with NEPA when relevant to ensure that federally backed projects minimize environmental impacts and meet public review requirements.

State Fire Prevention and Environmental Protection Regulations

- **California Public Resources Code (PRC) Sections 4290 and 4291:** These sections mandate defensible space requirements and other fire prevention measures on properties, particularly in designated WUI areas. The CWRS acknowledges these requirements as a wildfire resiliency strategy and incorporates defensible space standards to reduce fire risk to properties and protect surrounding landscapes in the wildfire risk assessment and action plan.
- **CAL FIRE Guidelines:** The CWRS complies with Fire Safe Regulations developed by the State Fire Marshal and CAL FIRE, including standards for building materials, vegetation management, and emergency planning. These guidelines are integral to enhancing community resilience and safety by reducing fire hazards and improving community preparedness.
- **California Environmental Quality Act (CEQA):** CEQA requires environmental review processes for projects, ensuring wildfire mitigation projects under the CWRS proceed with an evaluation of potential environmental impacts. By meeting CEQA standards, the CWRS supports environmental review for project development within state requirements.

Local Standards

- **Alignment with Local Plans and Ordinances:** The Placerville CWRS aligns with local wildfire prevention standards strengthening community resilience. For fuel treatments proposed within the Placerville city limits, activities would be consistent with the city's General Plan *Health and Safety Element* and the city's Annex to the County's *Multi-Jurisdictional Hazard Mitigation Plan*. For fuel treatments proposed within the unincorporated areas, activities would be completed consistent with the County's *General Plan Public Health, Safety, and Noise Element* (2024), *Multi-Jurisdictional Hazard Mitigation Plan* (2024), and the *Western El Dorado County Community Wildfire Protection Plan (CWPP) Update.*

- **Defensible Space and Vegetation Management:** Placerville's *Hazardous Vegetation and Combustible Materials Abatement Ordinance* (Ordinance No. 1698) enables the city to enforce defensible space requirements citywide, bridging gaps left by state laws such as California PCR Section 4291, which apply only to State Responsibility Areas (SRAs). This ordinance promotes comprehensive vegetation management and fire prevention across Placerville, strengthening the city's wildfire resilience framework.
- **Hazardous Vegetation and Defensible Space Ordinance:** El Dorado County's *Hazardous Vegetation and Defensible Space Ordinance* (Ordinance No. 5101) requires property owners to maintain defensible space around their homes and structures to reduce the risk of wildfire damage. The ordinance focuses on vegetation management, defensible space requirements, hazardous vegetation identification, inspection and enforcement, and exemptions and variances. The goal of the ordinance is to create defensible space around homes and structures, minimize fire risks, and ensure that properties are prepared.

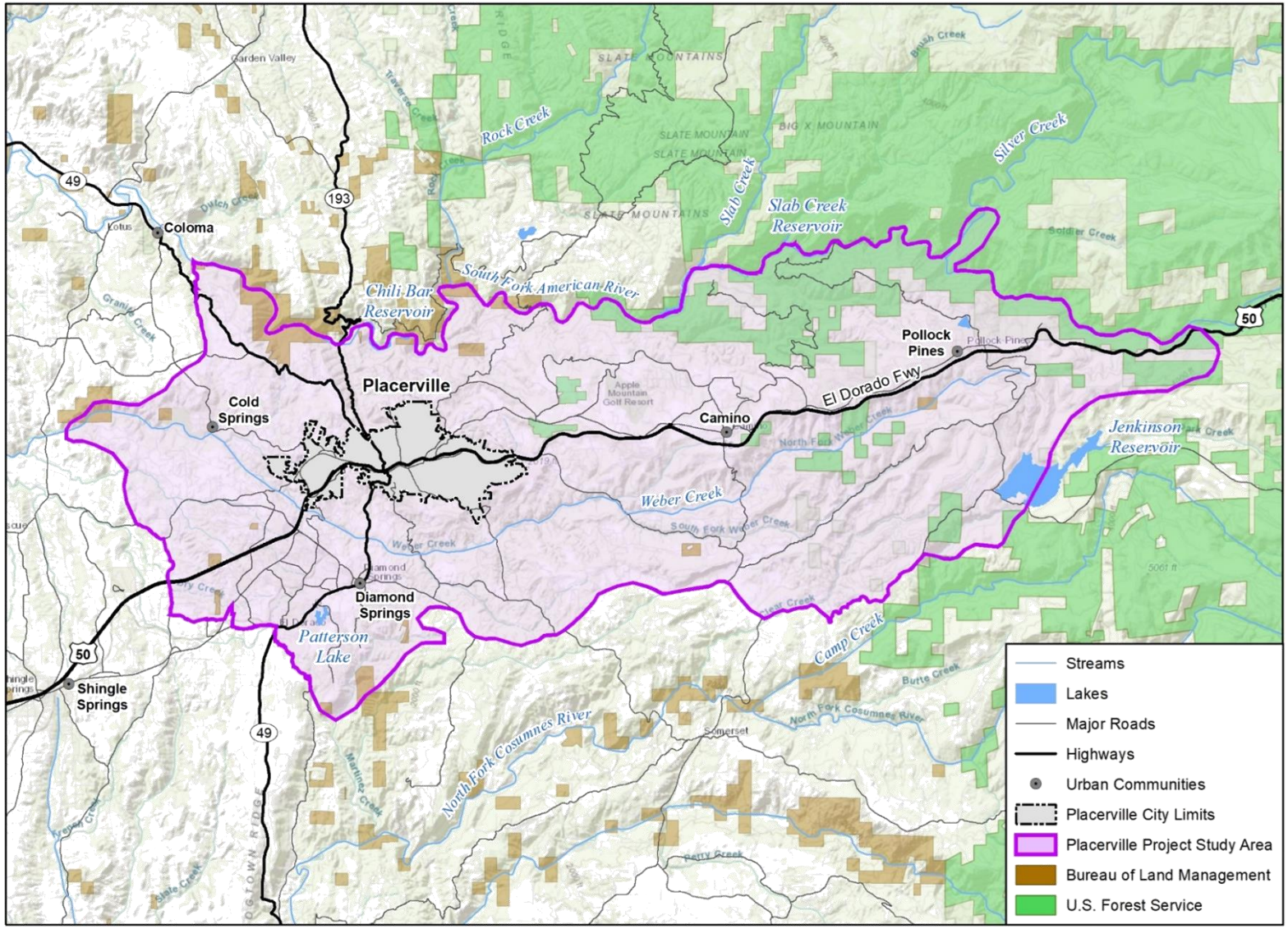
1.5. Placerville Project Study Area

The Placerville Project Study Area (PPSA) spans approximately 80,000 acres, encompassing the city limits of Placerville and surrounding communities, including Diamond Springs, Pollock Pines, Cold Springs, and Camino. Located about 40 miles northeast of the Sacramento metropolitan area, the PPSA lies along the western slopes of the Sierra Nevada foothills, bisected by US Highway 50 running east to west and CA State Route 49 running north to south.

This study area aligns with the boundaries used in the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*, led by the El Dorado County Transportation Commission (EDCTC) and DKS Associates (EDCTC 2023). During that study, the boundary was developed based on fire modeling, evacuation routes and zones, and natural features such as the ridgelines and river valleys. The northern edge of the PPSA is contiguous with the South Fork of the American River drainage. This refined study area, shaped by those earlier efforts, serves as the foundation for this wildfire resilience strategy. The same boundary used in the other study was also selected to promote data consistency and plan alignment by building upon previous planning efforts to create a more focused wildfire and risk analysis for the Placerville CWRS.

Most importantly, the landscape within the PPSA is expected to see a rise in both the frequency and intensity of wildfires by the end of the century, driven by factors such as rising temperatures and prolonged drought conditions (CNRA 2018). This increasing frequency and severity of wildfires was described in both the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study* and the El Dorado County's *General Plan Public Health, Safety, and Noise Element* and *Multi-Jurisdictional Hazard Mitigation Plan*. A significant portion of the PPSA is classified by CAL FIRE as a very high fire hazard severity zone (VHFHSZ), and there are numerous socially vulnerable communities within the study area. Figure 1-1 shows the extent boundary of the PPSA.

Figure 1-1 Placerville Project Study Area



1.6. Current Wildfire Conditions

The City of Placerville and surrounding areas face escalating wildfire risk due to climate change, prolonged drought, and the accumulation of hazardous vegetation. Situated within the WUI, the city's historic downtown, residential and commercial properties, and critical infrastructure are surrounded by wildfire-prone land susceptible to high risk to wildfire. Vegetation ranges from densely forested mixed conifer forest to the east of the city to deciduous oak woodlands, shrubs, and herbaceous grasses making up the western portions of the city. The city is also surrounded by National Forest lands comprised of highly varied topography and steep drainages.

Additionally, climate change is rapidly exacerbating the timing, extent, and severity of wildfire through increased temperatures, precipitation variability, and frequent drought conditions (CNRA 2024). Historical forestry management practices focused on fire suppression have also resulted in forestry pests and disease that have increased fuel loading. These changing forest conditions increase the risk of large-scale and high-severity wildfires that are associated with warmer temperatures and an earlier spring snowmelt, and longer, hotter, and more severe wildfires than the past (Westerling 2016).

Recent fires that have spread directly towards the outskirts of the Placerville area, including the 2021 Caldor Fire and the 2022 Mosquito Fire, have highlighted this wildfire danger. These fires destroyed structures, prompted evacuations, and underscored the need for coordinated wildfire prevention and mitigation efforts across local and regional jurisdictions. The Placerville CWRS addresses these risks by aligning community resilience efforts with current wildfire threats and prioritizing actions to protect residents, property, and natural resources.

1.7. El Dorado RCD's Role

Most of El Dorado County remains at risk from wildfire, especially during the dry summer months. From May to October, the County faces a significant fire threat, and based on recent trends, fires are expected to occur nearly every year. As human development and population growth continue within the WUI, this threat will only increase. Communities near Placerville and along the Highway 50 corridor, are particularly vulnerable due to high wildfire risk.

The El Dorado RCD is a grassroots governmental organization that works with public agencies and individual landowners in the planning and implementation of conservation practices that protect and restore natural resources. To address the growing wildfire risks in the region, the RCD has initiated several regional wildfire mitigation projects over the past decade. These projects focus on reducing fuel loads, enhancing community resilience, and supporting long-term fire prevention strategies. They execute fuel reduction projects to promote forest health and mitigate wildfire risk. Projects include the Fire Adapted 50 project, the South County Fuel Reduction Project, Coloma Lotus Fuel Reduction Project, Georgetown Marshall Road Fuel Reduction Project, and Spanish Flat Phase III.

The Fire Adapted 50 project is situated along the Highway 50 corridor creating fuel breaks and modified vegetation in areas previously impacted by the 2014 Kings Fire. The overall objective of the project is to return the forest to a more natural, fire resilient condition that reduces the community's wildfire risk. It also identified the Highway 50 corridor as a defense zone to focus on the protection of life and property.

The El Dorado RCD is also implementing the Texas Hill Vegetation Management Plan, which targets areas near residential zones within the Texas Hill area to reduce fuel accumulation through both mechanical and manual treatments. Additionally, the Caldor Forest and Community Restoration Project addresses hazards in the Eldorado National Forest by removing dead trees along roadsides, following the 2021 Caldor Fire. Through these projects, as well as ongoing fuel reduction efforts and public education campaigns, RCD is helping to mitigate wildfire risks, engage the community, and enhance preparedness for future fires.

The Fire Adapted 50 project establishes a shaded fuel break along the Camino/Pollock Pines area, protecting communities and ecosystems in the WUI of the Highway 50 corridor. After the King Fire, CAL FIRE, the USFS, Georgetown Divide RCD, and the El Dorado RCD collaborated with other federal and state agencies to form a long-term cohesive strategy to establish a more fire resilient WUI condition along the Highway 50 corridor.

Source: EDC RCD

The El Dorado RCD's aim of the Placerville CWRS is to continue to enhance wildfire resilience by focusing on a longer-term and collaborative strategy focused on strategic planning for future large-scale forest health projects. To achieve this goal, the El Dorado RCD seeks to increase capacity to develop, prioritize, and implement projects on a geographic scale that achieves community wildfire resilience. This capacity will further their ability to work together with private landowners and public land managers to implement actions that reduce wildfire emission while also protecting the community and its natural and cultural resources and values.

The El Dorado RCD was also awarded funding through a SNC WIP grant under the RFFCP. As part of the award, the El Dorado RCD would prepare a CWRS for the city that includes integrating existing assessments, plans, and reports to ensure plan alignment; promoting data exchange; prioritizing landscape-level forest health and wildfire resiliency projects; and adopting a multi-year schedule for implementation-ready projects.

El Dorado RCD developed a long-term strategy for the Fire Adapted 50 project situated adjacent to the 2014 King Fire burn area, which impacted over 97,000 acres. The objective was to create a resilient Highway 50 corridor through a multi-phased project that involves fuel modification treatments, establishes fuel breaks, and implements vegetation management prescriptions to reduce fire hazards.

Pre-Treatment Conditions, April 2020

Post-Treatment Conditions, February 2021

Source: El Dorado County RCD, 2024.

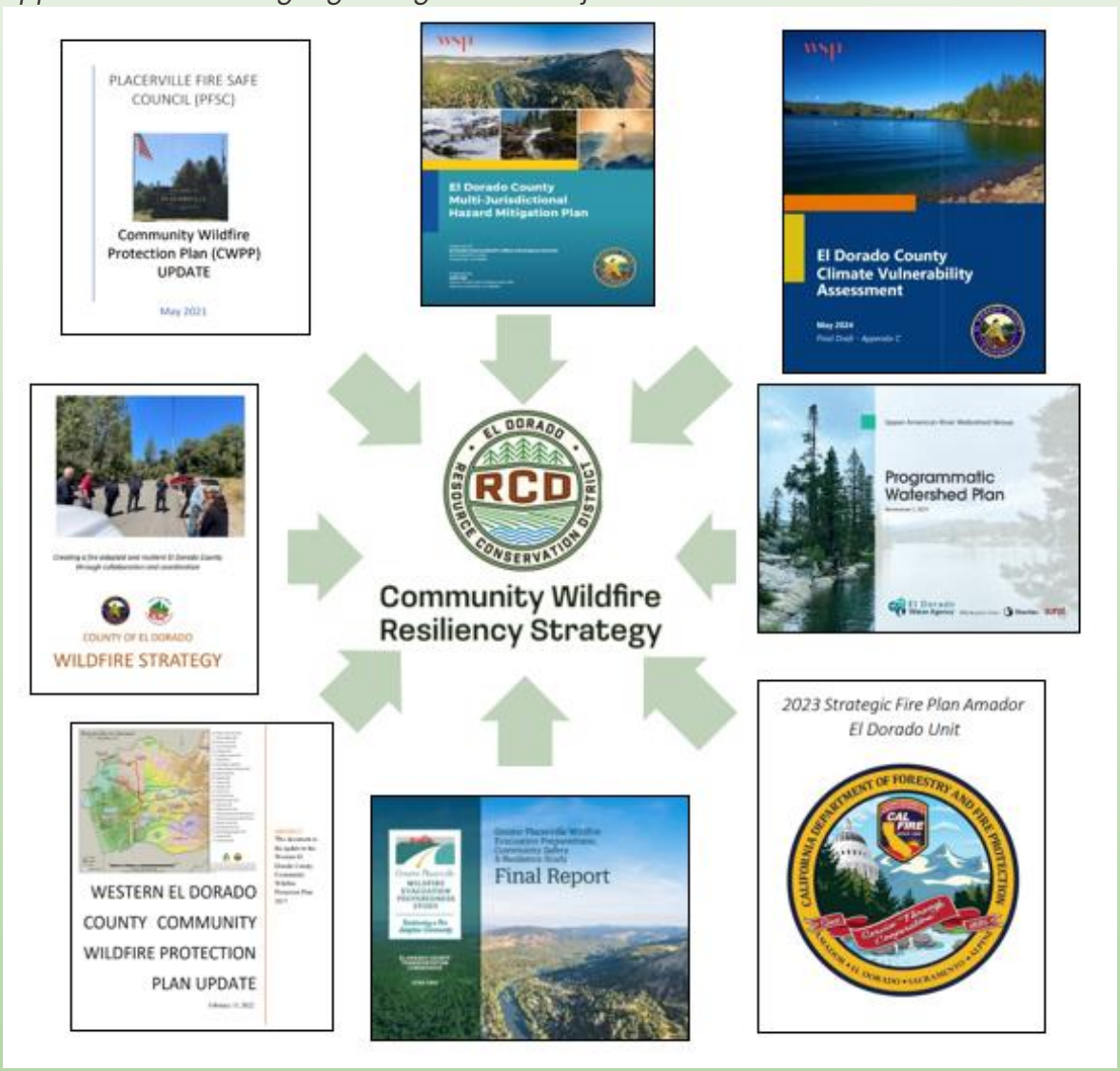
1.8. Plan Alignment

Strategic planning builds resilience to wildfires and climate change impacts and plan alignment and the careful and deliberate integration of plans and programs helps protect communities form the threats of wildfires. Plan alignment is a process that leverages connections, data, information, and resources to building a foundation across multiple planning efforts across any scale (California Governor's Office of Land Use and Climate

Innovation 2024). The Placerville CWRS aligns with a variety of local, regional, and statewide wildfire resilience plans, ensuring a coordinated approach to wildfire risk reduction across jurisdictions. It supports the goals outlined in the *El Dorado County Public Health, Safety, and Noise Element*, the *City of Placerville Health and Safety Element*, the *2024 Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)*, the *Western El Dorado County CWPP*, and other critical documents. For a comprehensive list of related plans, please refer Table 3-2, under Chapter 3: Planning Process.

In 2023, the Department of Conservation awarded more than $72 million to partners across the State for projects focused on building fire-resilient communities. Grantees included organizations such as the North Coast Resource Partnership, SNC, State Coastal Conservancy,

The CWRS is aligned with and supported by associated plans, creating a unified approach to achieving regional goals and objectives.



Source: WSP 2024

and several conservancies in Southern California.

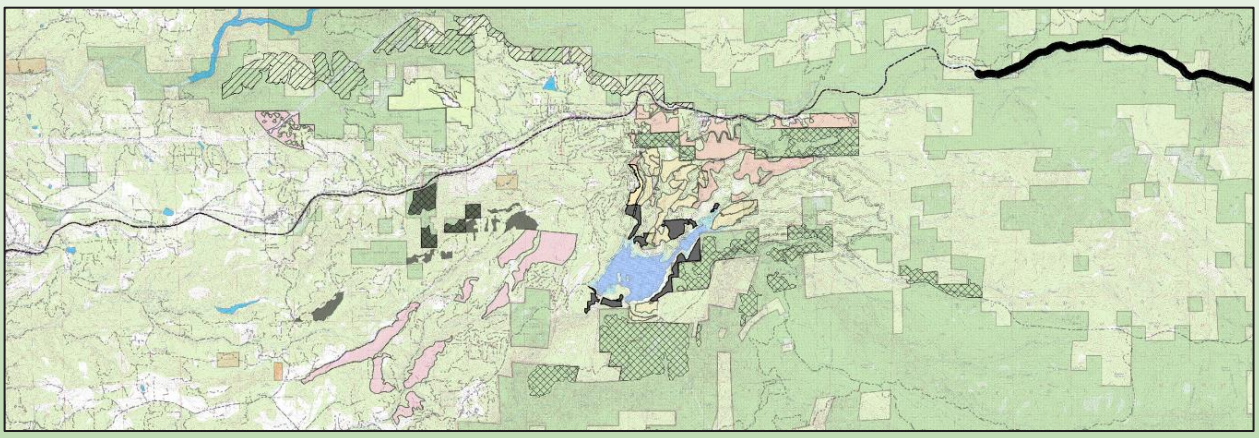
The SNC, as a subgrantee, received funding to support their efforts. These projects addressed priorities identified in the State's *Wildfire and Forest Resilience Action Plan*, as well as in SNC's WIP. The SNC WIP is a large-scale initiative throughout the Sierra-Cascade Region that aims to restore resilience to forests and rural communities, support sustainable recreation and tourism, and conserve natural and working lands.

The City of Placerville intends to integrate the Placerville CWRS with these ongoing efforts to ensure its wildfire resilience strategy aligns with regional and state-level objectives, addresses local challenges, and contributes to broader fire resilience goals across the region.

1.9. Plan Organization

The Placerville CWRS includes background information, the regulatory context for the strategy, a profile of the Placerville community, a wildfire hazard and risk assessment, potential future mitigation strategies, and an action plan. The main strategy is comprised of the following sections:

- **Chapter 1:** Introduction
- **Chapter 2:** Community Profile
- **Chapter 3:** Planning Process
- **Chapter 4:** Existing Conditions
- **Chapter 5:** Wildfire Hazard & Risk Assessment
- **Chapter 6:** Potential Wildfire Mitigation Strategies
- **Chapter 7:** Action Plan
- **Chapter 8:** Treatment Modeling Benefits
- **Chapter 9:** Implementation and Monitoring Plan
- **Chapter 10:** References



Map view of the Fire Adapted 50 Project located along the US Highway 50 corridor.
Source: EDC RCD 2024

2. Community Profile

To develop an effective wildfire resilience strategy, it's crucial to understand the characteristics of the Placerville community and its surrounding areas. The City of Placerville and its neighboring regions face unique wildfire risks due to their location in the WUI, the types of vegetation present, and the vulnerabilities in infrastructure. This section details the PPSA, outlining key historical, geographic, demographic, social vulnerability, and environmental features that will guide the wildfire preparedness and mitigation actions in the Placerville CWRS.

2.1. History and Development

Placerville's history began during the California Gold Rush after the 1848 discovery of gold at Sutter's Mill in Coloma, just ten miles away from downtown. Initially known as Dry Diggins due to the need to wash gold-laden dirt, the town later earned the name Hangtown, reflecting its reputation for vigilante justice during the Gold Rush era (Noble 2012). As the Gold Rush progressed, Placerville became a key supply center, serving nearby mining camps and supporting the growing community of miners and settlers.

By 1854, the town was renamed Placerville, after the placer mining technique used by many of its early residents, and officially incorporated that same year (Nobel 2012). For the next century, Placerville remained the only incorporated city in El Dorado County, solidifying its role as a regional hub. While mining was the foundation of its early economy, Placerville's historical significance extends beyond the Gold Rush.

In 1860, Placerville became the western terminus of the Central Overland Pony Express, a mail service that connected the eastern United States with the west coast in only ten days (OHP n.d.; EDC Historical Museum 2010). Despite its operational success, the Pony Express, as it became known, was rendered obsolete after only 19 months with the completion of the transcontinental telegraph (EDC Historical Museum 2010).

Today, Placerville serves as the hub of the Mother Lode, with its economy shifting from mining to industries like lumber, agriculture, light manufacturing, tourism, and recreation. The area is known for its vineyards and wineries, and it remains home to El Dorado County's government offices. While its history is tied to the name Hangtown, it is the city's modern growth that defines its present times. Main Street in downtown Placerville still retains the majority of the buildings from the 1800s and many of these historical

Street Scene and Square of old "Hangtown."

Source: City of Placerville Website, Historic Resources, 2024

sites are highlighted in museums and are registered on the National Register of Historic Places (NRHP) or designated as State or city-designated historical resources.

Placerville is ideally located, with premier wineries, Apple Hill ranches, historic Coloma, the American River, and the Eldorado National Forest all within minutes of downtown. The city's business economy thrives thanks to these established and emerging recreation and tourism opportunities. Local merchants, property owners, and government officials collaborate on revitalization projects to preserve and enhance the community's history and quality of life. With its rich heritage, favorable climate, and strong sense of pride, Placerville has become a top destination in the County. The downtown area has transformed from its Gold Rush roots into a thriving center that draws visitors and generates tourism revenue.

2.2. Geography and Climate

Placerville is located in El Dorado County on the western slope of the Sierra Nevada foothills and has a unique wildland fire environment based on its Mediterranean climate, highly combustible vegetation, complex terrain, and the number of WUI zones. Given the city's geography, climate, and the interplay between seasonal weather patterns, fires burn within the PPSA with greater intensity in this environment and are often more costly and difficult to control, which create a greater risk of loss of life, property, and assets (CAL FIRE 2023b). The diverse geography of Placerville includes a mix of mountainous terrain, ridges, and steep drainages, with significant variation in elevation ranging from 1,400 feet near the western boundary to 4,400 feet along the eastern edge. This variation impacts hydrology and contributes to the area's wildfire vulnerability to both flooding and wildfire risk, as steep slopes and elevated areas can act as natural barriers or fuel for fires. These elements combine to shape the region's wildfire behavior and risk, as well as its overall environmental conditions.

2.2.1. Terrain

Placerville's terrain is marked by rolling foothills and flatter terrain to the west in the lower elevations and mountainous ridges, steep and rugged drainages, and incised rivers and streams in the higher elevations to the east. The vegetation changes with this topography and fuel loads tend to increase significantly as the terrain becomes steeper and more rugged. The western portion of the PPSA is dominated by oak woodlands, brush, and herbaceous grasses and dramatically shifts towards the east to Sierra Mixed Conifer dominated fuel types, which include heavy timber and substantial loads of accumulated fuels.

Another key element of the landscape is the alignment of the ridges and river canyons within the PPSA. All the waterways run predominantly in a west-to-east orientation, affecting both local weather patterns and the prevailing westerly wind patterns. Heavier fuels over the steep slopes in higher elevations can increase wind speed and will often cause fire to spread farther and with greater intensity, and can make firefighting efforts more difficult (CAL FIRE 2023b). The elevation changes also significantly impact how the landscape responds to

seasonal precipitation, temperature fluctuations, and other environmental conditions, as steep slopes can exacerbate runoff and flooding, affecting both the local hydrology and fire behavior.

2.2.2. Wind Conditions

Fire weather within the PPSA is dominated by influence from the Delta, north wind events, and east foehn winds caused by high pressure development in the Great Basin (CAL FIRE 2023b). Wind plays a significant role in Placerville's wildfire behavior and environmental conditions, with three primary wind patterns influencing the region: the delta push influence and north wind events.

- **Delta Push Influence:** High pressure systems will dominate Northern California in the summer months and bring extremely hot and dry conditions over much of the region. As these systems develop, they tend to originate near the Delta and Sacramento areas bringing the marine influence towards the PPSA. This is generally considered a good thing for fire behavior, as it results in slightly cooler afternoon temperatures and increases in relative humidity. The downside is the strong winds that typically accompany these patterns can override any benefit that may come from marine air. This type of wind will subside after sunset causing fire behavior to drop off dramatically (CAL FIRE 2023b).
- **Northerly/Easterly Winds:** These winds are typically rare, warmer, and drier than other wind patterns (CAL FIRE 2023b). These conditions also create increased fire intensity and large fire growth. Prevailing winds are particularly important in understanding the pathways that wildfires may take across the landscape and can often have the effect of "channeling" which can increase the wind speed and turbulence along the waterways within the PPSA (CAL FIRE 2023b).

Overall, wind, in combination with topography and vegetation, influences wildfire behavior by helping to carry fires across the landscape. These wind patterns can drastically impact fire intensity and speed, especially in more vulnerable areas.

2.2.3. Vegetation

Vegetation in Placerville is diverse, with types varying based on elevation, slope orientation, and local climate. This variety influences both the region's wildfire risk and ecological conditions:

- **North and East-Facing Slopes:** These slopes tend to be cooler and moister, supporting denser conifer forests and mixed conifer/hardwood woodlands. These areas typically have more resilient vegetation, but they can also contribute to a significant fuel load during dry seasons, increasing fire risk.
- **South and West-Facing Slopes:** These areas are drier and warmer, often supporting more open woodlands, shrublands, and grasslands. The vegetation here is generally more fire-prone, as drier conditions promote the growth of flammable plants and grasses.

The type and density of vegetation and the local climate significantly affect wildfire behavior. While dense forests on cooler slopes may slow the spread of fires, drier, more open areas are more susceptible to intense fires. Wind also plays a key role in vegetation distribution, as it can dry out vegetation or facilitate the spread of fire across different vegetation types.

2.3. Land Ownership

Land ownership within the PPSA is comprised of a combination of private and public lands. While the lands within and around Placerville primarily consist of private property, the United States Forest Service (USFS), Bureau of Land Management (BLM), Bureau of Indian Affairs (BIA), and Bureau of Reclamation (USBR) manage the public lands that encompass much of the lands that fall along with inner and outer boundary of the PPSA.

2.4. Demographics

Approximately 41,868 people live within the PPSA, including 10,540 that reside within the Placerville city limits (DOF 2024). The County's highest population densities are also found along the U.S. Highway 50 corridor from the edge of El Dorado Hills to Pollock Pines (CAL FIRE 2023b). There is also a seasonal population increase in mid-spring through late fall due to the influx of seasonal workers and visitors during the apple and grape harvests. Table 2-1 shows selected demographic and social characteristics for the census tracts from the *2019-2023 American Community Survey (ACS)* that fall within the PPSA.

Table 2-1 PPSA Demographic and Social Characteristics

Characteristic	PPSA
Population	
Total Estimated Population of PPSA	41,868
Population between 16 and 65 years of age	60%)
Individuals 65 years or older	24.5%
Individuals 5 years and younger	3.9%
All individuals that do not identify as white	11.6%
Individuals that identify as American Native or Alaskan Native	0.8%
Households	
Total Households	28,546
Total Housing Units	28,116
Median Family Household Income	$105,542
Median Non-Family Household Income	$57,041
Housing units that are renter occupied	16.3%

Characteristic	PPSA
Mobile Homes	6.2%
Housing - Built 2000 to 2009 plus older	64.1%
Social Vulnerability	
Individuals with access and functional needs (physical and mental)	14.3%
Households without access to a vehicle	3.1%
Individuals residing in the United States without legal documentation	3.9%
Households with individuals who are non or limited English-speaking	4.0%
Population 19 to 64 years with no health coverage	3.6%

Source: U.S. Census, Census Tract ACS 5-year Estimates Data, 2019-2023.

According to the US Census Bureau ACS, there are approximately 28,546 households within the PPSA and the median household income is $105,542. The area includes 28,116 housing units, of which 84.1% are owner-occupied and 15.9% are renter-occupied. Placerville's age distribution is also notable: 24.5% of residents are 65 or older, while 75.5% are younger than 65. Within that group, 60% are between 16 and 65, and 3.9% are 5 years or younger. These demographics are crucial for choosing communication methods and planning evacuation strategies for older residents and those with limited mobility.

2.5. Sensitive and Vulnerable Populations

Wildfires disproportionately affect sensitive and vulnerable populations, often making evacuation and recovery more challenging for them. Certain population groups are particularly at-risk during wildfires due to their living conditions, health issues, or lack of resources to adequately prepare for or respond to wildfire events.

Various population groups are identified as sensitive or socially vulnerable based on their heightened exposure to wildfires and the difficulties they face in evacuation scenarios. These individuals or households may need additional resources to prepare for, respond to, cope with, adapt to, and recover from wildfires. The Federal Emergency Management Agency (FEMA) defines social vulnerability as the susceptibility of social groups to the negative impacts of natural hazards (e.g., wildfire), which includes the disproportionate death, injury, loss, or disruption of livelihood (FEMA 2022). The USFS defines socially vulnerable populations to include the following: families living in poverty, people with disabilities, people over 65 years of age, people who have difficulty with English, households with no car, and people living in mobile homes (USFS 2022).

In the PPSA, these groups may include low-income households, individuals that are burdened by housing costs (defined by the U.S. Housing and Urban Development as individuals spending more than 30% of total income on housing), or individuals that live alone. Those living in geographically isolated and rural areas, including those with limited mobility also face significant challenges in evacuation, as they may have limited access to transportation

or be cut off by fire or damaged infrastructure.

At-risk populations may also include groups that are more vulnerable to wildfire hazards, such as seniors, children, individuals with access and functional needs or disabilities, households in mobile homes, persons with limited English proficiency, and people experiencing homelessness. These populations may also include individuals with high outdoor exposure, under-resourced individuals, and those with chronic health conditions. A significant portion of these vulnerable populations also aligns with California's definition of Disadvantaged Communities (DAC), which are communities that experience higher-than-average burdens from environmental hazards, poverty, and lack of resources.

Vulnerable populations and DACs face specific risks during wildfire events, including health, economic, and social impacts. Wildfire smoke can severely affect respiratory and cardiovascular health, especially for individuals with pre-existing conditions. The elderly, children, and those with disabilities are at greater risk of experiencing severe health consequences from smoke exposure. Economically, many low-income individuals lack the financial resources to evacuate or rebuild after a wildfire, and the burden on these communities is often severe, as they may not have insurance or the means to recover from property damage. Socially vulnerable groups, particularly those with limited access to housing, may experience prolonged displacement after a wildfire, leading to long-term instability. Socially vulnerable households may also struggle to find affordable, safe housing, which increases the challenges they face in the aftermath of a disaster.

Sensitive and socially vulnerable populations within the PPSA experience heightened risk and increased sensitivity to climate change. Based on the *County of El Dorado Climate Vulnerability Analysis (CVA)* and the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*, 20 vulnerable populations indicators were selected to understand where these population groups are present within the PPSA (EDCTC 2023, El Dorado County 2024). The following 20 vulnerable population indicators include:

- Children (under 14)
- Cost-burdened households
- Ethnic minorities
- High-pollution burdened communities
- Households in mobile homes
- Households in poverty
- Isolated and rural communities
- Low-income households
- Outdoor workers
- Overcrowded households
- People with chronic health conditions
- Unemployed persons
- Persons with disabilities and access and functional needs
- Persons with limited English proficiency (linguistically isolated)
- Persons with limited accessibility (no access to transportation)

- Persons experiencing homelessness
- Persons living on single-access roads (limited roads for evacuation)
- Renters
- Seniors
- Seniors living alone

Each indicator represents a characteristic that increases an individual's sensitivity to wildfire hazard. For example, these characteristics relate to a person's sensitivity to wildfire events and their ability to prepare for, evacuate from, or recover from a wildfire event. Table 2-2 outlines a subset of the sensitive population indicators above to wildfires and the percentage of populations of households in the PPSA, based on available datasets. These indicators assess the geographic location and proportion of socially vulnerable populations within the PPSA.

Table 2-2 Sensitive Population Indicators in the PPSA

Vulnerable Population Indicator	Indicator Description	% of Households in the PPSA
American Native and Alaskan Native	Individuals that identify as American Native or Alaskan Native	0.8%
Children (under 5)	Individuals 5 years and younger	3.9%
Ethnic minorities	All individuals that do not identify as white	11.6%*
Households without access to a computer	Households that do not have a computer	3.1%
Households without access to internet	Households that do not have access to broadband internet	6.1%*
Individuals with Asthma	Individuals diagnosed with asthma	9.3%*
Individuals with Coronary Artery Disease	Individuals diagnosed with coronary artery disease	6.3%*
Individuals with Disabilities	Individuals with access and functional needs (physical and mental)	14.3%
Individuals without health insurance	Individuals aged 18 to 64 years old currently uninsured	5.9%
Individuals without legal documents	Individuals residing in the United States without legal documentation	3.9%
Linguistically Isolated	Households with individuals who are non or limited English-speaking	3.9%
Outdoor Workers	Individuals who are employed and work outdoors	7.0%*
Persons diagnosed with Asthma	Individuals diagnosed with asthma	9.3%*
Persons experiencing homelessness	Individuals who currently lack fixed, regular, and adequate housing	0.3%*
Persons with Disabilities and access and functional needs	Individuals with access and functional needs (physical and mental)	14.3%
Persons with limited accessibility	Households without access to a vehicle	3.0%
Seniors	Individuals 65 years or older	24.4%
Unemployed	Individuals 16 years and older who are out of work and able to work	4.2%*

Sources: U.S. Census Bureau ACS 2023, El Dorado County 2024, EDCTC 2024.

Note: People experiencing homelessness % is representative of El Dorado County and is an overestimate for the PPSA.

*Indicators marked with an asterisk (*) are sourced from the Greater Placerville Wildfire Evacuation Study Existing Conditions Report. These values reflect data from the study area and are based on the 2020 Census and may therefore either overestimate or underestimate the true values for the PPSA.

After identifying which groups of the population are disproportionately impacted by wildfires, the next step is to map their locations within the PPSA. This shows the distribution of vulnerable populations and guides city and County staff resources in supporting wildfire mitigation programs and projects. These efforts aim to assist segments of the population in planning for and recovering from wildfire events. Figure 2-1 illustrates the distribution of the population within the PPSA. The majority of the community resides within the incorporated Placerville city limits, with a smaller portion located just outside, particularly in the denser areas near Pollock Pines, Cold Springs, and Camino in the northeastern and northwestern portions of the PPSA.

The following sections group the sensitive and socially vulnerable populations by indicator type in order to guide planning efforts and prioritize fuels reduction treatments that address the disproportionate impacts on these communities from wildfire.

Seniors, Children, and Individuals with Health-Related Conditions

Seniors and individuals with chronic health conditions, such as asthma or cardiovascular diseases, are especially vulnerable to the health impacts of wildfire smoke, which can exacerbate respiratory problems and hinder their ability to evacuate quickly. Almost 25% of the population within the PPSA consists of seniors over 65 years or older. Figure 2-2 depicts those individuals 65 years or older by census tract within the PPSA. The senior population is concentrated within the Placerville city limits and the unincorporated areas north of the city.

Seniors, children, and individuals with disabilities and those with access and functional needs (AFN) are more vulnerable during wildfires due to their sensitivity to air pollution and heat, and the additional support they may need during an emergency evacuation. Seniors and individuals with disabilties may also have reduced mobility and limited mental function, which makes it difficult to evacaute during a wildfire. Individuals with pre-existing medical conditions, and particularly those dependent on medical equipment that requires electricity may be also be disproportionately impacted during wildfires and the public safety power shutoffs (PSPS) that can proceed a wildfire event. Approximately 14.3% of the population consists of persons with disabilities or individuals with AFN. Figure 2-3 depicts those individuals with disabilities and AFN within the PPSA. The largest concentration of individuals with disabilities is in the southwestern and southeastern portions of the PPSA.

Within the PPSA, there are also 5.9% without health insurance, 6.3% with coronary heart disease, and 9.3% with asthma (US Census Bureau 2023). The largest concentration of individuals with asthma is in the northern portion of the PPSA. Children are socially vulnerable to wildfire, as they often have limited understanding of what to do in the event of a wildfire and depend on an adult to prepare for a safe evacuation. Children are also still developing physically and therefore are more vulnerable to the health effects of wildfire smoke (US EPA 2024). The largest concentration of children is in the southwestern portion of the PPSA.

Figure 2-1 Total Population by Census Tract within the PPSA

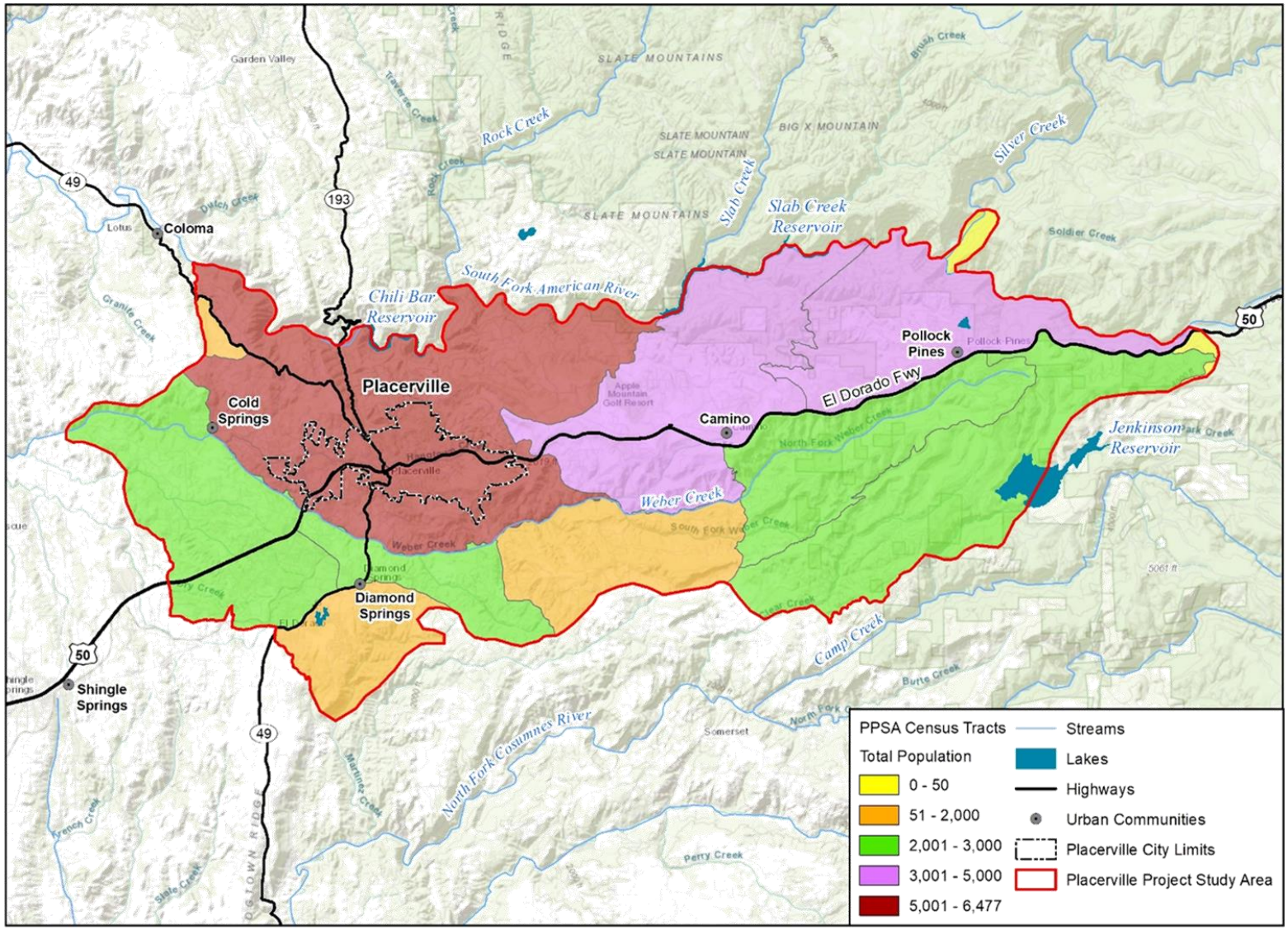
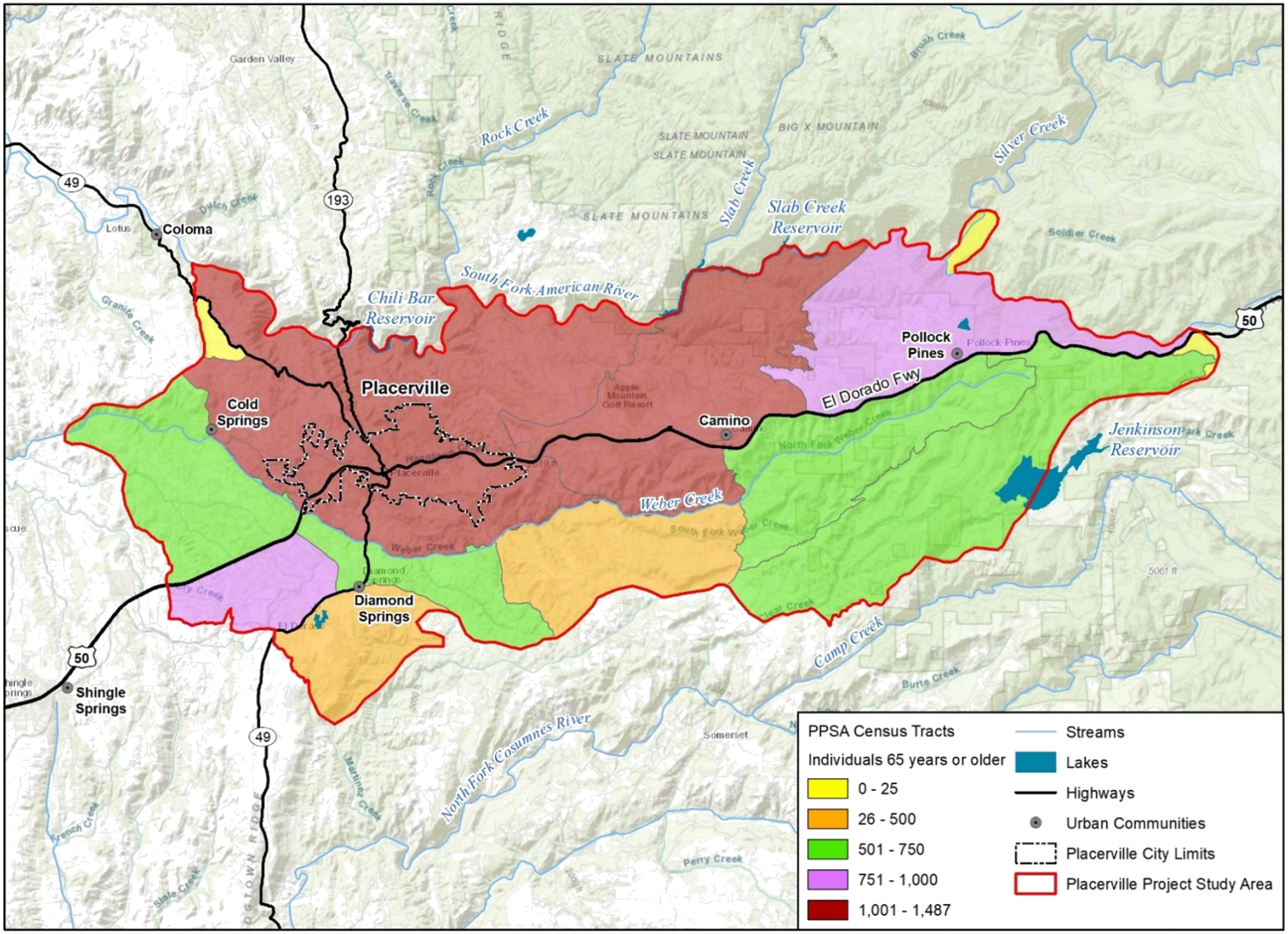


Figure 2-2 Individuals 65 Years or Older by Census Tract within the PPSA

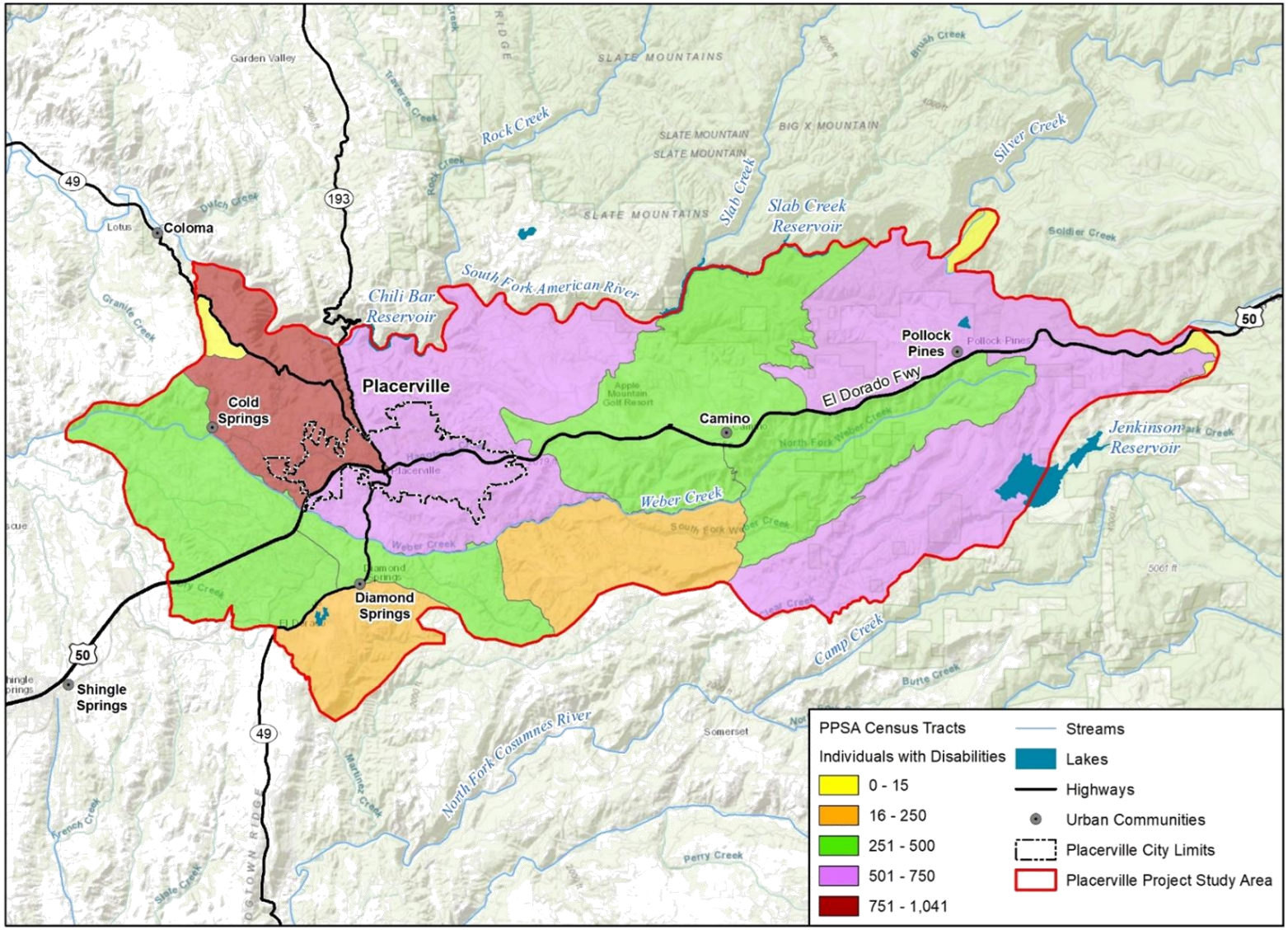


Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

0 2.5 5 Miles

N

Figure 2-3 Individuals with Disabilities by Census Tract within the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

Low-Income Households and Individuals with Limited Resources

Low-income households and renters may not have the economic means to afford resources to prepare for, mitigate risks through fireproofing homes, secure emergency supplies, or evacuate during wildfire events. Similarly, individuals that are unemployed or part of low-income households may face financial barriers when recovering from wildfire events.

Figure 2-4 depicts the median household income by census tract within the PPSA. It shows that the majority of the lower-income households are concentrated within and around the city, south of Diamond Springs near Patterson Lake, and north of Pollock Pines. These are generally households that earn between $69,116 to $90,000 per year.

Households and individuals with limited resources also include individuals that do not have access to a vehicle or those that are geographically isolated. Given the rural character and limited urban development in the unincorporated communities surrounding Placerville access to a vehicle is important during an evacuation, as the County lacks public transportation in some of the rural and isolated communities. Individuals without vehicles may not be able quickly and safely evacuate out of evacuation zones during wildfire events. Similarly, rural and geographically isolated households may face barriers because they have to travel greater distances to find shelters and resources.

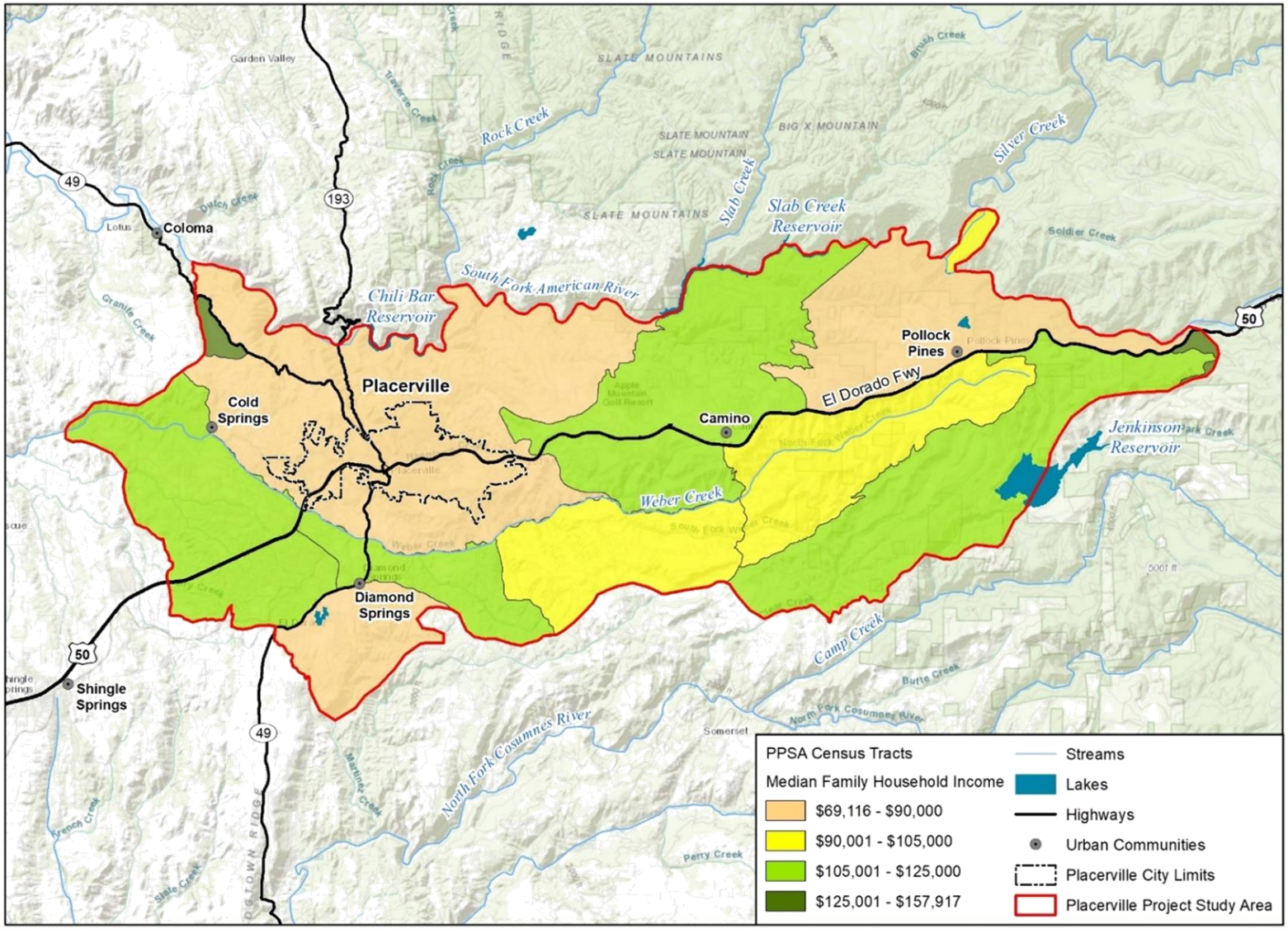
In the PPSA there are also approximately 40 residential developments that lack two evacuation routes. These communities may therefore face additional accessibility challenges during evacuations. Figure 2-5 shows households without access to a vehicle based on census tracts within the PPSA. Most households that lack vehicles are located in Placerville, north of Placerville, south of Diamond Springs, and north of Pollock Pines. Figure 2-6 shows the residential developments that only have one way in and out within the PPSA.

Households with limited resources also refer to individuals without health insurance, households that lack a computer or broadband internet, and renters. Individuals without health coverage may not understand pre-existing health conditions and may be more susceptible to wildfire smoke (Crimmins et al. 2016). Households without a computer or broadband internet may not receive critical emergency alerts before a wildfire event. Lower income individuals are also more likely to lack access to a computer and broadband, further limiting their access to key alerts during a wildfire event There are 6.1% of the households in the PPSA that do not have access to broadband internet, 3.1% of the households do not have a computer, and approximately 4.0% of the population without health insurance.

Households living in mobile or manufactured homes is another indicator of socially vulnerable populations. Most mobile home parks are sited close together making them more vulnerable if an adjacent home is ignited by wildfire (Goolsby et al. 2024). Due to construction materials these homes are also generally less ignition resistant to wildfires. shows the concentration of mobile homes in and around Placerville.

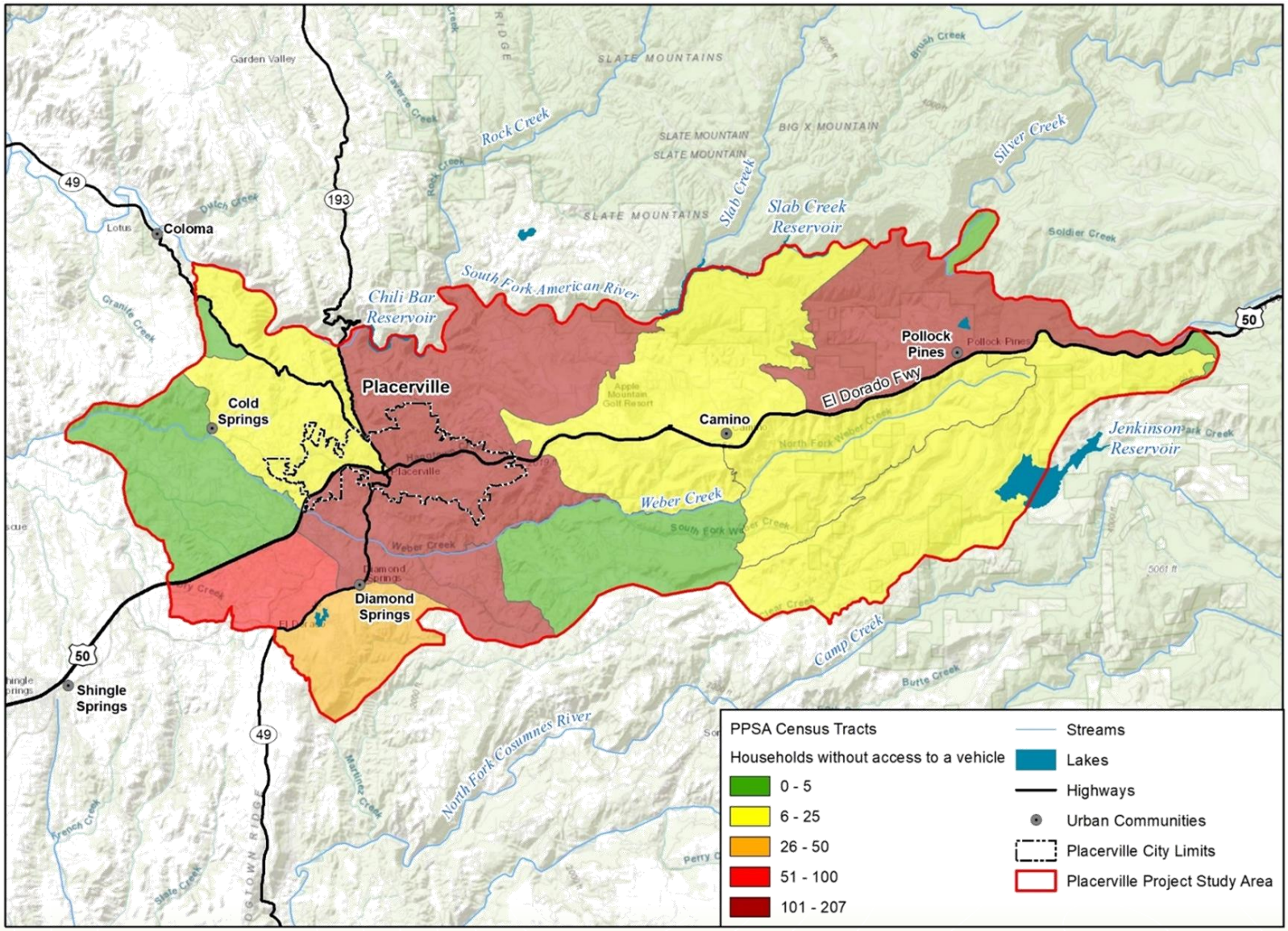
Figure 2-7 shows the concentration of mobile homes in and around Placerville. There is a large concentration of mobile homes in the northwest portion of the city limits, around Diamond Springs, and along the U.S. Highway 50 corridor in Pollock Pines.

Figure 2-4 Median Household Income by Census Tract within the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

Figure 2-5 Households without Access to a Vehicle by Census Tract



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

Figure 2-6 Residential Developments in the PPSA that Lack Two Evacuation Routes

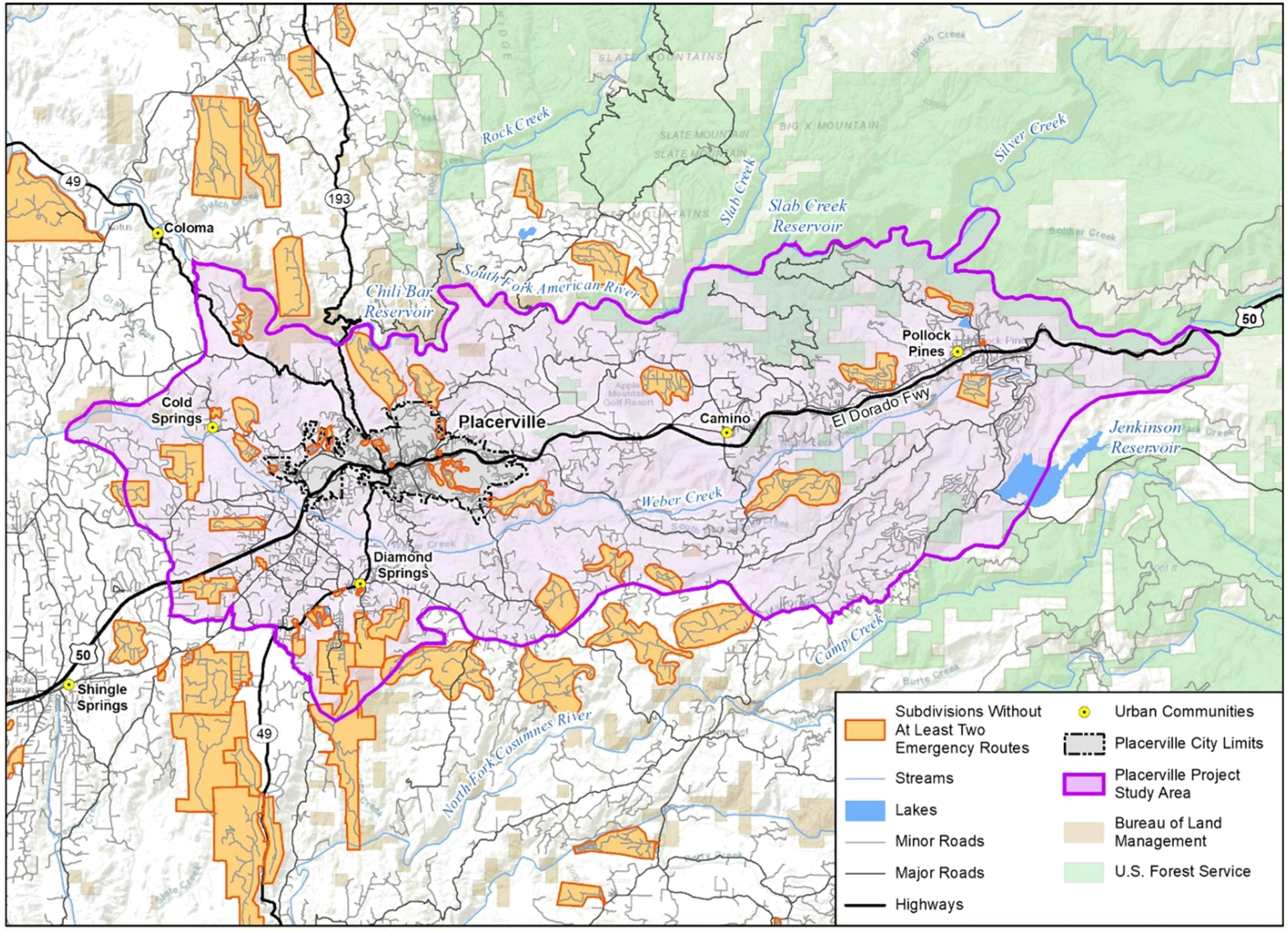
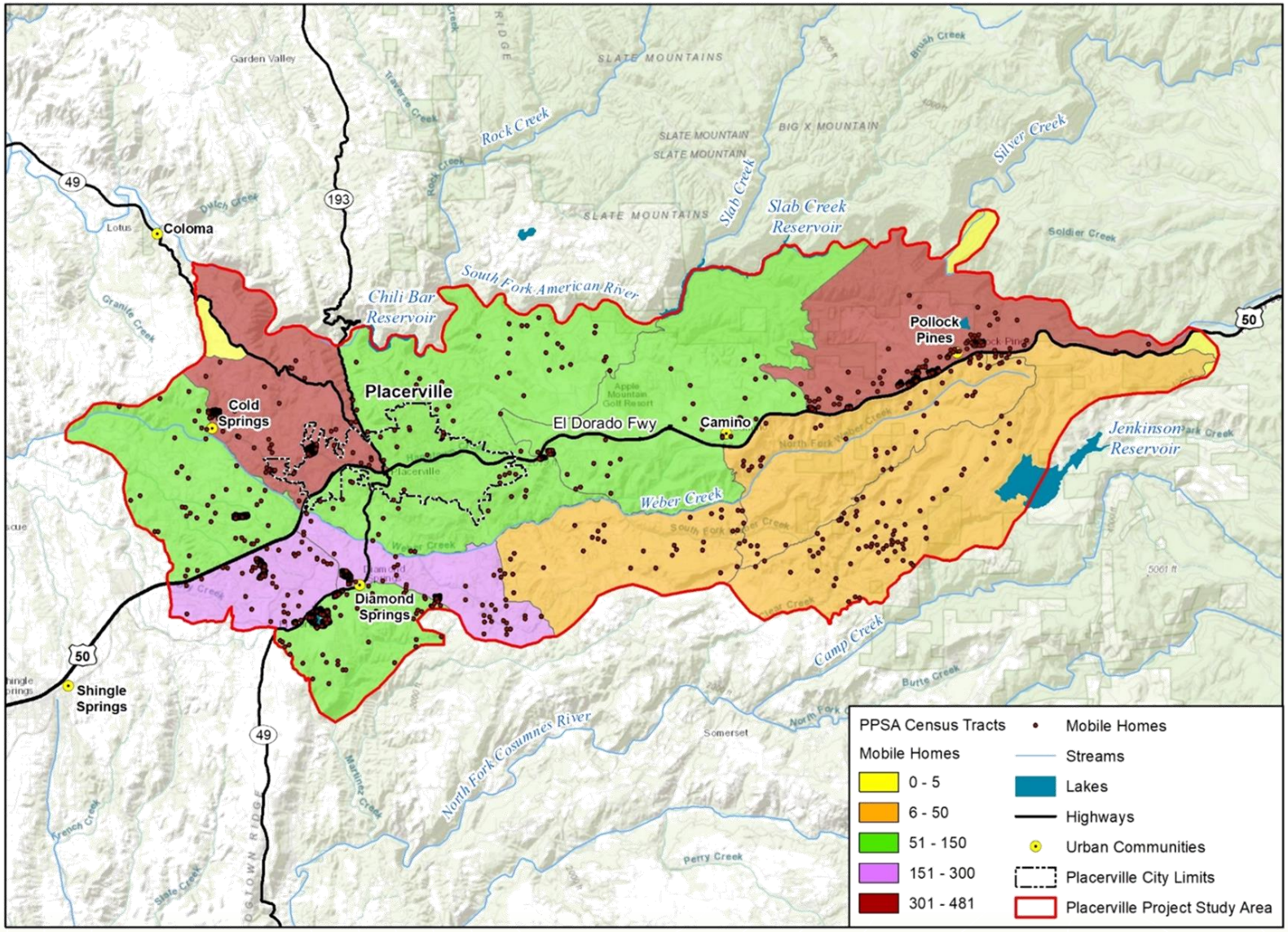


Figure 2-7 Concentration of Mobile Homes by Census Tract and by Parcel Data



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

Households Facing Societal Barriers

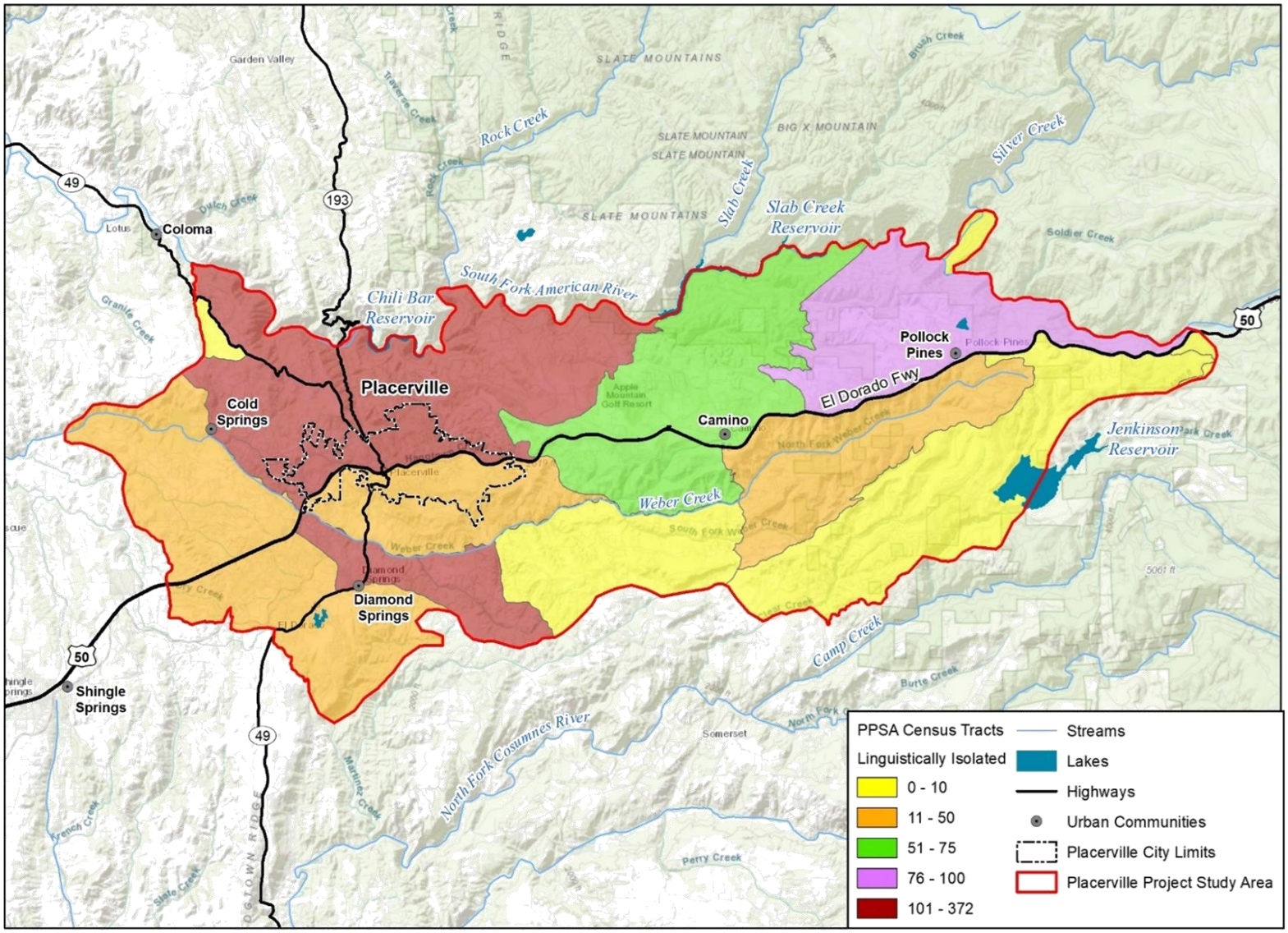
Another group of vulnerable populations are households and individuals facing social challenges that contribute to social, economic, educational, and health disparities that make ethnic minorities, including people of color or Native American populations more vulnerable to wildfire. Based on the 2023 U.S. Census ACS, 11.6% of the residents in the PPSA identify as non-white, which includes individuals that identify as Hispanic or Latino, Black or African American, Asian, Native Hawaiian, Pacific Islander, or another race other than White. Many of these individuals can face inequities due to race that are compounded by income and financial barriers.

Further, undocumented individuals and linguistically isolated households often lack access to critical services that allow them to prepare for and evacuate during a wildfire. Individuals who are linguistically isolated refers to individuals that have limited or no English-speaking ability. In the PPSA these are typically individuals whose primary language is Spanish. Therefore, unless evacuation alerts and wildfire preparedness materials are translated in multiple languages, these individuals are less aware and prepared to evacuate from a wildfire. Figure 2-8 displays households that are linguistically isolated by census tract within the PPSA. There is a large concentration of linguistically isolated individuals in the northeastern portion of the Placerville city limits and the southwestern portion of the PPSA.

The PPSA is located on the ancestral lands of the Sierra Miwok people and home to the Shingle Springs Band of Miwok Indians. Approximately 0.8% of individuals identify as American Native or Alaskan Native within the PPSA. The largest concentration of these individuals resides in the western portion of the PPSA closest to Shingle Springs Rancheria. While not all residents in the PPSA may identify as Native American, many Native American groups experience social marginalization to some degree and are more likely to be low-income, lacking economic resources, or living in poverty. Native American populations also can have greater health conditions compared to other populations. They are also more likely to live in hazard areas, making them more vulnerable to wildfire impacts (Baird 2008; Crimmins et al. 2016).

Individuals experiencing homelessness are another group with outdoor exposure that because they do not have access to shelter or transportation face increased exposure to wildfire hazards such as smoke and extreme heat and have limited ability to evacuate (CDPH 2017). A 2019 survey count in El Dorado County revealed that 613 individuals were homeless, with 78% (480) unsheltered and 22% (133) sheltered. Of the unsheltered, 37% were in emergency shelters, 14% lived in vehicles or boats, 13% in outdoor encampments, and others resided in parks, streets, abandoned buildings, or underpasses (ASR 2019). The West Slope accounted for 82% of the homeless population and approximately 78 homeless residents lived in unincorporated areas. While homelessness is typically a temporary condition, the County formed a Continuum of Care Stakeholders Committee in 2006 to coordinate efforts across agencies to address homelessness. From 2019 to 2022, the County's homeless population also decreased from over 600 to around 500, but the number of available beds decreased as well, with only 118 interim and permanent beds available in 2022 (ASR 2019).

Figure 2-8 Households that are Linguistically Isolated by Census Tract within the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS,
Living Atlas, Census Tract ACS 5-Year Estimates Data

Overall, sensitive and socially vulnerable populations are spread throughout the PPSA, though some groups are concentrated in specific areas within Placerville and around Diamond Springs and Pollock Pines. These findings are consistent with data presented in the County's *CVA*, *General Plan Public Health, Safety, and Noise Element Background Report*, and the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*. These other plans indicated the western and southern regions of the PPSA have the highest proportion of vulnerable populations to wildfire. The central PPSA, particularly around the City of Placerville, has a notable concentration of under-resourced individuals. The north and east portions also have the highest concentrations of socially vulnerable populations, including those north of Mosquito Road and along Cable Road.

This information will inform wildfire mitigation programs and preparedness efforts that target the needs of sensitive and socially vulnerable groups.

2.6. High Hazard Communities

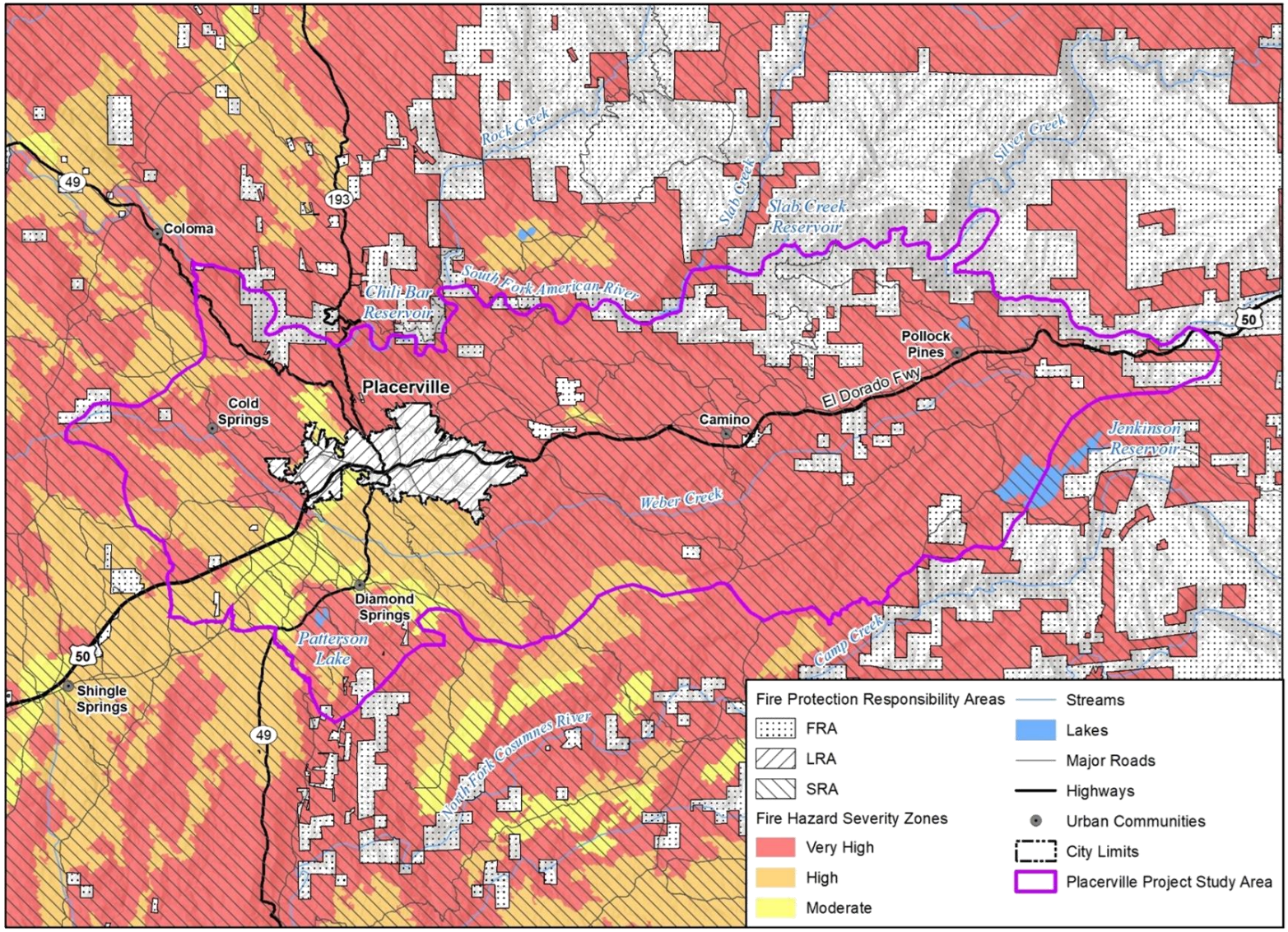
The National Fire Plan directs funding to be provided for projects designed to reduce the fire risk to communities. A key step in achieving this goal is the identification of communities that are at high risk of damage from wildfire. These high-risk communities are within the WUI.

Based on a collaborative process with federal agencies, the Federal Register lists those communities within their borders that meet the criteria of a structure at high risk from wildfire. Because California's extensive WUI situation, the list of communities extends beyond only those communities adjacent to federal lands, and there are currently 1,329 communities on the Communities at Risk List managed by the California State Forester (State Fire Marshall 2019). Of the 22 communities on the list in El Dorado County, there are 3 communities on this list within the PPSA including Diamond Springs, Placerville, Pollock Pines, and communities neighboring federal lands.

In the foothills and mountains of the Sierra Nevada, communities near Placerville and along the U.S. Highway 50 corridor are generally considered at "high risk" for wildfire. CAL FIRE has classified much of this broader region as a VHFHSZ, though specific areas within the PPSA may vary in risk.

The fire hazard severity zones (FHSZs) by federal, state, and local responsibility areas within the PPSA are shown in Figure 2-9. According to the Draft 2007-2011 Local Responsibility Area (LRA) FHSZ maps, the City of Placerville is also classified as a VHFHSZ (CAL FIRE 2011). By the end of the century, rising temperatures and prolonged droughts are expected to contribute to more frequent and intense wildfires throughout the area.

Figure 2-9 Fire Hazard Severity Zones by Federal, State, and Local Responsibility Areas



2.7. Assets at Risk

The key assets within the PPSA were organized into three categories: property, critical facilities and infrastructure, and natural and cultural resources. These three categories align with the four categories the County uses to organize critical facilities: essential services, infrastructure at risk, and essential business.

The population at risk category is also considered a key asset at risk in the Placerville CWRS; the sensitive and socially vulnerable population groups are summarized in detail in Section 2.6.

2.7.1. Property

The PPSA consists of a mix of residential, commercial, and public properties that are increasingly vulnerable to wildfire due to their location and geography. The area's development patterns, combined with the County's extensive WUI, place significant property values at risk. The property value data is from the County's Assessor Office and provides a baseline for the inventory of total exposure of developed properties within the PPSA. This ensures the strategy reflects the exposure of the existing development and how changes in development patterns and future development can alter the exposure of the community.

Table 2-3 shows the total exposure of improved properties by jurisdiction (within Placerville city limits or outside within unincorporated County) and property type in the PPSA. This table summarizes the parcel values at risk to wildfire hazards within the study area. According to the parcel analysis, there are 18,351 parcels at risk to wildfire with a total estimated value of $7,255,272,601. It is important to note that depending on the nature and type of hazard event or disaster, it is generally the value of the infrastructure or improvements to the parcels (properties and their contents) that are of concern or at risk. Generally, the land itself is not a total loss, but may have a reduction in value. Thus, the parcel analysis excludes land value.

Table 2-3 PPSA Total Exposure of Improved Properties by Jurisdiction and Property Type

Jurisdiction	Property Type	Parcel Count	Improved Value	Estimated Content Value	Total Value
Placerville	Commercial	274	$138,166,827	$138,166,827	$276,333,654
	Industrial	119	$165,583,976	$248,375,964	$413,959,940
	Misc.	9	$5,376,181	$5,376,181	$10,752,362
	Multi-Family Residential	274	$125,613,428	$62,806,714	$188,420,142
	Residential	3,034	$658,714,309	$329,357,155	$988,071,464
	Unassessed	23	$0	$0	$0
	Total	**3,733**	**$1,093,454,721**	**$784,082,841**	**$1,877,537,562**
Unincorporated	Commercial	218	$151,389,646	$151,389,646	$302,779,292

Jurisdiction	Property Type	Parcel Count	Improved Value	Estimated Content Value	Total Value
	Industrial	192	$107,273,866	$160,910,799	$268,184,665
	Misc.	149	$33,980,235	$33,980,235	$67,960,470
	Multi-Family Residential	223	$84,562,985	$42,281,493	$126,844,478
	Residential	13,818	$3,074,644,090	$1,537,322,045	$4,611,966,135
	Unassessed	18	$0	$0	$0
	Total	**14,618**	**$3,451,850,822**	**$1,925,884,218**	**$5,377,735,040**
Grand Total		**18,351**	**$4,545,305,543**	**$2,709,967,058**	**$7,255,272,601**

Source: Source: El Dorado County Assessor Data 2024, WSP GIS Analysis

2.7.2. Critical Facilities and Infrastructure

Critical facilities play a vital role in ensuring community resilience and emergency response during wildfire events. The PPSA contains a total of 348 critical facilities, with 160 located within the City of Placerville and 188 in unincorporated areas. These facilities include essential services and infrastructure such as hospitals, schools, and utilities, which are key to supporting public safety and recovery efforts. The critical facilities database was developed in GIS and is based on a combination of County-provided data, Homeland Infrastructure Foundation-Level Data (HIFLD), and local jurisdiction-specific input.

This is also the same dataset used during the development of other recent County and EDCTC plans, but it is important to note that the dataset is continuously being updated and refined with more accurate facility location information, as the County continues to review and validate the data attributes, address information, and add new critical facilities. It is also important to note that not all critical facilities within the PPSA are owned or managed by the City of Placerville. Many are owned and managed by the County, state, federal, or other local agencies, special districts, and organizations. Table 2-4 provides an overview of these facilities by jurisdiction.

Table 2-4 Critical Facilities within the PPSA

Jurisdiction	Total
Placerville	160
Unincorporated	188
Total	**348**

Source: El Dorado County, Placerville, Department of Education, HIFLD, National Inventory of Dams, National Bridge Inventory

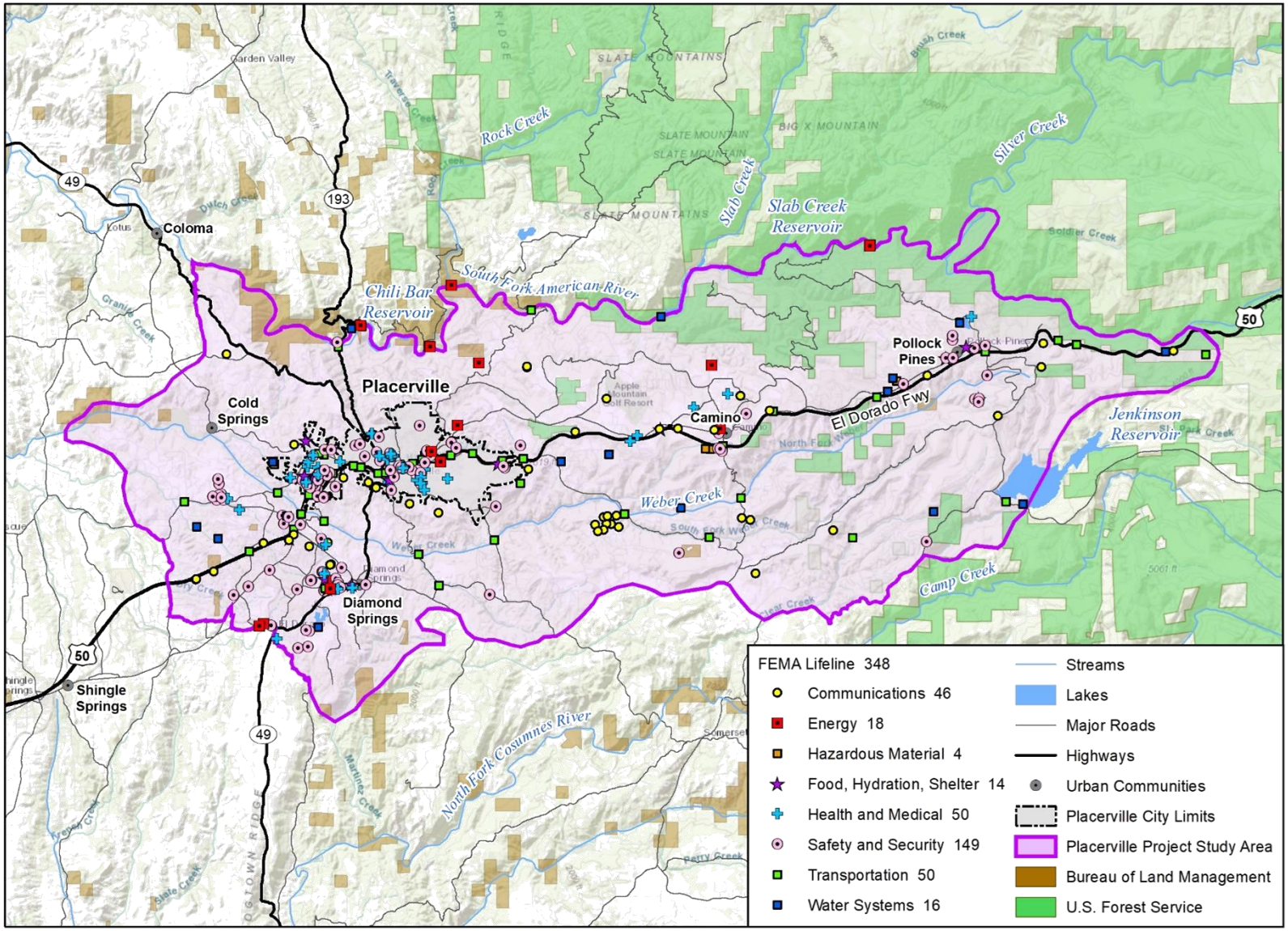
Within the City of Placerville, the following are considered critical facilities:

- City Corporation Yard
- Major communication lines and microwave transmission facilities

- Major electrical transmission lines and substations
- Major public and private schools
- Marshal Medical Center
- Public Library - El Dorado County Library, Placerville Branch
- Sunshine Manor Elder Care
- Town Hall
- Wastewater treatment plant, pumping stations, and trunk lines
- Water supply lines and wells

Figure 2-10 displays the critical facilities with the PPSA.

Figure 2-10 Critical Facilities within the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas,
HIFLD, California Department of Education, Georgetown Divide PUD

2.7.3. Natural and Cultural Assets

Placerville's location and history have contributed to its varied and rich historic, cultural, and natural resources. Its water resources, surrounding agricultural lands, mineral resources, vegetation, and wildlife are not only intrinsically valuable but also largely define the quality of life in Placerville. These natural resources played a key role in its early settlement by Native Americans and later in its founding and development as a Gold Rush boomtown.

> *The Gold Bug Mine and Museum, a key historical site in Placerville, offers a glimpse into the Gold Rush era with preserved mining equipment and tunnels, showcasing the town's gold mining history.*

Source: National Register #85003522, 2024

The City has a rich cultural history stemming from the initial settlement and gold rush boom. The rapid influx of settlers during the gold rush era transformed the small town, swelling its population to become the third largest in the state by 1854, leading to the establishment of essential amenities such as a fire department, post office, newspaper, and offices for Pony Express and Wells Fargo. Placerville emerged as a pivotal point along the Mother Lode, serving as a gateway to the Sierras, California's central valley, and an expansion of the lumber, ranching, and agricultural industries.

Today, Placerville's Main Street still preserves much of its 19th-century architecture, and Hangtown Creek, where gold prospectors once panned, continues to meander through the town. The Gold Bug Mine and Museum, operated by the city, offers insights into the region's gold mining history, while the Fountain & Tallman Museum, managed by the El Dorado County Historical Society, occupies one of the oldest surviving structures on Main Street, dating back to 1852. In 2012, a digital inventory of historic resources was made accessible through the city's website, enhancing community access to its heritage.

Cultural resources defined in CEQA Section 15064.5 include also prehistoric and historic archaeological resources and historic-period resources (buildings, structures, area, place, or objects). Archaeological resources reflect past human activity extending from Native American prehistoric cultures through the early 20th century. Many of these historic and cultural resources are vulnerable to wildfire hazards.

Table 2-5 reflects a comprehensive review of city, State, and Federal historic site designations, cross-referenced with the National Register of Historic Places (NRHP) and the California Register of Historical Resources (CRHR).

Table 2-5 Placerville Cultural and Historic Places

Historic Place	Location	Designation
Bell Tower Monument	Main Street	City
John Blair House	980 Pacific Street	City
Caboose	Old Canal Street and Main Street	City
City Cemetery	769 Chamberlain Street	City
Druid Monument (Frederick Sieg Monument)	Main Street and Cedar Ravine	City
Gold Bug Park	2635 Goldbug Lane	City
Koletzke House	2744 Coloma Street	City
585 Main Street	585 Main Street	City
Shakespeare Club	2940 Bedford Avenue	City
Hangman's Tree	305 Main Street	State
Methodist Episcopal Church	1031 Thompson Way	State
Old Dry Diggins	Bedford Avenue at Main Street	State
Placerville - Overland Pony Express	Main Street at Sacramento Street	State
Stable Building	582 Main Street	State
Studebaker's Shop	543 Main Street	State
Pony Express	Main and Sacramento	State
Combellack - Blair House	3059 Cedar Ravine Street	Federal
Hattie (Gold Bug), Priest and Silver Pine Mines and Stampmill	2635 Goldbug Lane	Federal
Methodist Episcopal Church	2979 Coloma Street	Federal
Confidence Engine Company Hall	487 Main Street	Federal
Fountain-Tallman Soda Works	524 Main Street	Federal
John Pearson's Soda Works	594 Main Street	Federal
Coloma	7 mi. NW of Placerville on CA 49	Federal
Eddy Tree Breeding Station	2480 and 2500 Carson Rd.	Federal
Lombardo Ranch	1709 Carson Rd.	Federal
Bee-Bennett House	643 Bee Street	POI
Branch Saloon	327 Main Street	POI
Carson Trail Marker 68	Coon Hollow Road	POI
Carson Trail Marker 69	Benham Street	POI
Cemetery of Lost Souls	104 Placerville Drive	POI
Davis and Roy News Depot	435 Main Street	POI

Historic Place	Location	Designation
Douglass-Hines Building Bricks	403 Main Street	POI
Emigrant Jane	489 Main Street	POI
IOOF Hall (Placerville)	467 Main Street	POI
Johnson Cutoff Marker 29	Boeger Lane	POI
Johnson Cutoff Marker 30	Benham Street	POI
Lower Fairchild Building	429 Main Street	POI
Placerville Hardware	441 Main Street	POI
Randolph Jewelers	369 Main Street	POI
Snowshoe Thompson Memorial	Main and Sacramento Streets	POI
Stone House	847 Pacific Street	POI
Swift Berry	1160 Broadway	POI
Wonderly House	585 Main Street	POI

Source: NRHP, CRHR, and City of Placerville Website, City Historic Resources, 2024
*POI (Point of Interest) refers to historically or culturally significant locations not formally designated at the local, state, or federal levels. Unlike official designations, POIs are recognized for their value but do not carry legal protections.

Additional sites reflect the city's historical and cultural importance. These include the Placerville Speedway, the Gold Rush Museum in nearby Auburn, and the El Dorado Trail along the old railway. While not officially designated, these locations contribute to understanding Placerville's history.

Prominent landmarks, such as the Fountain & Tallman Museum, offer insights into the city's transition from a mining camp to a settled community. The museum preserves artifacts that tell the story of daily life during Placerville's early years. Nearby, the Marshall Gold Discovery State Historic Park in Coloma commemorates the 1848 gold find that set off the California Gold Rush. Together, these sites not only celebrate Placerville's pivotal role in history but also connect the city to the broader story of the state's development.

In addition to its rich cultural heritage, Placerville is home to several significant natural resources, including city-owned parks like Lumsden Park. These parks serve as vital recreational spaces for residents and visitors, providing opportunities for outdoor activities, wildlife observation, and community events. Lumsden Park offers a natural sanctuary within the city limits, showcasing the region's diverse vegetation and offering an important buffer against urban development.

As the City continues to evolve, efforts to improve the resilience of these natural spaces, such as the consideration of fuel treatment projects in these park boundaries, will be essential. Targeting areas like Lumsden Park and other city-owned park facilities could help mitigate wildfire risks while preserving the ecological integrity of these public spaces. A pilot project at the downtown City Park is under consideration, which could serve as a model for future fuel

treatment initiatives aimed at enhancing both public safety and ecological health. By incorporating targeted fuel treatment measures within these green spaces, Placerville can enhance its fire resilience, protect important natural resources, and create safer environments for the community. Table 2-6 lists the park and open space resources in the PPSA; each of these were evaluated as part of the wildfire risk assessment.

Table 2-6 Park and Open Space Resources within the PPSA

Resource Name	Location	Description
City Park	3071 Benham Street, Downtown Placerville	Features Scout Hall, playgrounds, basketball courts, picnic facilities, turf areas, and Aquatics Center.
El Dorado Trail	Main Street, Placerville	Multi-purpose trail for biking, hiking, and equestrian use; located at Placerville Station.
Gold Bug Park	1 mile north of Hwy 50 on Bedford Avenue	Historic gold mining site with hiking trails, self-guided tours, and gold panning.
Lions Park	3633 Cedar Ravine Road	Includes two softball fields, tennis and pickleball courts, walking trails, and picnic areas.
Lumsden Park	3144 Wiltse Road	Features a fishing pond, tot lot, picnic areas, and restrooms.
Duffey Park	3000 Arizona Way	Includes a play area, turf, and picnic benches.
Orchard Hill Park	2355 Green Wing Lane	Features four acres of recreational amenities including a tot lot, picnic facilities, turf areas, and outdoor basketball court.
Rotary Park	3155 Clark Street	Four-acre park that includes a little league field, swings and slides in a tot area, picnic tables, BBQ pits, lawn area, and restrooms.
Benham Park (Scout Hall)	3071 Benham Street	Consists of a meeting hall, tot lot, basketball courts, swings and slides, playground equipment, picnic facilities, turf areas, restrooms, and a new Aquatics Center.

Source: City of Placerville Parks and Recreation Department, 2024.

In addition to the city's parks and historic sites, there are several other significant natural resources and assets within the PPSA. These include vital water resources such as local rivers, creeks, and streams, including Hangtown Creek, as well as nearby water bodies like the American River, which are essential for the community's water supply.

The surrounding natural landscapes and forested areas, including nearby state or national forests, contribute to the scenic beauty and play a crucial role in conservation and wildfire prevention efforts within the PPSA. Wildlife habitats and riparian zones support biodiversity and healthy ecosystems, while agricultural lands, including local farmlands, orchards, and vineyards, are integral to the local economy. Additionally, green spaces in the area help improve air quality and contribute to climate resilience through carbon sequestration. These natural resources are vital to the community's well-being and environmental health, offering

both ecological and recreational value.

2.8. Development Trends

The housing stock in the PPSA is predominantly single-family homes, comprising about two-thirds of all units. Half of these homes are over 30 years old, with many more than 50 years old (County Assessor 2024). As the housing stock ages, major rehabilitation is expected, prompting the *City of Placerville's Housing Element* to focus on assessing housing conditions and offering rehabilitation support. The city also has resources, particularly land, to accommodate future housing growth.

Housing demand has increased in recent years, spurring the revival of projects approved in 2006-2007, such as the Cottonwood Park Subdivision, adding up to 39 rural residential lots, and the completion of the Eskaton senior housing development. Although economic factors like the housing crisis and rising interest rates have made developers cautious, new development gradually continues. Housing demand surged during and after the COVID-19 pandemic, pushing median sale prices up by 11% since 2023. Despite this, the city's *General Plan* seeks to preserve its cultural and historical heritage rather than encourage residential development, as zoning and regulations have remained largely unchanged since 1990.

As outlined in the *Housing Element*, Placerville has long served as the hub for social and commercial services in the Sierra foothills, attracting a high percentage of low-income and special needs residents (City of Placerville 2022). Over the past 20 years, most multi-family housing built in the city has been subsidized rental housing for very-low- and low-income households. At the same time, Placerville has seen an influx of higher-income residents seeking the quality of life offered by the Sierra foothills. This trend benefits the city by diversifying its economy and attracting higher-paying jobs. Alongside efforts to revitalize older neighborhoods, the city aims to offer a range of housing options that will create more employment and economic development opportunities for low- and moderate-income households, improving their ability to afford housing.

Historically, development around Placerville has consisted of small, mixed-use communities. However, recent trends have seen a shift toward low-density, large-lot residential development, which is transforming the area's rural character into more dispersed patterns. The County's *Land Use Element* (2019) directs new growth into community hubs, including the greater Placerville region, where mixed-use projects are encouraged, and densities of up to 20 dwelling units per acre are permissible when adequate infrastructure is available.

Development in the West Slope continues to be influenced by infrastructure limitations, particularly water and wastewater services. Public water services are restricted to specific areas, limiting dense residential development to locations where potable water is readily accessible. Similarly, wastewater services are limited, with only certain areas along the US Highway 50 corridor served by public systems. This restricts growth in other regions to parcels that can support septic systems or where wastewater infrastructure can be extended in

tandem with development.

The West Slope's topography, fire hazards, and regulations protecting sensitive habitats and species further constrain development in the greater Placerville region. Slopes over 30% are discouraged for development to minimize erosion, grading, and vegetation removal. Additionally, areas prone to high wildfire risk are subject to enhanced safety requirements, including mandatory compliance with Fire Safe Plans. Development is often deferred in regions without adequate roadways, utilities, and public services until these infrastructure and safety measures are addressed. However, developments are proposed outside the PPSA within the County near Cameron Park and El Dorado Hills, such as the Lime Rock Valley Specific Plan and the Village of Marble Valley. The Lime Rock Valley Specific Plan proposes the development of 740 acres of land consisting of 800 dwelling units. The Village of Marble Valley proposes the development of 2,342 acres of land consisting of approximately 3,236 dwelling units and 475,000 square feet of commercial.

View of the historic buildings in downtown Placerville.

Source: Placerville Downtown Association

3. Planning Process

The development of the Placerville CWRS followed a customized six-step planning process that aligned with the RFFCP. The RFFCP was designed to support the development and implementation of regional priority plans that improve forest health and fire resiliency consistent with the recommendations of the *California Wildfire and Forest Resilience Action Plan* and the *Forest Carbon Plan* (CAL FIRE 2021b). The six steps involved in the planning process are shown in Figure 3-1.

Figure 3-1 Six-Step Planning Process for the Placerville CWRS

Source: WSP 2024

Step 1 included the development of a technical advisory committee (TAC) to inform the approach to the wildfire hazard and risk assessment and to select and prioritize the design criteria for top fuels reduction treatment scenarios. Given the community concerns around wildfire hazards and evacuation constraints in and around the city community outreach and engagement was a focus of the planning effort, in addition to careful coordination with existing stakeholders working on the *Western El Dorado County CWPP update*.

To streamline the outreach and engagement process, Step 2 involved the preparation of a *Communications Strategy* that outlined the process through which the RCD, city, and its citizens, public officials, and stakeholder groups would effectively participate in the development of the City of Placerville CWRS.

Step 3 involved the development of the existing conditions summary and the wildfire hazard

and wildfire risk assessment, which includes a wildfire risk summary based on existing terrain conditions, wind influences, and vegetation conditions to depict current wildfire risk as documented by recent risk assessment findings from recent plans and updated data sources. The risk assessment also covers the future wildfire risk and fire potential in the PPSA and includes a customized set of community-based wildfire maps.

Step 4 includes the development of the potential future mitigation strategies, such as land use and planning programs (home hardening programs, citywide defensible space programs), forestry health and vegetation management activities, and public outreach and education programs. The focus of this step included the selection of strategically placed fuels reduction treatments within the PPSA. The step will include a list of potential strategies in a tabular format that can be or organized by mitigation treatment type and general locations that allow the TAC to select and prioritize strategies for inclusion in the CWRS's action plan.

Step 5 consisted of the evaluation of the fuels treatment project benefits in terms of their GHG emissions reduction potential, forest growth and carbon sequestration, and ability to modify wildfire behavior in a way that reduces wildfire risk.

Step 6 ties together the efforts outlined in the first five steps into the primary deliverable for the project, which is the Placerville CWRS. This strategy will identify the fire hazard reduction strategies and potential landscape-level fuels reduction treatment projects in and around the PPSA that are in balance with ecological management practices and other design criteria prioritized by the TAC. This final step included review and the incorporation of feedback from the RCD and city, TAC, stakeholder groups, and public, in addition to environmental review under CEQA.

3.1. Planning Meetings

Stakeholder and public outreach involved TAC meetings, stakeholder meetings, public workshops, and focused community and neighborhood conversations, in addition to the circulation of an online public survey. The summary of the TAC, stakeholder, and public workshop touchpoints are outlined in Table 3-1.

Table 3-1 Summary of Planning Meetings

Date	Meeting Topic	Location
6/14/2024	Project Kickoff	Virtual
7/30/2024	TAC Meeting #1	Virtual
8/2/2024	OWPR Meeting	Hybrid
9/24/2024	Public Workshop #1	In-Person/ El Dorado Irrigation District (EID) Office
10/9/2024	EDGIS Meeting	Virtual
10/11/2024	SOFAR Meeting	Virtual

Date	Meeting Topic	Location
11/6/2024	TAC Meeting #2	Virtual
11/16/2024	Public Workshop #2	In-Person/Town Hall
12/19/2024	TAC Meeting #3	Virtual
1/29/2025	Placerville City Council Workshop	In-Person/Town Hall

Source: WSP 2024

3.1. Planning Background

The primary purpose of the City of Placerville CWRS was to enhance wildfire preparedness and reduce wildfire risks to people, property, and natural resources in the Placerville area. The city recognized the need for a comprehensive wildfire resiliency strategy and initiated its development with the support of the El Dorado RCD. This project built on recent local planning efforts and aligned with County, state, and federal wildfire planning initiatives.

The planning background for the strategy included integration of existing documents such as the *El Dorado County General Plan Public Health, Safety, and Noise Element*, the *2024 MJHMP*, and the *Western El Dorado County CWPP*. Other influential documents included the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study* and the California Department of Forestry and Fire Protection's (CAL FIRE's) *Strategic Fire Plan for the Amador-El Dorado Unit*. WSP USA, Inc. (WSP) and teaming partners from Spatial Informatics Group (SIG) and Wildfire Services Group (WSG) were contracted to assist with the strategy's development from 2023 to 2024, applying their expertise in hazard mitigation and wildfire planning to address Placerville's unique vulnerabilities. Both SIG and WSG augmented the technical capabilities of the WSP team by conducting the wildfire risk assessment and leading the evaluation of fuel treatment project benefits and wildfire behavior modification across the fireshed to support the selection of key landscape-level fuels reduction treatment projects for the Placerville CWRS.

3.1. Building Upon Previous Planning Efforts

Effective coordination with other community planning efforts is crucial to the success of this plan. The planning process involved identifying existing policies, tools, and actions to reduce the city's risk and vulnerability to wildfire. The plan's development included information from various existing plans, studies, reports, and initiatives, as well as relevant data from neighboring communities and jurisdictions. A high-level summary of key plans, studies, and reports appears in Table 3-2 below, with details on how each informed the update.

Table 3-2 Summary of Key Plans, Studies, and Reports

Plan, Study, or Report	How it Informed CWRS
El Dorado County General Plan and	Provided guidelines for integrating wildfire resilience into

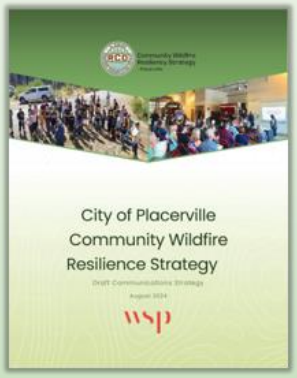
Plan, Study, or Report	How it Informed CWRS
2022-2023 Public Health, Safety, and Noise Element Update	community growth and development, and for ensuring that new projects prioritize hazard reduction. Materials of Interest: • Essential facilities (FEMA) • Fire hazard severity zones
2024 El Dorado County Multi-Jurisdictional Hazard Mitigation Plan Update	Identified local vulnerabilities and wildfire mitigation strategies and provided a foundation for assessing wildfire risks and recommending targeted resiliency actions.
CAL FIRE *2024 Strategic Fire Plan Amador El Dorado Unit*	Informed priorities for wildfire prevention and response, helping to shape strategies and guide the allocation of resources for fire resilience. Materials of Interest: • Vegetation management projects/programs • Wildfire mitigation regulatory background • Wildfire ignition statistics
EDCTC's *2023 Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*	Provided insights into safe evacuation routes, infrastructure resilience, and community preparedness. Materials of Interest: • Greater Placerville Project Study Area Boundary • Wildfire scenario development • Wildfire evacuation assessment • Demographics • High hazard communities • Transportation network • Utility network
El Dorado County's Office of Wildfire Preparedness and Resilience *2023 Wildfire Strategy*	Informed the study's recommendations for community-wide risk reduction and resource allocation.
2022 Western El Dorado County CWPP and *2024 CWPP Update* (in progress).	Provided a detailed assessment of local wildfire hazards and proposed mitigation actions, serving as a direct resource for resilience strategies. Materials of Interest: • Community specific wildfire protection plans • Proposed fuel treatment locations • Incorporation of wildfire mitigation actions
Placerville Fire Safe Council's *2021*	Provided insights into community-driven wildfire mitigation efforts and risk reduction priorities specific to Placerville and

Plan, Study, or Report	How it Informed CWRS
CWPP Update	offered localized data and strategies.
2023 El Dorado Water Agency's Upper American River *Programmatic Watershed Management Plan*	Informed strategies that protect water resources while reducing fire risk.
SNC's Watershed Improvement Program	Informed strategies for landscape-scale wildfire mitigation and ecosystem restoration.

Source: WSP 2024

3.1. Stakeholder Engagement

For the CWRS, stakeholder engagement focused on forming a TAC comprised of representatives from local fire protection districts, Fire Safe Councils (FSCs), and organizations like CAL FIRE and the USFS. This group provided guidance on project deliverables and offered input during work sessions. Formal invitations were extended to additional stakeholders, including groups representing vulnerable populations. To ensure inclusive engagement, various outreach tools were used, including press releases, social media, online surveys, and in-person events at locations accessible to the public.



A communications strategy was developed to engage stakeholders and the public throughout the planning and implementation phases.

Additional stakeholders were reached through broader efforts lead by the El Dorado RCD which included efforts to engage a wide range of stakeholders through public workshops. Key stakeholders, such as local media outlets, community-based organizations, non-profits representing vulnerable populations, and city officials such as the city Public Information Officer (PIO) were identified early in the process and formally invited to participate in these meetings. Additionally, community groups were engaged to increase awareness of wildfire preparedness through hosted collaborations with local fire chiefs and neighborhood leaders; these community touchpoints were referred to as informal community conversations.

3.1.1. Technical Advisory Committee

The TAC served as a liaison between the WSP team, El Dorado RCD staff, and relevant local entities. The TAC's primary role was to offer guidance, review project deliverables, and provide insights from their respective agencies and organizations to ensure the project was aligned with local needs and challenges. Additionally, the TAC was tasked with reviewing project materials, attending work sessions, and offering feedback on key project components.

The TAC met three times during the planning process. The first TAC meeting on July 30, 2024, introduced the project's goals to enhance regional wildfire resilience. The WSP team showcased wildfire modeling tools like Planscape for collaborative planning, emphasizing data integration to assess wildfire risks to infrastructure. Discussions covered alignment with statewide efforts, prioritizing ecological and economic assets, and public engagement via an upcoming meeting. TAC members received action items to refine communication strategies and prepare assessments. The second TAC meeting on November 6, 2024, focused on an overview of the preliminary findings of the wildfire hazard and wildfire risk assessment. The third TAC meeting occurred on December 19, 2024, and focused on consensus of the design criteria used to inform what fuels reduction treatment projects the TAC would select and prioritize in the Placerville CWRS.

Key agency and organization representation from the TAC are outlined in Table 3-3.

Table 3-3 AC Member List

Organizations	
El Dorado County Board of Supervisors District III	El Dorado County Water Agency
Placerville City Council	Placerville FSC
El Dorado County FPD	El Dorado County Sheriff's Office
El Dorado County Planning & Building Department	El Dorado County Community Foundation
City of Placerville	El Dorado County Chamber of Commerce
Office of Wildfire Preparedness and Resilience	Eldorado National Forest
El Dorado County Transportation Commission	Pacific Gas and Electric
CAL FIRE	Sacramento Municipal Utility District
El Dorado Irrigation District	Native Plant Society
Caltrans	Jensen Hughes (CWPP Consultant)
Bureau of Land Management	U.S. Department of Agriculture

Source: El Dorado RCD 204

3.1.2. Focused Stakeholder Meetings

The El Dorado RCD and WSP team also scheduled three focused meetings with select stakeholder groups to promote plan alignment, data sharing, and plan consistency. These focused meetings were scheduled with the County's Office of Wildfire Preparedness and Resiliency (OWPR), South Fork American River (SOFAR) *Cohesive Strategy* working group, and the El Dorado County GIS Department. These meetings are listed below.

- OWPR Meeting – August 22, 2024
- SOFAR – October 11, 2024
- EDCGIS – October 17, 2024

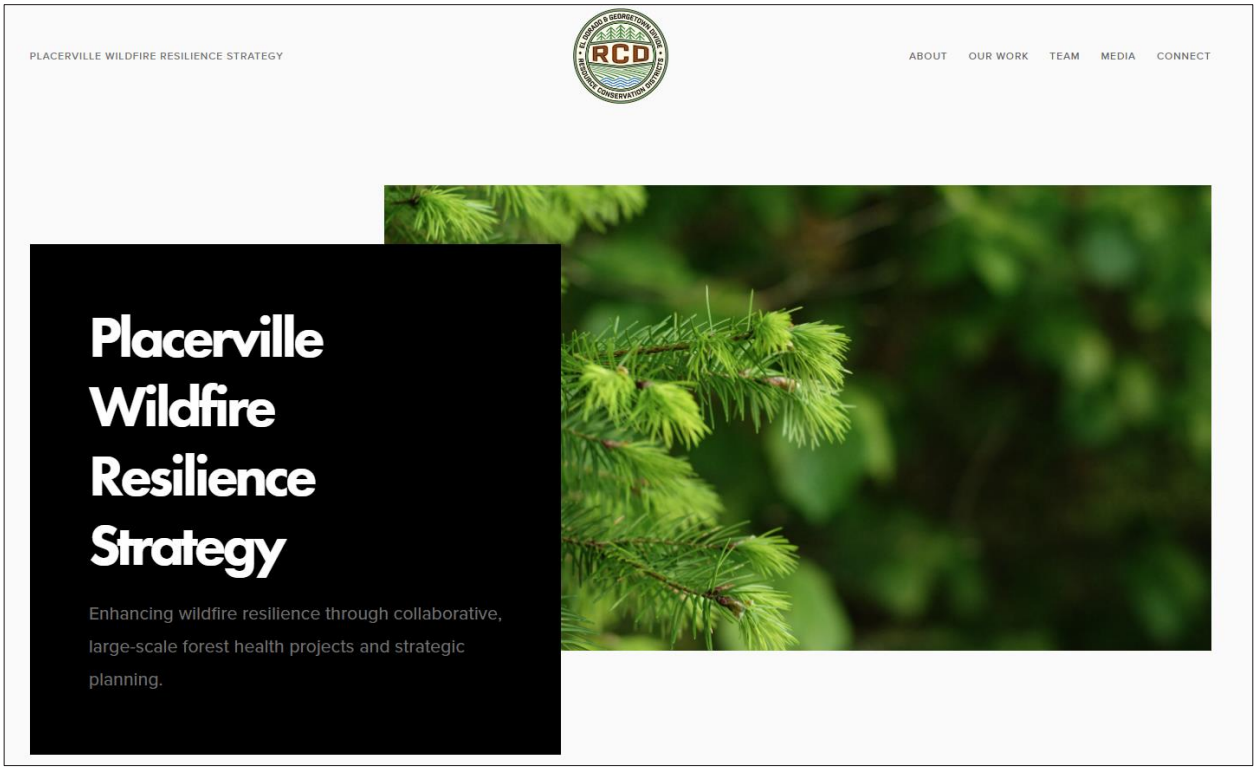
The County's OWPR meeting was focused on how to align the planning processes for the

Placerville CWRS with the *Western El Dorado County CWPP* update in terms of stakeholder collaboration, data sharing, and the approach to the risk assessment. The SOFAR meeting was focused on how to align the Placerville CWRS with the *National Cohesive Wildland Fire Management Strategy,* and specifically how to integrate the CWRS into the vision and goals of the *Cohesive Strategy* and their specific work plan efforts. The County GIS meeting brought together numerous GIS specialists and was an opportunity for the El Dorado RCD team to showcase the Placerville CWRS project.

3.2. Public Involvement

Public outreach involved a multi-channel communication strategy to inform and involve the community. Three public workshops were held, where presentations, handouts, and materials were distributed. Outreach efforts included press releases, social media posts, and website updates to increase public awareness and participation, as shown in Figure 3-2. The planning team worked with city officials to ensure messaging was accessible and clear, using tools including online polling and interactive maps to gather input.

Figure 3-2 Placerville CWRS Webpage



Source: El Dorado RCD 2024

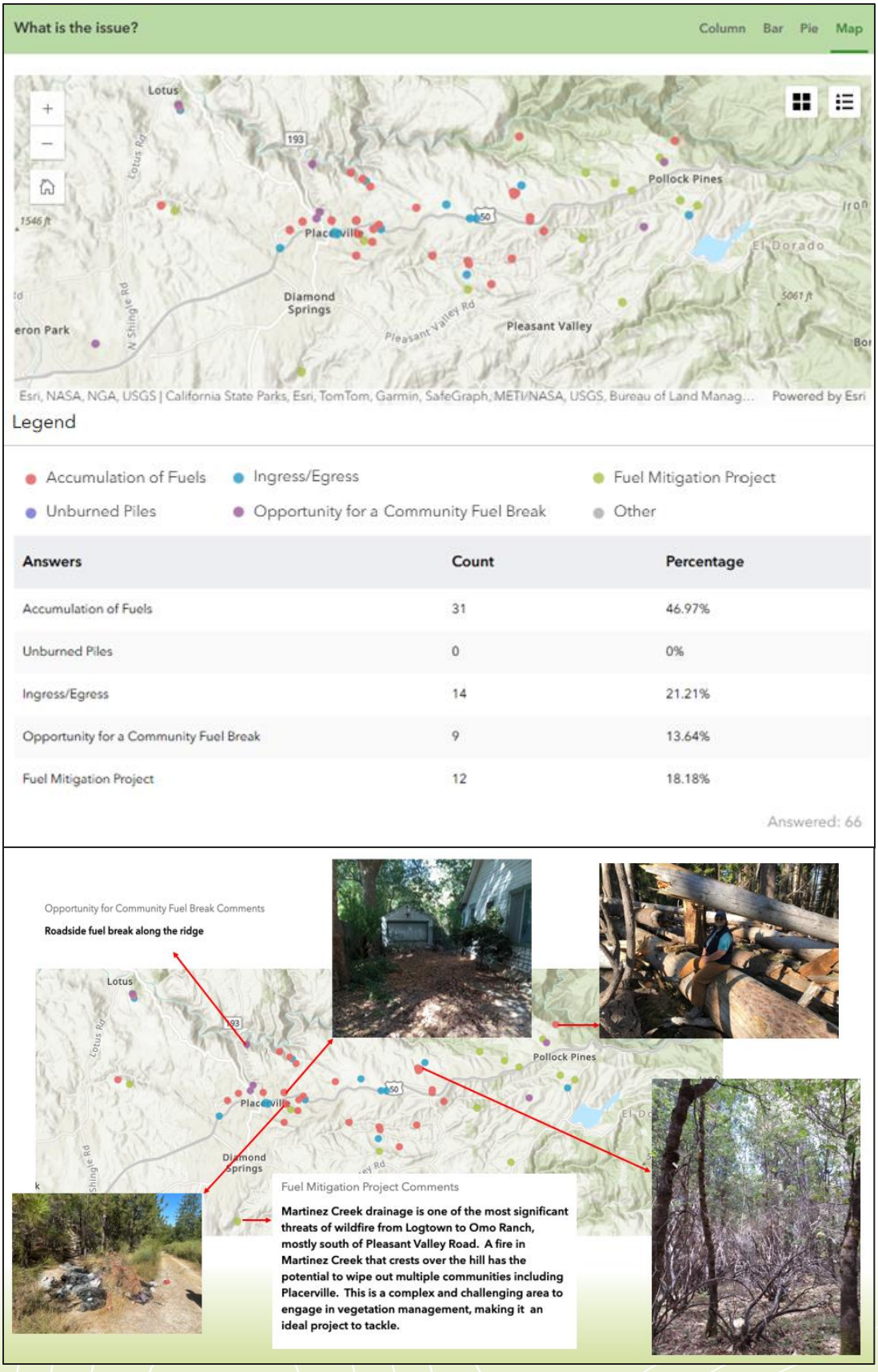
Targeted outreach also included collaboration with FSCs, business districts, healthcare groups, agriculture and farming associations, animal rescue organizations, and special interest groups. The planning team engaged with a wide array of community partners, such as fire departments, law enforcement, homeowners associations, schools, childcare services,

churches, hospitals, non-profit organizations, public utilities, service clubs, and media outlets to ensure the message reached as many community members as possible. In total, over 92 touchpoints were initiated with various government agencies and organizations. Public input gathered during these outreach efforts played a crucial role in shaping the Placerville CWRS, helping to prioritize areas of concern, identify key vulnerabilities, and refine mitigation approaches. This collaborative feedback ensured that the strategy is responsive to the needs and concerns of the community.

3.2.1. Community Participation Map

A Community Participation Map was open for a one-month survey window and received 66 responses. Responses collected from the Community Participation Map are shown in Figure 3-3.

Figure 3-3 Community Participation Map Results



3.2.2. Public Workshop Series

The first public workshop, held on September 23, 2024, emphasized the importance of stakeholder participation, and highlighted the upcoming public survey deadline for responses to the Community Participation Map. The workshop focused on creating an interactive and engaging format while outlining community engagement strategies. Additionally, the workshop presented preliminary findings from the risk assessment, explained data analysis methods, and underscored how community input would be incorporated into the project design. The second public workshop was held on November 14, 2024, and presented the additional findings from the wildfire hazard and risk assessment. The workshop focused on gathering key input around the community's goals for the project based on their understanding of the risk assessment findings. The third public workshop occurred on January 29, 2025, once the draft Placerville CWRS is available for public review.

TAC members and community members provide input, working together with facilitators over a map to shape the plan.

Source: WSP 2024

4. Existing Conditions

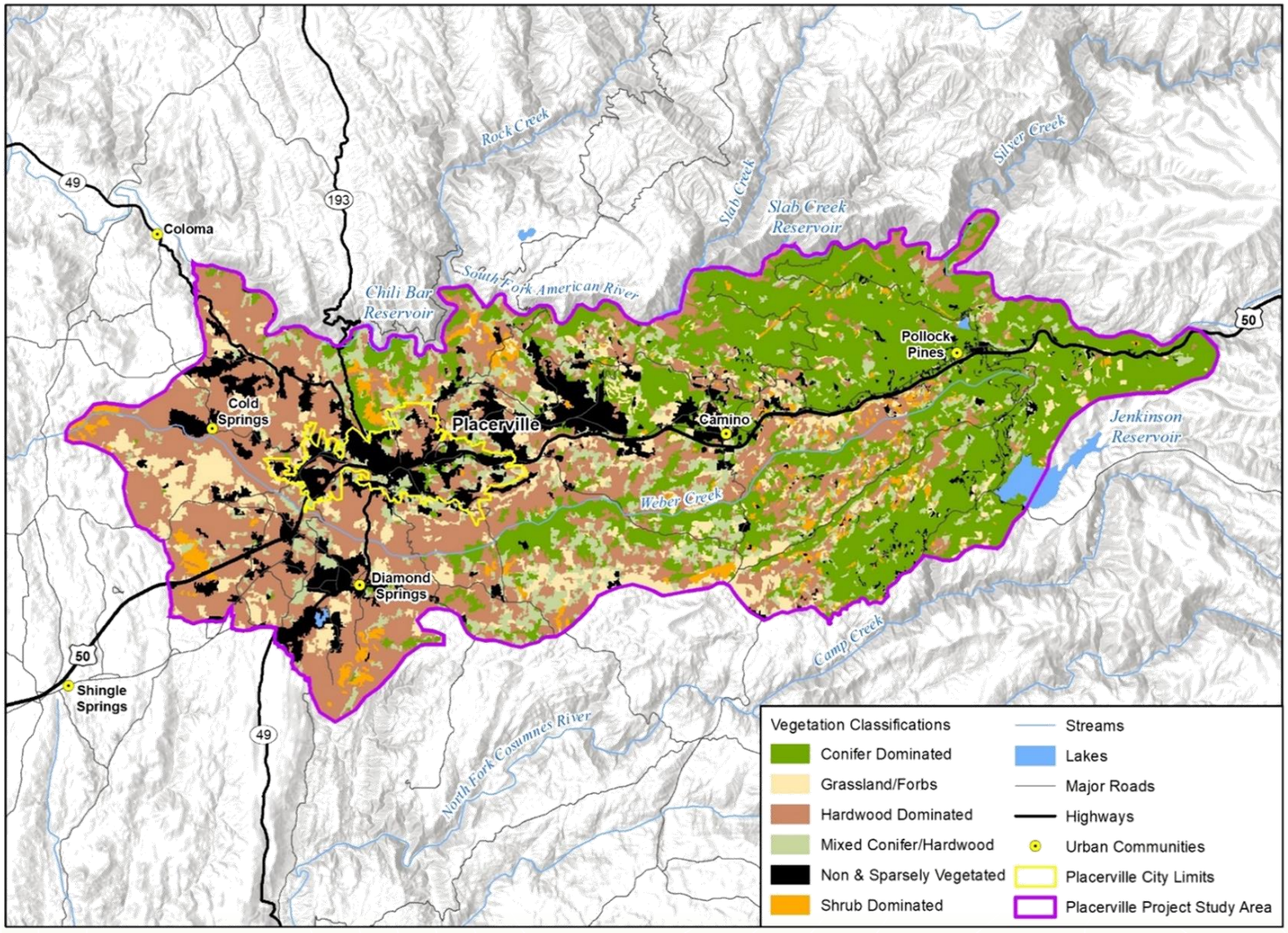
Wildfire risks are influenced by both natural and human-made ignition sources, vegetation, topography, and weather. To fully grasp the wildfire problem within the PPSA, it is essential to understand how these factors interact. Wildfires have long been a part of the Placerville area's ecosystem and will continue to be in the future. Therefore, to effectively assess wildfire hazards and risks and create a strategy to mitigate their impacts on the community, it is crucial to understand the area's vegetation, fire behavior, management history, fire history, and how humans interact with these elements.

4.1. Vegetation Cover and Structure/Fire Behavior

The existing conditions analysis uses the Existing Vegetation (EVeg) polygon feature class which is a Classification and Assessment with LANDSAT of Visible Ecological Groupings (CALVEG) map product rendered from a scale of 1:24,000 to 1:100,000 for CALVEG Zone 5, Central Valley. The source imagery for this layer ranges from the year 1998 to 2015. The CALVEG classification system was used for vegetation typing and compared to other classification systems in this database including the California Wildlife Habitat Relationship System (CWHR). Figure 4-1 provides a detailed look at the current vegetation composition in the PPSA and a way to analyze vegetation changes over time.

Vegetation dynamics in the PPSA have undergone significant shifts in the last century. At lower elevations, Blue Oak Woodland, Blue Oak-Foothill Pine, and Foothill Pine habitats, have declined, with grasslands expanding, likely due to grazing, woodcutting, development, and population growth in El Dorado County (Hall et al. 1992; US Census Bureau 2024). This is evident with the hardwood and grassland vegetation classifications within the western portion of the PPSA. Meanwhile, chaparral also decreased, likely transitioning into Montane Hardwood or Montane Hardwood-Conifer types. At higher elevations, Ponderosa Pine declined by as much as 64%, replaced by Montane Hardwood and Douglas-Fir forests. This shift could result from canopy loss, promoting oak expansion, especially since oak species regenerate via stump sprouting in areas cleared by fire or logging (Thorne et al. 2008). Historical patterns support this trend, with conifers observed to retreat upslope since the 1800s (Thorne et al. 2008). These changes reflect broader disturbance and succession processes, potentially altered by warming temperatures; according to NOAA's 2023 Annual Climate Report the combined land and ocean temperature has increased at an average rate of 0.11° Fahrenheit per decade since 1850, or about 2° F in total (NOAA 2024). These changes in climate could delay vegetation recovery and increase susceptibility to additional disturbances before reaching historic conditions (Thorne et al. 2008). As shown in Table 4-1, current vegetation coverage within the PPSA is dominated by coniferous forests (Douglas-Fir and Ponderosa Pine) on the east end and hardwood forest (primarily Blue and Valley Oak) on the west end, with pockets of mixed forest (Pine and Oak), herbaceous vegetation and shrubland mixed throughout.

Figure 4-1 Existing Vegetation Types within the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, CALVEG, SIG

0 2.5 5 Miles

N

Table 4-1 Existing Vegetation Type and Coverage within the PPSA

Vegetation Type	Coverage
Coniferous Forest	33%
Hardwood Forest	33%
Herbaceous Vegetation	9%
Mixed Forest	11%
Non-Forest Open	12%
Shrubland	3%

NOTE: Existing Vegetation Type and Coverage within the PPSA (CALVEG Classification and Assessment with LANDSAT of Visible Ecological Groupings). Coverage type percentages have been rounded to the nearest whole number.

4.2. Vegetation Management Stand History

The past management history of the PPSA has strongly influenced stand structure, species composition, fuel loads, and potential fire behavior at both stand and landscape levels. At the landscape level, past management activities have had a marked effect on forest structure and potential fire behavior. While data from the early 20th century are not available to test this assertion rigorously, it is based on comparisons with early conditions inferred from numerous historical accounts, documented fire histories, and structures of uncut stands (McKelvey et al. 1996).

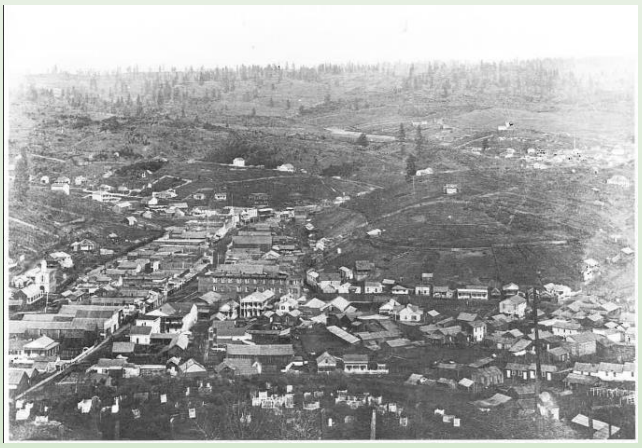
In the 20th century, reductions in the area burned by wildfire due to fire suppression, combined with generally warmer, moister conditions, significantly increased both the quantity and connectivity of live and dead fuels in forests. These changes have resulted in denser stands of shade-tolerant and fire-sensitive tree species, particularly in smaller and medium size classes, with competition, disease, and insects replacing fire as the primary thinning mechanism. Accumulated dead fuels now exceed pre-settlement levels. Forest management has accelerated these trends, with logging practices focusing on large overstory trees, which in turn promote dense understory growth and greater uniformity of fuel structure across landscapes (McKelvey et al. 1996). As a result of these past management activities, trees and forest stands across the Sierra Nevada have been described as "generally younger, denser, smaller in diameter, and more homogeneous" (McKelvey et al. 1996; USDA Forest Service 2023); this condition is typical of forests in the PPSA. As with many areas in the Sierra Nevada, the landscape in the PPSA has also been heavily influenced over the last 150 years by mining; grazing; timber harvesting; fire exclusion; large, high-severity fires (Young 2003; Beesley 1996); and more recent drought-related mortality (Restaino et al. 2019; Guarin and Taylor 2005).

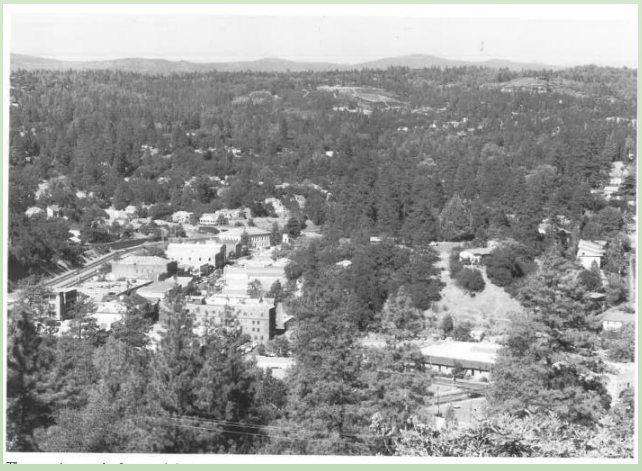
Past harvest activities in the PPSA landscape were focused primarily on overstory removal and sanitation or salvage harvest, with a shift toward even-aged forest management systems in the 1980s. Past use of these harvest systems is consistent with well-documented overall management practices that occurred over vast areas of the Sierra Nevada during the 20th century (Beesley 1996; Leiberg 1902).

4.3. Fire History

Wildfires ignited by both lightning and historically by Indigenous Peoples have been an integral ecological process across the PPSA for millennia. The behavior, effects, and impacts of wildfires across the Sierra Nevada and in this region have changed dramatically since the Gold Rush and more recently as fuels and fire behavior have been affected by climate change in the 21st century, resulting in several megafires in the Sierra Nevada region (Steel et al. 2023). Of specific significance to the PPSA are the recent King (2014), Caldor (2021) and Mosquito (2022) Fires, which demonstrated the possible size and severity of fires in the PPSA. Moreover, the fire season in the Western U.S. has markedly lengthened since the 1980s largely due to warming temperatures and earlier snow melt (Westerling et. al. 2006; Kapnick and Hall 2009). Dendro-ecological research into pre-Gold Rush fire season dynamics indicates that most fires in the Northern Sierra Nevada occurred between August and the onset of the wet season (Moody et. al. 2006). However, fire season duration in Western forests increased 78 days (64%) compared to 1970 to 1986 and 1987 to 2003 (Westerling et. al. 2006).

Before fire exclusion and intensive timber harvesting in the early to mid-20th century, the relatively frequent occurrence of fires generally contributed to open stands dominated by large-diameter, fire-resistant trees with relatively low surface fuel loads interspersed with areas of young seral stands (Weatherspoon 1996, USFS 2023). In 1902, John Leiberg traversed an area from north Lake Tahoe through Quincy and through the region along the





The top photo shows the Placerville town center in 1858, and bottom photos shows the City in 1994 shot from the same location. Dense vegetation has grown up between all the buildings and the open spacing of conifers on the hill behind the town has grown into a dense forest.
Source: "Fire in Sierra Nevada Forests" Gruell 2001

Quincy Oroville Highway–a region comparable to the PPSA. He mapped forest cover and described the surface fuels in unharvested forests on the Plumas National Forest as follows: "There is no humus; the forest floor is bare, or at the most is covered with a layer of pine needles rarely exceeding 2 inches in depth, most commonly an inch or less" (Leiberg 1902).

The PPSA includes dominant vegetation types of Montane Hardwood, Montane Hardwood-Conifer, Douglas-Fir, Ponderosa Pine, Sierran Mixed Conifer, Blue Oak Woodland, and Mixed Chaparral (Thorne et al. 2008). These vegetation types have historically experienced frequent fires until the Gold Rush Era (Markwith and Paudel 2022) when indigenous burning and fuelwood gathering practices were disrupted by Euro-American settlers and further affected in the early 20th century when effective suppression of lightning-caused fires the standard practice (Allen 2002).

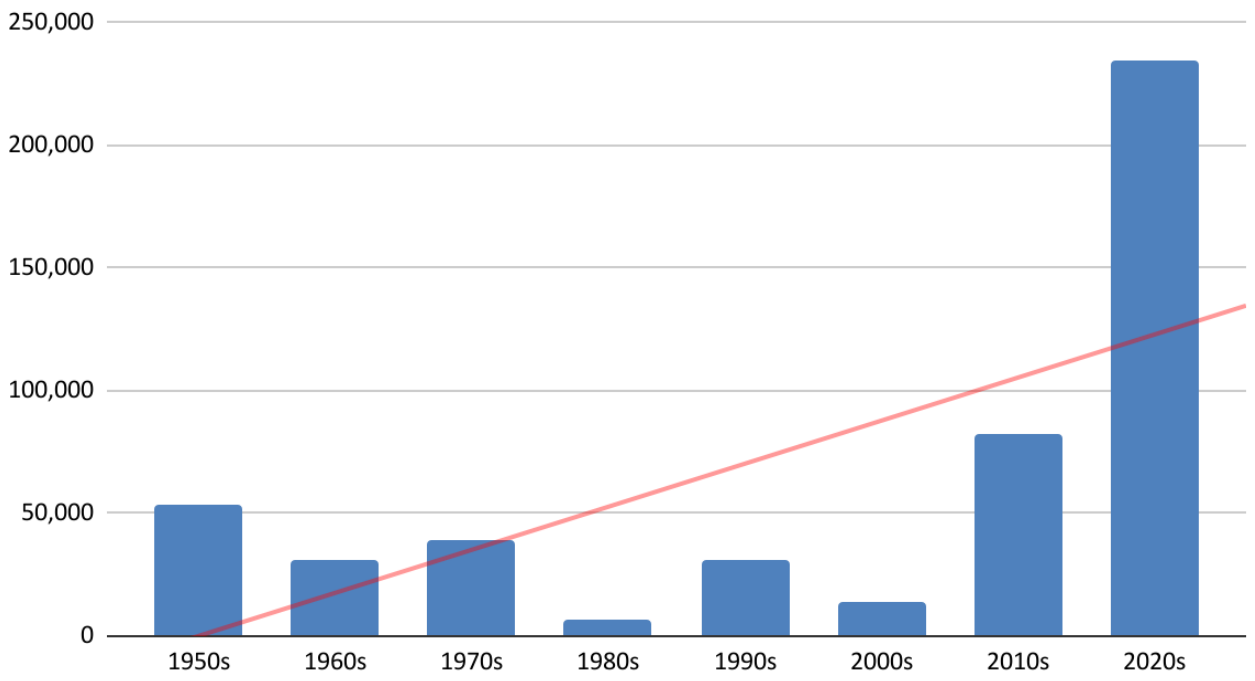
Before effective fire exclusion, the median fire return interval (FRI) in Douglas-Fir Mixed Conifer forests within the eastern portion of the PPSA was estimated to be 15 years while the Blue Oak-Gray (Foothill) Pine forests in the western portion of the PPSA was estimated to be 29 years. While the Douglas-Fir Mixed Conifer FRI has stayed relatively stable, the entire historic record shows that the Blue Oak-Gray Pine FRI has shifted dramatically over time to the contemporary median FRI of 8 years (Skinner and Chang 1996). Much of this change in Blue Oak-Gray Pine FRI can be attributed to human activity such as the introduction of non-native annual grasses and rangeland burning in the early 20th century (Fryer 2007).

Given the spatial and temporal extent of past fires, well documented in scientific literature (Taylor 2000; Moody et al. 2006; McKelvey et al. 1996), this type of surface fuel loading would have been much more common before fire exclusion than the ubiquitous high surface fuel loading found today in areas that have not experienced prescribed fire, wildfire, or other fuel treatments. Overall, the historical vegetation structure, species composition, and surface fuels reflected, in part, past fire regimes, as well as both the land management practices of Indigenous Persons (Anderson 2005) and the land uses of the thousands of settlers who moved to the Placerville regions after the Gold Rush (Young 2003).

4.3.1. Recent Wildfires

The total number of acres burned per decade in El Dorado County has steadily increased since the 1970s with the current decade accounting for more acres burned than the sum of the previous six decades. Figure 4-2 and Table 4-2 show these trends. Recent fires have also produced dramatic increases in high severity burning, a trend seen across the Sierra Nevada and Cascade Range (Steel et al. 2023). Moreover, in summer of 2024, the Pay Fire and an unnamed fire burned over 77 acres within the Placerville city limits (CAL FIRE 2024d; Rasco 2024), while the Crozier fire burned 1,970 acres just north of the PPSA in a three-day period (CAL FIRE 2024b).

Figure 4-2 Acres Burned in El Dorado County by Decade



Source data is taken for CAL FIRE 2023 fire parameters and clipped to the County. Note that some burned areas overlap.

Table 4-2 Total Number of Acres Burned by Decade in El Dorado County

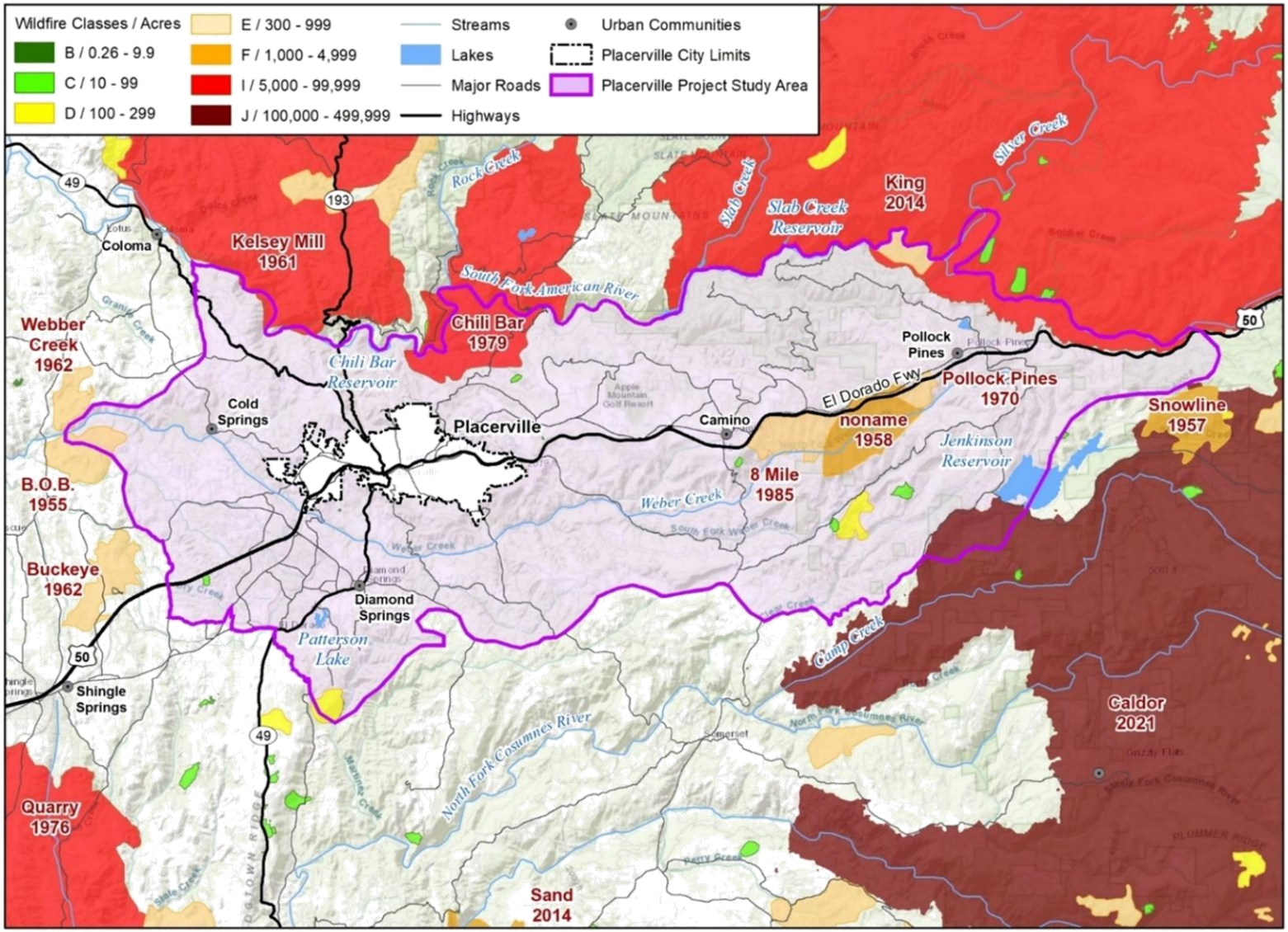
Decade	Acres Burned by Wildfire
1950s	58,422
1960s	33,627
1970s	40,228
1980s	7,510
1990s	31,950
2000s	16,619
2010s	84,597
2020s	235,160
Total Acres Burned Since 1950	**500,602**

Source: CAL FIRE 2023, Note: Some burned areas overlap.

El Dorado County has experienced some of the most damaging wildfires in California. For example, the 2020 Caldor Fire burned 221,786 acres, including the town of Grizzly Flats and Sierra-at-Tahoe Ski Resort, destroying 1,005 structures and damaging 81 more (CAL FIRE 2024a). While there is not a single figure for the overall cost of the Caldor Fire, it has been reported that the fire resulted in $1.2 billion in economic loss including damaged and destroyed property (Aon 2021). According to Triple Point Strategic Consulting, the Caldor Fire

cost the Lake Tahoe Basin's tourism economy "$268 million, which is the amount of direct visitor spending that did not occur. If multiplier impacts were added, the total impact would likely reach $400 million (TPSC 2023)." Additionally, it has been reported that the fire suppression cost the Forest Service $271 million (Whitaker 2022). The majority of the Caldor Fire structure damage occurred within 60 hours of ignition (NASA 2023; CAL FIRE 2021a), which is consistent with recent findings from Balch et al. (2024). Beyond the direct impacts to communities and infrastructure, megafires such as the Caldor Fire can influence issues such as homelessness, mental health, and ecosystem degradation for years after the fire (Troy et al. 2022a). Other large fires in the County include the Mosquito Fire (2022), the Cleveland Fire (1992); and the King Fire (2014) which was ignited by arson, burned 97,685 acres, and destroyed 80 structures (USDA 2024). Yet, as shown in Figure 4-3, the PPSA has not been impacted by fires greater than 2,425 acres in over 74 years.

Figure 4-3 Fire History Perimeters: 1950-2024



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, CAL FIRE

0 2.5 5 Miles

N

4.4. Fire Regime/Fire Return Intervals

An alarming trend in western forests is the propensity of high severity burn areas to reburn with relatively higher frequency and severity than areas that were not burned at high severity (Lydersen et al. 2019). The impacts of these large, hot fires go beyond the documented injuries, structure losses, and deforestation. As such, a community may require decades to recover from wildfires of this type, which can create or exacerbate mental health problems, substance abuse, and poverty, particularly for the elderly, economically disadvantaged groups, and the uninsured. Additionally, fire recovery can reduce business opportunities and property tax revenues, in turn affecting all public services, including education, law enforcement, and community health services (Troy et al. 2022a), all without significantly reducing the reoccurrence of fire in the affected area.

Table 4-3 shows the largest fires in El Dorado County in the period of 1996–2024, and the burn severity (Monitoring Trends in Burn Severity) as a percentage of the fire footprint clipped to El Dorado County. The recent Mosquito Fire (2022), despite being relatively small in size, resulted in 60 percent of the area being burned at high severity; meaning that the overstory trees show greater than 75 percent mortality, crown char is typically 100 percent, and significant branch loss is present into the crown (USGS 2024).

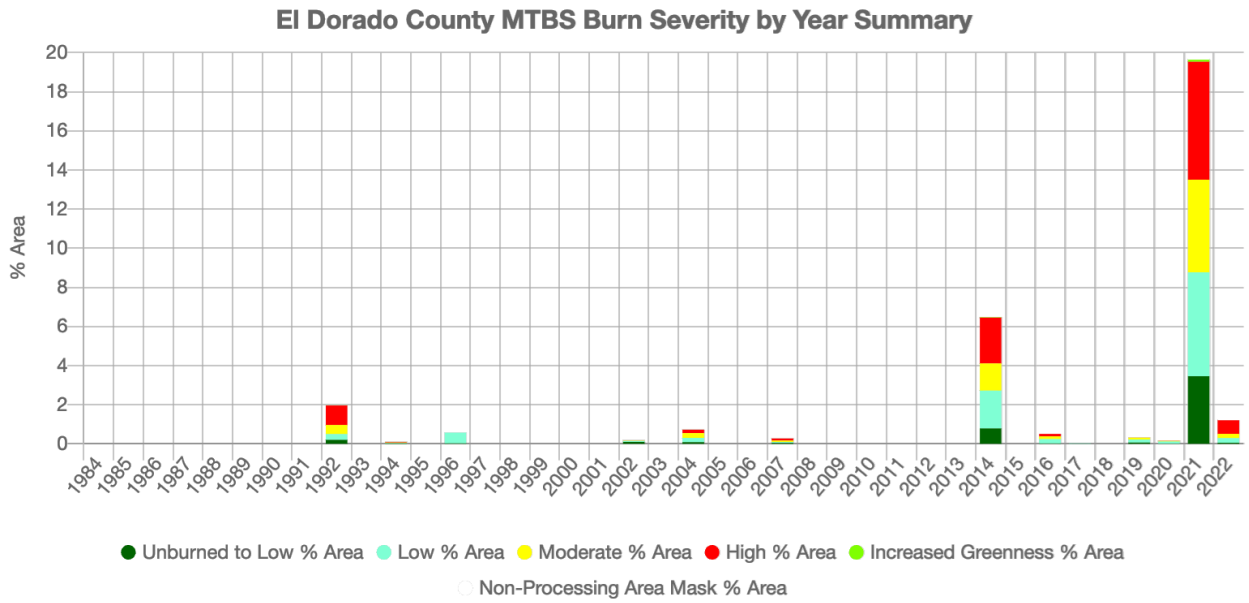
Table 4-3 Recent Large Fires in El Dorado County and Resulting Burn Severity (1996–2024)

Fire Name	Fire Year	% Unburned - Low Severity (acres)	% Low Severity (acres)	% Moderate Severity (acres)	% High Severity (acres)	Increased Greeness (acres)	Total Acres
Caldor	2021	15%	28%	25%	31%	<1%	219,799
King	2014	8%	31%	21%	40%	<1%	68,370
Cleveland	1992	9%	14%	23%	53%	<1%	22,519
Mosquito	2022	2%	19%	19%	60%	<1%	13,356
Freds	2004	7%	31%	36%	27%	<1%	7,558
Scott	1996	3%	97%	0%	0%	0%	6,376
Trailhead	2016	2%	44%	28%	26%	<1%	5,525

Source USDA Forest Service

Figure 4-4 shows a comprehensive assessment of Monitoring Trends in Burn Severity (MTBS) as a percentage of land area in El Dorado County 1984-2023. The years 2022, 2021, 2016, 2014, 2004, 1996, and 1992 correspond with the large fires. 2021 is a standout year for fires in El Dorado County, both in terms of size and severity. In 2021, approximately 20 percent of the El Dorado County burned, with 6 percent burning at high severity.

Figure 4-4 Monitoring Trends in Burn Severity (MTBS) as a % of County Area: 1984-2023



Source USDA Forest Service, Note: No fires meeting the ≥1000-acre threshold for MTBS were reported in 2023.

4.5. Climatic Patterns

Over the past two decades, El Dorado County has experienced a marked shift in weather patterns that significantly amplify the risk of wildfires. The changing climate dynamics, particularly in the PPSA, have created a feedback loop of increasingly hot, dry conditions that serve as a perfect catalyst for wildfire ignition and spread. Some of the key factors contributing to this trend include:

- **Prolonged Droughts and Reduced Snowpack.** California's historical Mediterranean climate—characterized by wet winters and dry summers—has been disrupted. Data from the California Department of Water Resources show a 30% decline in the Sierra Nevada snowpack over the past 20 years. This snowpack, a critical water reservoir, now melts earlier and faster, leaving soils desiccated by late spring. Simultaneously, precipitation deficits have become chronic, with the region experiencing a series of "megadroughts," such as the one between 2000 and 2021, identified as the driest 22-year period in the past 1,200 years (Williams et al. 2022).
- **Rising Temperatures.** Average temperatures in the Sierra Nevada foothills have risen by nearly 2°F since 1980. This warming accelerates moisture loss from vegetation and soils, further increasing fuel aridity. These hotter conditions have also expanded the fire season, which now spans nearly year-round compared to its historical limitation to late summer and early fall.
- **Increased Wind Events.** Another critical factor is the rise in extreme wind events,

particularly during the fall months when vegetation is at its driest. The Diablo winds, known for fanning wildfires in Northern California, have increased in both frequency and intensity.

- **Amplified Wildfire Risk.** These conditions—prolonged drought, higher temperatures, and extreme winds—create an environment where even small ignition sources can lead to catastrophic fires. Empirical evidence supports this: the Caldor Fire (2021) burned over 221,000 acres in El Dorado County and exhibited extreme fire behavior largely attributed to these climatic factors. The fire's rapid spread underscored the danger of dry fuels and high winds.
- **Future Projections and Risks.** Looking forward, climate models predict that the Placerville area and greater Sierra Nevada foothills will see further reductions in annual precipitation, combined with more erratic rain events and hotter summers[7]. Without significant mitigation efforts, the incidence of large, destructive wildfires is likely to rise. Moreover, post-fire landscapes, often stripped of vegetation, may fail to recover adequately, leaving them prone to erosion and further degradation, perpetuating the cycle of vulnerability.

Smoke from the Crozier Fire, which sparked near Slate Mountain northeast of Placerville, prompted evacuation orders in the Mosquito/Swansboro communities and additional warnings in the surrounding areas.

Source: Courtesy photo from the Mountain Democrat

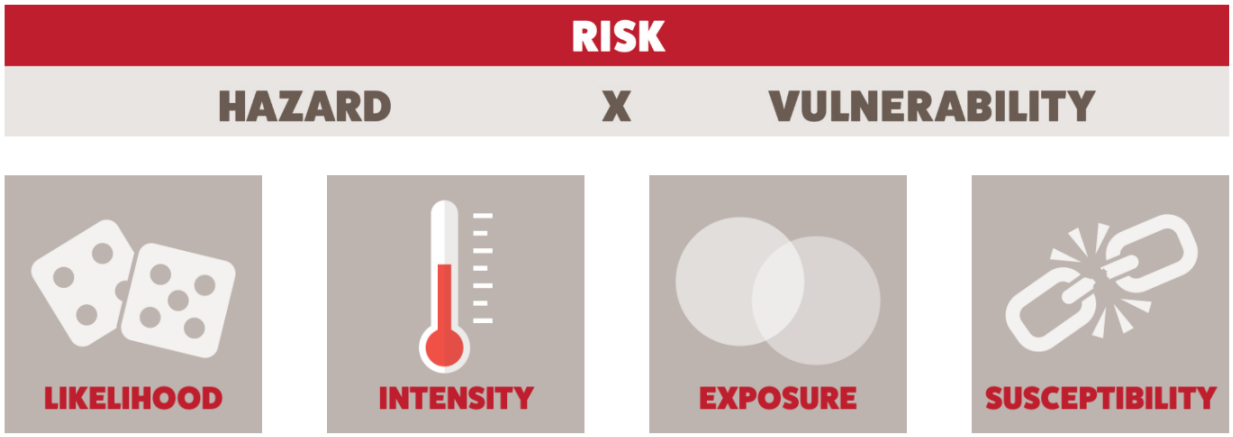
5. Fire Hazard and Risk Assessment

Given the high fire risk in the County and surrounding areas, a comprehensive wildfire risk assessment was conducted to identify the most vulnerable communities and support strategic planning and preparedness efforts. The assessment included hazard, exposure, and vulnerability analyses, using a combination of research, desktop analysis, field verification, wildfire modeling, geospatial analytics, current studies, and best practices. This process was carried out in collaboration with the El Dorado RCD, TAC, and various stakeholders and experts. The goal of the assessment is to provide a framework for prioritizing wildfire mitigation strategies across the County.

5.1. Methodology

Much work has been done to define and clarify risk and hazard as they pertain to wildfire. Hazard is a combination of the probability of wildfire occurrence (i.e., burn probability) and the type of fire that the available fuels would produce (i.e., flame length). Figure 5-1 shows risk is a composite of the likelihood of fire, the projected intensity of that fire, the assets that are exposed to that fire, and susceptibility (the natural inclination of the fire to cause damage to a community's assets.

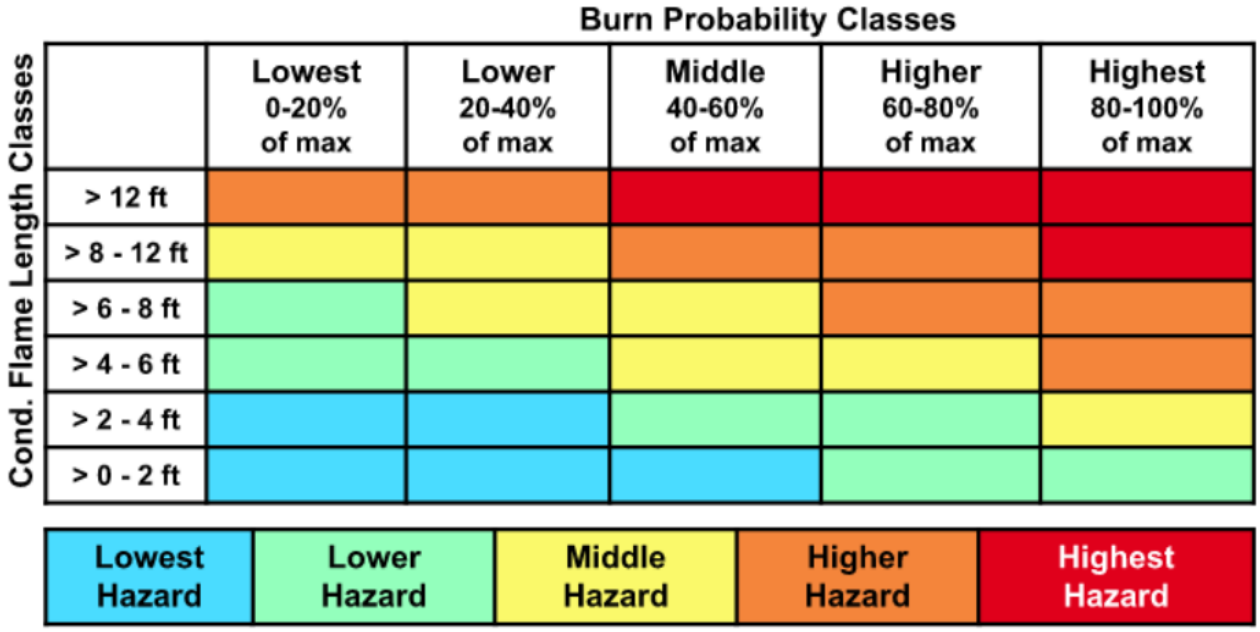
Figure 5-1 Risk is the Combination of Hazard and Vulnerability



Source: USFS 2024

Figure 5-2 illustrates that wildfire risk is an assessment of the hazard (we define likelihood and intensity as burn probability and flame length respectively) and susceptibility and exposure. The highest hazard are those areas that have high potential greater than 12-foot flame lengths and the highest burn probability classification. Exposure is the spatial coincidence of wildfire likelihood and intensity with communities, whereas susceptibility is the propensity of a home or community to be damaged if a wildfire occurs (USDA 2024).

Figure 5-2 Hazard as Defined by Conditional Flame Length and Burn Probability



Source: IFTDSS

The fire hazard and risk assessment used data and modeling to characterize existing conditions with respect to wildfire history and potential. Multiple standard wildfire models and datasets were used to evaluate wildfire effects–these include the First Street Foundation™ Wildfire Data, which is commonly called Fire Factor™. Specifically, the analysis uses mean conditional flame length, which is produced by simulating potential wildfire events, analyzing fire spread based on local fuels, topography, and weather. Additionally, CAL FIRE's Fire and Resource Assessment Program's (FRAP) Fire Probability for Carbon Accounting projections for 2021-2050 are incorporated into the analysis. The analysis also incorporates the base "no treatment" run of the Forest Carbon Analysis Tool (FCAT) for projecting fire hazard in five-year time steps for fifteen years which is discussed below. These models provide a framework to assess current and future fire risk and hazard in the PPSA.

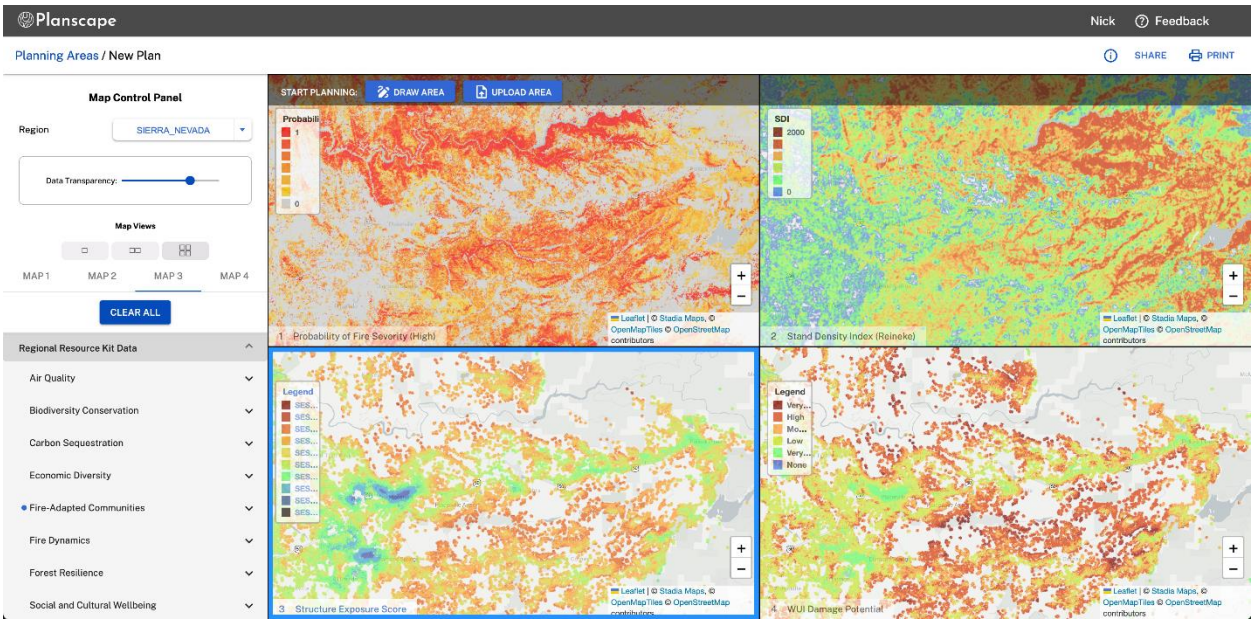
To address specific concerns within the PPSA, custom maps are used to illustrate isolated clusters of dense homes and other structures prone to fire spread (CAL FIRE 2023a), older buildings constructed before the 2008 California Building Code changes (*Chapter 7A Materials and Construction Methods for Exterior Wildfire Exposure*) that greatly improve home survivability when exposed to fire (CAL FIRE 2023a; IBHS 2020), and mobile home locations which, as a building type, are particularly prone to ignition and destruction (CAL FIRE 2023a).

5.1.1. Planscape

Planscape is also employed in the analysis. Planscape is a free decision support tool built to maximize wildfire resilience and ecological benefits across the State of California. This platform helps regional planners prioritize landscape treatments to mitigate fire risk, maximize ecological benefits, and help California's landscapes adapt to climate change. Planscape maintains a library of geospatial ecological datasets that allows users to explore a

project area before beginning treatment scenario planning. Figure 5-3 shows the "explore" interface with the following data layers displayed: Probability of Fire Severity (High) (top left), Stand Density Index (top right), Structure Exposure Score (bottom left), and WUI Damage Potential (bottom right).

Figure 5-3 View of Planscape's Explore Interface



It is important to note that the areas with the highest stand density and probability of high severity fire do not always coincide with the areas where there is the highest risk to the built environments. Planscape's side-by-side graphical display of critical metrics allows users to parse and balance the metrics of concern to create targeted treatments. Planscape's Explore feature also allows users to look at up to four indices at the same time, providing a comprehensive approach to fuel mitigation treatment pre-planning. More information on Planscape's treatment scenario development and outputs is included in Appendix B: Methodology.

5.1.2. Model Assumptions

Model assumptions were intended to represent the range of typical wildfire conditions, where typical is defined as up to the 90th percentile based on available historical data. Fire hazard assessment results presented in this report may differ from other analyses of wildfire in the region due to variations in model assumptions. Given model input for spatial variation in fuels (i.e., live and dead vegetation) across the project area (i.e., 30-meter x 30-meter satellite imagery resolution, updated in 2023), results should be interpreted based on trends at a scale of greater than 100 acres and spatial results should not be interpreted on a pixel-by-pixel basis. In addition, vegetation and fuels can change in the future due to natural processes,

disturbance, or land management. No wildfire models currently have the ability to estimate extreme wildfire conditions when a wildfire generates its own weather conditions, thus the fire hazard assessment results presented here do not characterize extreme wildfire conditions.

5.2. Wildfire Hazard Assessment

The following sections explain how conditions flame length, annual burn probability, and fire type can affect wildfire risk in the PPSA.

5.2.1. Conditional Flame Length

Perhaps the most useful data in a wildfire analysis is Fire Factor Mean Conditional Flame Length, as shown in Figure 5-4. Flame length provides detailed information on the type of fire that can be expected if an ignition were to occur. Flame length measures the predicted height or length of flames under specific fire behavior conditions, such as wind speed, fuel type, and moisture levels. It provides insights into fire intensity and the potential difficulty of suppression efforts. In wildfire mitigation planning, flame length helps identify areas where fire intensity could exceed thresholds for safe suppression or where embers might travel far, igniting new areas. Planners use the flame length data to prioritize treatments like thinning, prescribed burns, and defensible space creation to reduce flame length and mitigate fire risks to communities and infrastructure. Flame length is highest in areas that burn as heading fires or that experience crown fire and lowest in areas that burn as a flanking, backing, or surface fire (FSF 2023). This metric is crucial for identifying high-risk zones and designing interventions tailored to local fire behavior potential, which improves the overall efficiency of wildfire management strategies.

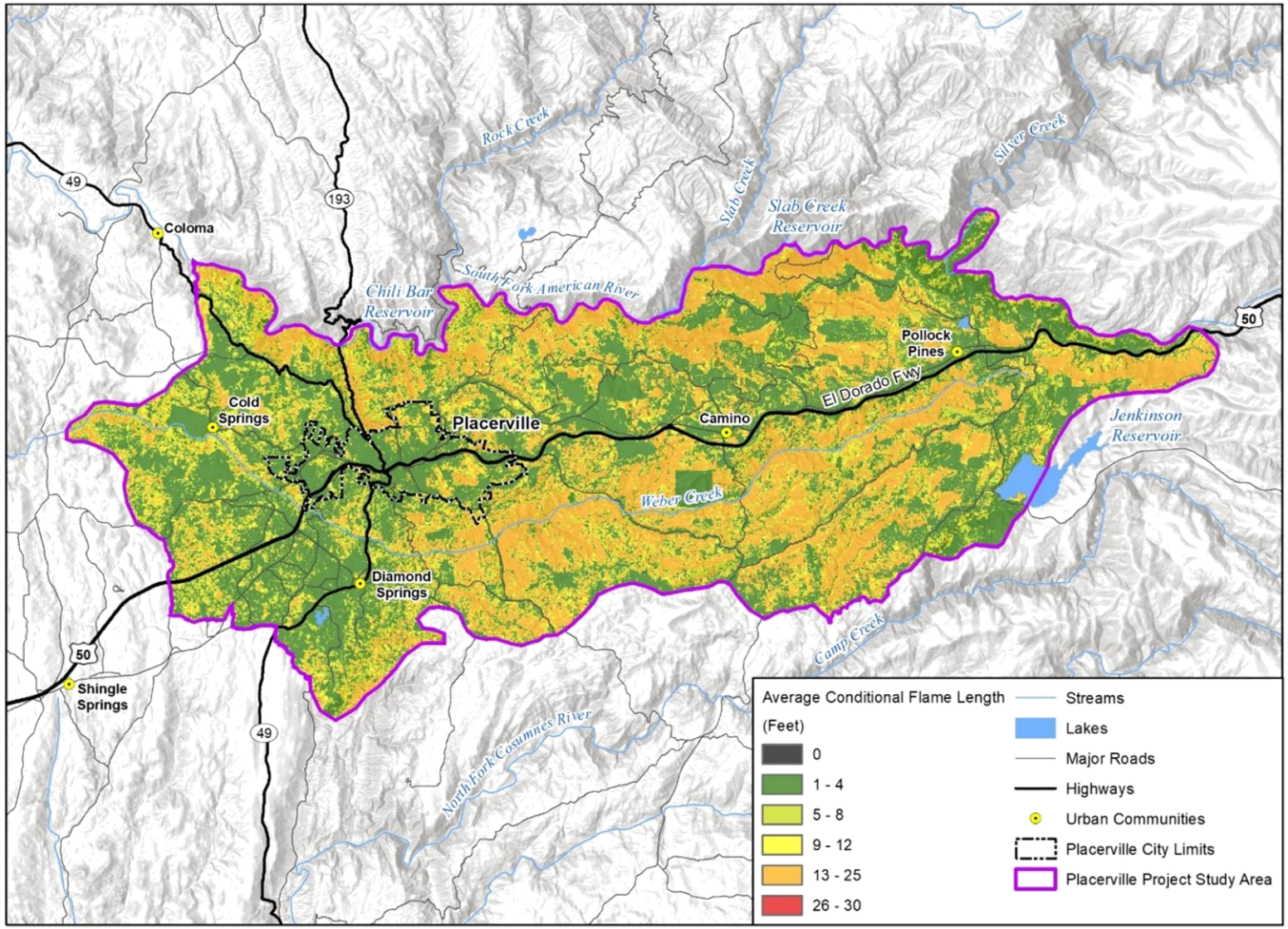
Table 5-1 provides details on flame length characteristics and how they relate to firefighting strategies. Of specific concern are flame lengths greater than 8 feet, as they generally lead to crown fires that make fire containment difficult, if not impossible. Moreover, these types of fires often burn at high severity, producing high tree mortality, increasing the likelihood of fire reoccurrence (Lydersen et al. 2019).

Table 5-1 Relationship between Flame Length and Potential for Suppression Success

Flame Length	Description
Less than 4 feet	Fires can generally be attacked at the head or flanks by firefighters using hand tools. A hand line should hold the fire.
4–8 feet	Fires are too intense for direct attack at the head with hand tools. A hand line cannot be relied on to hold the fire. Bulldozers, engines, and retardant drops can be effective.
8–11 feet	Fire may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective.
Greater than 11 feet	Crowing, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective.

Source: NWCG 2004

Figure 5-4 Fire Factor Mean Conditional Flame Length



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG

5.2.2. Fire Probability

In contrast to conditional flame length, CAL FIRE's FRAP Fire Probability for Carbon Accounting projections (2021-2050) provide insight into future fire risk and hazard. Figure 5-5 illustrates the fire probability within and around the PPSA for 2021 through 2050. It is assumed that not all the fuel mitigation work that is suggested in this report will be addressed immediately. As such, the strategy accounts for changes in the scenario over time. The FRAP wildfire probability model uses historical fire data, vegetation and fuel characteristics, climate variables, topography, and human land-use patterns to estimate the likelihood of wildfire occurrence across California. These predictions are used to create spatial maps that inform wildfire risk management, and targeted mitigation strategies.

The built environment in the PPSA was assessed from several different but interrelated perspectives. Specifically, the construction year, distance between structures, and building type were analyzed as these characteristics can contribute significantly to the evaluation of fire hazard. The County property parcels within the PPSA were mapped with parcels that have buildings constructed before and after 2008 marked in red and green respectively, as shown in Figure 5-6. Buildings built before California's 2008 *Chapter 7A* building code change, mandating fire-resistant materials and features, often lack beneficial protections such as ember-resistant vents and non-combustible roofing, making them more prone to ignition during wildfires (Troy et al. 2022b; IBHS 2020).

Figure 5-5 CAL FIRE FRAP Fire Probability for Carbon Accounting Projections: 2021-2050

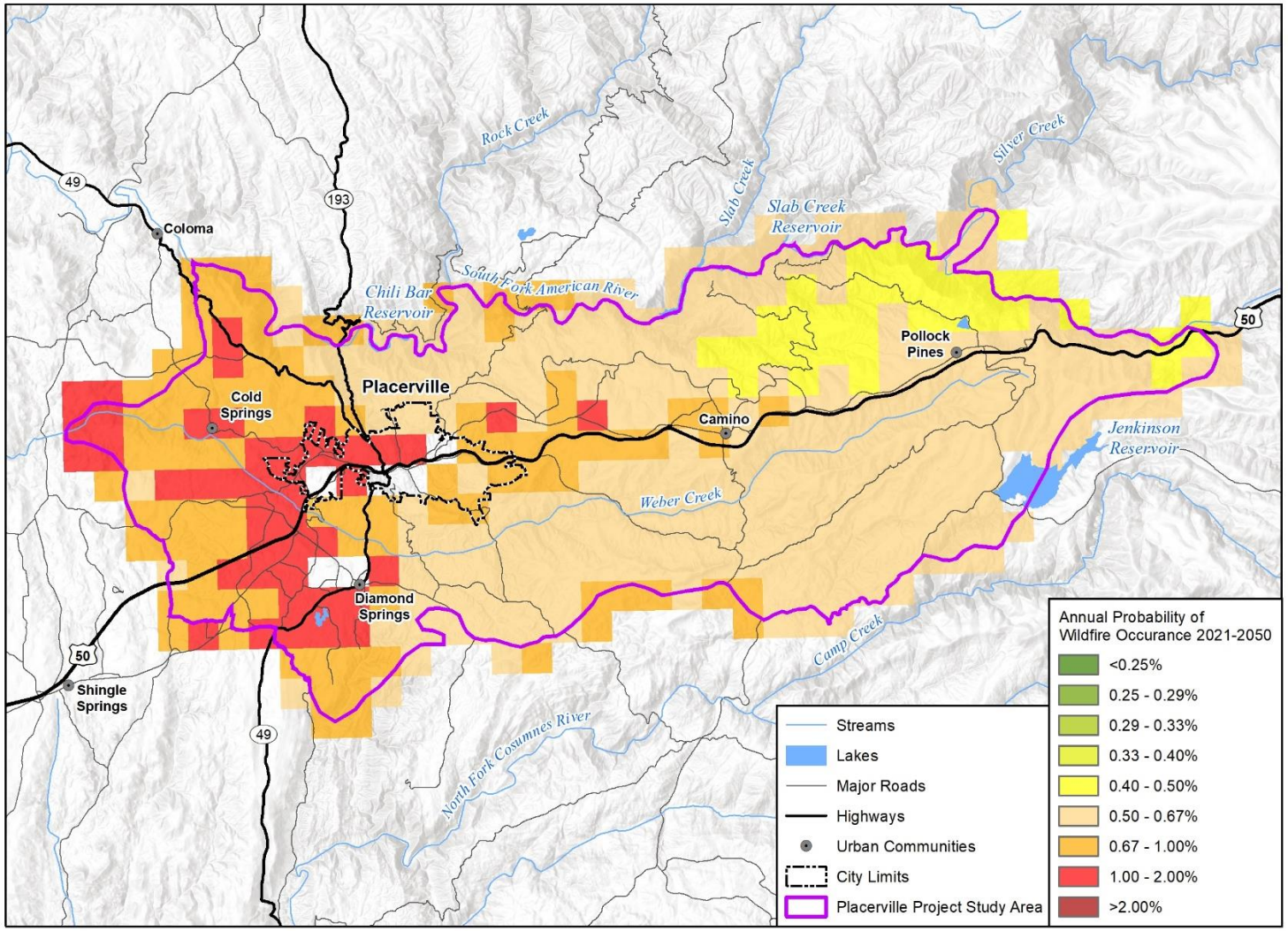
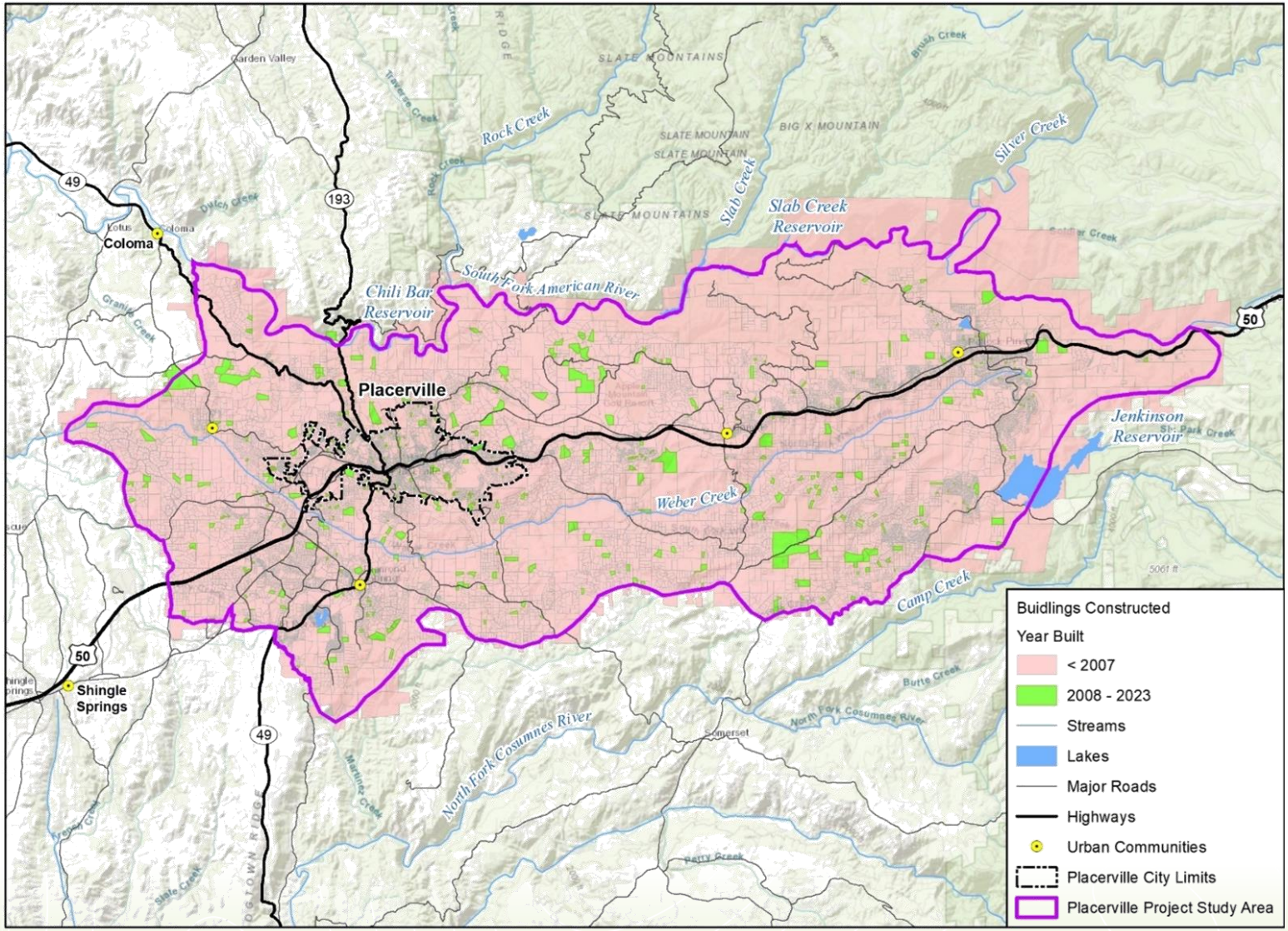


Figure 5-6 Buildings Constructed Before 2008 vs. Building's Constructed After 2008



5.2.3. Structure Density

The analysis also evaluates structure density in Figure 5-7 and mean conditional flame length in relation to building footprints in Figure 5-8. In the wildland-urban interface (WUI), structure density and building type are critical factors in assessing wildfire hazard and management (CAL FIRE 2023a; IBHS 2020; Restaino et al. 2020). As shown in the figures, the building footprints in red are of highest concern due to their proximity (30 feet or less) to other buildings. High-density developments increase the likelihood of structure-to-structure ignition and reduce the effectiveness of defensible space, while scattered, lower-density areas can create challenges for emergency response (CAL FIRE 2023a; Restaino et al. 2020). Building types such as mobile homes and homes without permanent foundations are particularly susceptible to fire due to lightweight construction and less fire-resistant materials (Troy et al. 2022b).

Finally, metrics such as conditional flame length and building footprints can be combined to assess the structures that are at highest risk. Figure 5-8 shows conditional flame length isolated to 300-foot radii circles (buffers) around the building footprints in the PPSA. Those structures with the most exposure to high potential flame lengths are those north and south of the U.S. 50 corridor, and, to a lesser degree, at the west end of the PPSA. This analysis complements and corresponds with the structure exposure and WUI damage potential assessments run in Planscape.

Figure 5-7 Structure Density Map

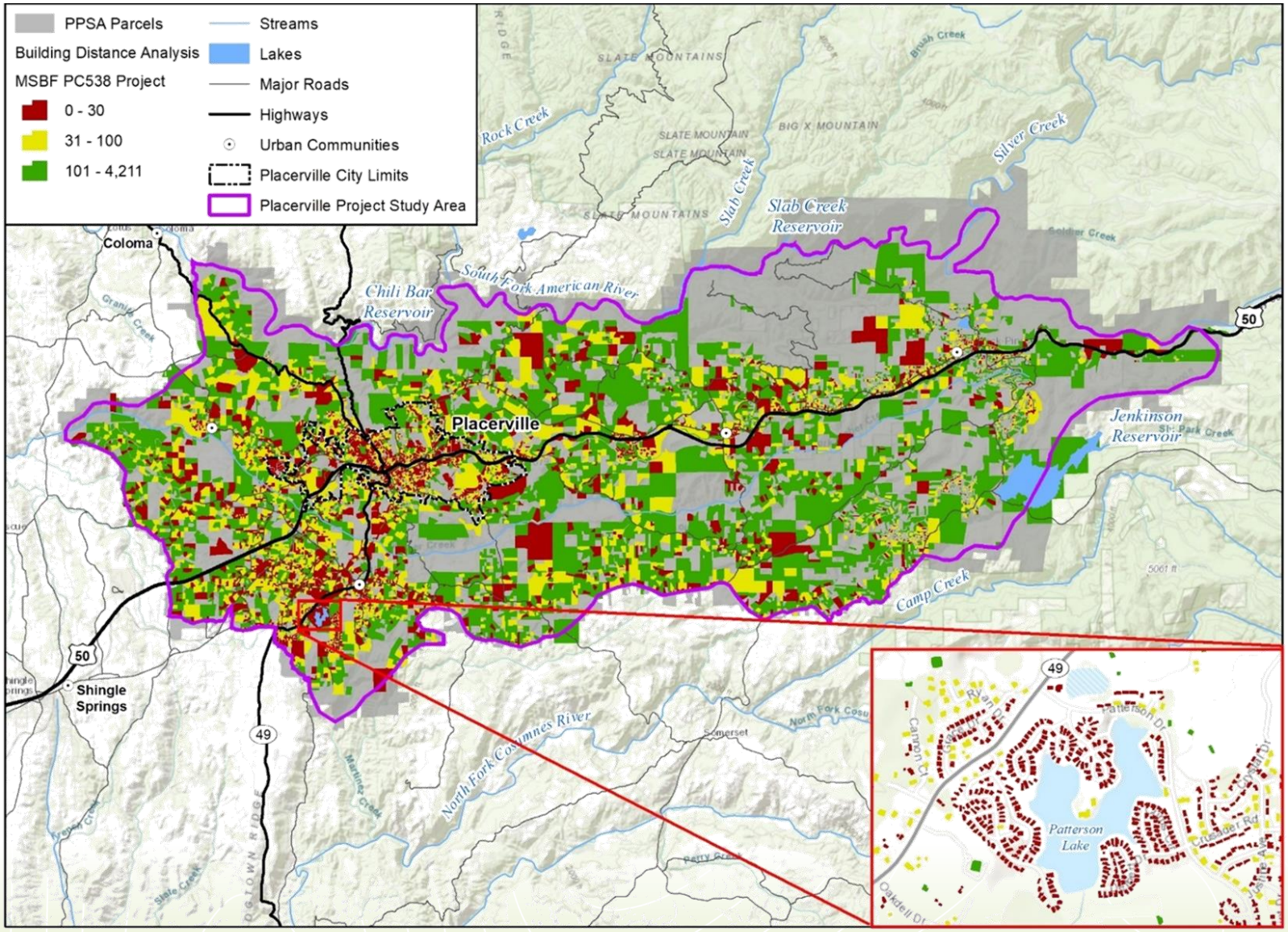
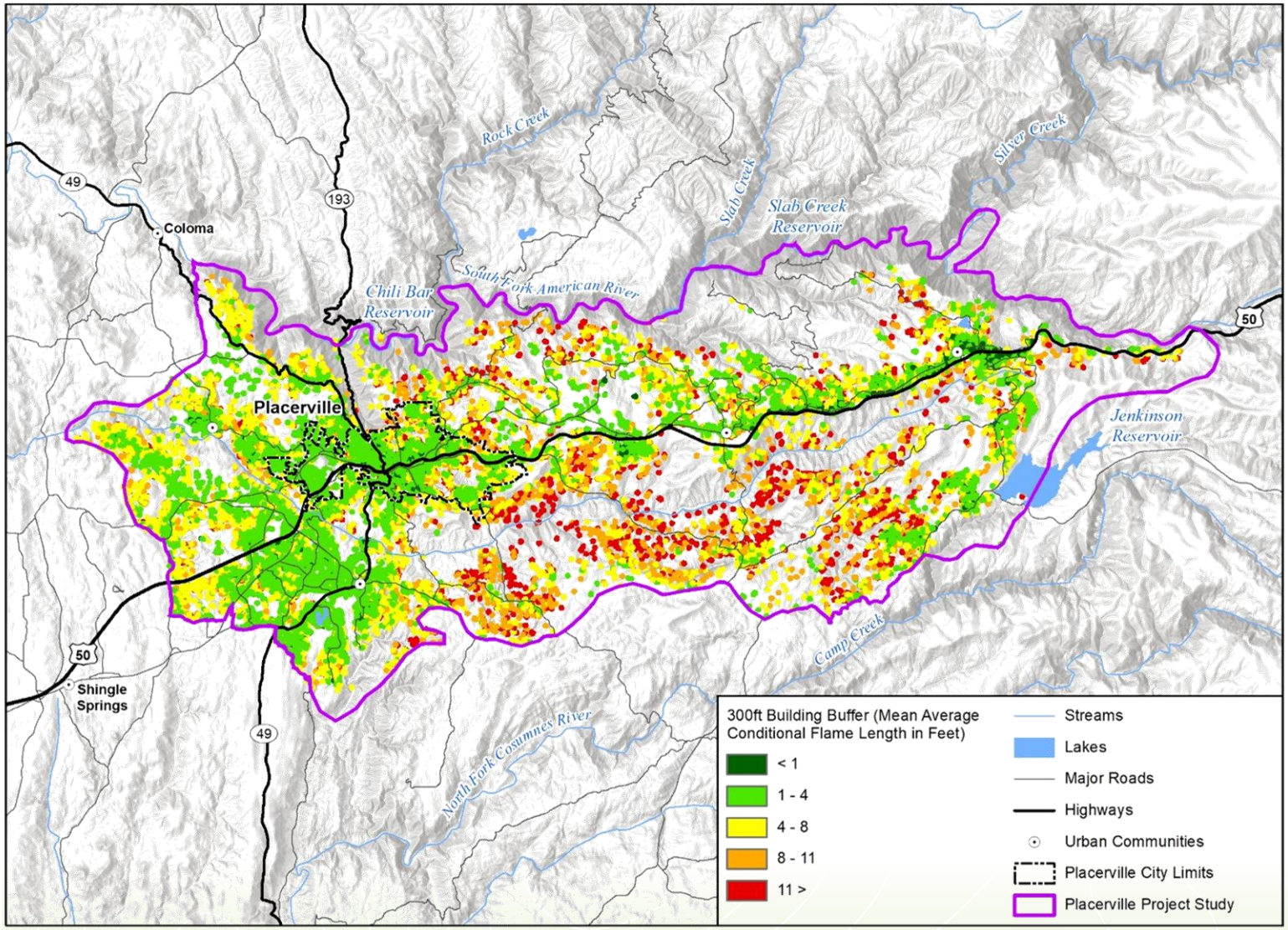


Figure 5-8 Mean Conditional Flame Length within 300 Feet of Building Footprints



5.2.4. Fire Types

In addition to flame length, the predicted type of fire is closely linked to the potential for extreme fire behavior, such as how the fire spreads (either along the surface or through the tree canopy). The type of fire also influences the strategic and tactical fire suppression options available to fire agencies during a wildfire. For example, the likelihood of crown fires or rapidly spreading brush fires may determine the use of aircraft or the adoption of indirect attack methods.

The following outlines different fire types and how they can affect potential fire behavior.

- Surface fires tend to burn loose vegetation along the ground, herbaceous vegetation (i.e., grasses), shrubs, small trees, and saplings that are at or near the surface of the ground.
- Crown fires occur when fires burn the forest canopy that lies well above the surface fuels, including live and dead branches and tall shrubs. Passive crown fires occur when a crown fire only burns individual or small groups of trees, while active crown fires occur when a crown fire extends from the surface to the canopy and fire can spread from one tree crown to another through the canopy.

Spotting, radiant heat, and direct flame from vegetation can ignite individual or groups of homes, but the capacity to effectively model house to house fire spread is still very limited, though post fire studies can help inform our understanding of various factors affecting structure loss (Troy 2022).

5.3. Risk Assessment & Exposure Analysis

The risk of a wildfire occurring within the PPSA was based on the conditional flame length, fire probability, and fire type.

Given the vegetation changes observed in the PPSA since the Gold Rush era, the compounding effects of wildfire suppression policy and the lack of prescription burning, and the increase in population and associated building development in the WUI, the analysis confirms the concerns described in the previously mentioned reports (refer to Table 3-2). When looking at the fire scenarios developed in the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study* and comparing them to recent fires in El Dorado County (Caldor, King, and Mosquito), there are considerable wildfire risks to life and property in the PPSA.

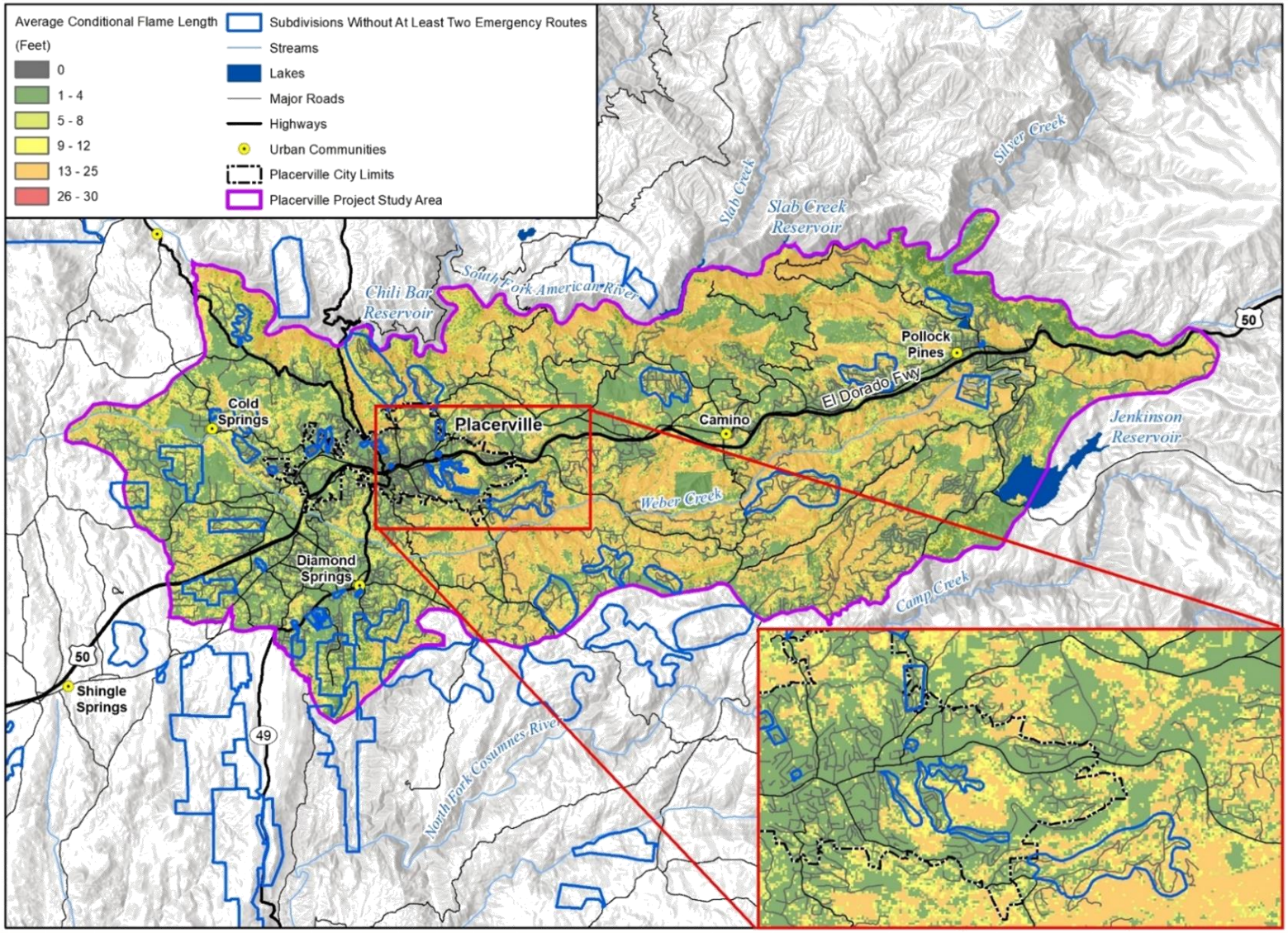
Wildfire hazard, as seen through the lens of mean conditional flame length, is concentrated on the north and south edges of the PPSA surrounding U.S. Highway 50 with concentrations along the South Fork of the American River, the North and South Forks of Weber Creek, and the tributaries to these drainages. Aside from isolated pockets of high wildfire risk, such as those seen in and around Lumsden Park, the City of Placerville has relatively low wildfire hazard concerns. However, when future fire hazard potential is taken into account using FRAP burn probability data, there is a distinct shift in projected hazard from the periphery to the center and west end of the PPSA including Diamond Springs. As a tool for management, burn

probability can be thought of as the areas that are most likely to experience fire, based on location with respect to topography, common weather and wind patterns, and surrounding vegetation. Areas where fire movement is most facilitated by these factors, called fire corridors, tend to show a higher burn probability.

Nonetheless, there are present-day concerns within Placerville and Diamond Springs that demand attention and will serve to mitigate future hazards. These are areas where older (pre-2008) buildings are densely packed, accompanied by high flame length projections, and limited evacuation accessibility, such as one way in/one way out neighborhoods (see Figure 2-6). Areas within Placerville that met these criteria are Lumsden Park and, to a lesser degree, the area south of Placerville Airport along Texas Hill Road. Additional areas of concern include developments in Diamond Springs such as the neighborhood along Patterson Drive leading to Tombstone Mountain. Figure 5-9 shows mean conditional flame length in relation to one-way in/out neighborhoods in the PPSA. As shown in the inset, the neighborhoods in Lumsden Park and Texas Hill are at elevated risk based on modeled high flame length predictions.

Figure 5-10 shows the mean conditional flame length in relation to critical facilities and key utility corridors and schools. There are also notable “fire sheds” that could conduct wildfire into the built environment that warrant consideration. Weber Creek, between Cold Springs and State Route (SR) 49, and Big Canyon along SR 193 stand out. Also, of particular concern is the concentration of critical facilities, schools, and utility infrastructure that fall between or adjacent to these two firesheds.

Figure 5-9 Mean Conditional Flame Length and One-Way In/Out Neighborhoods

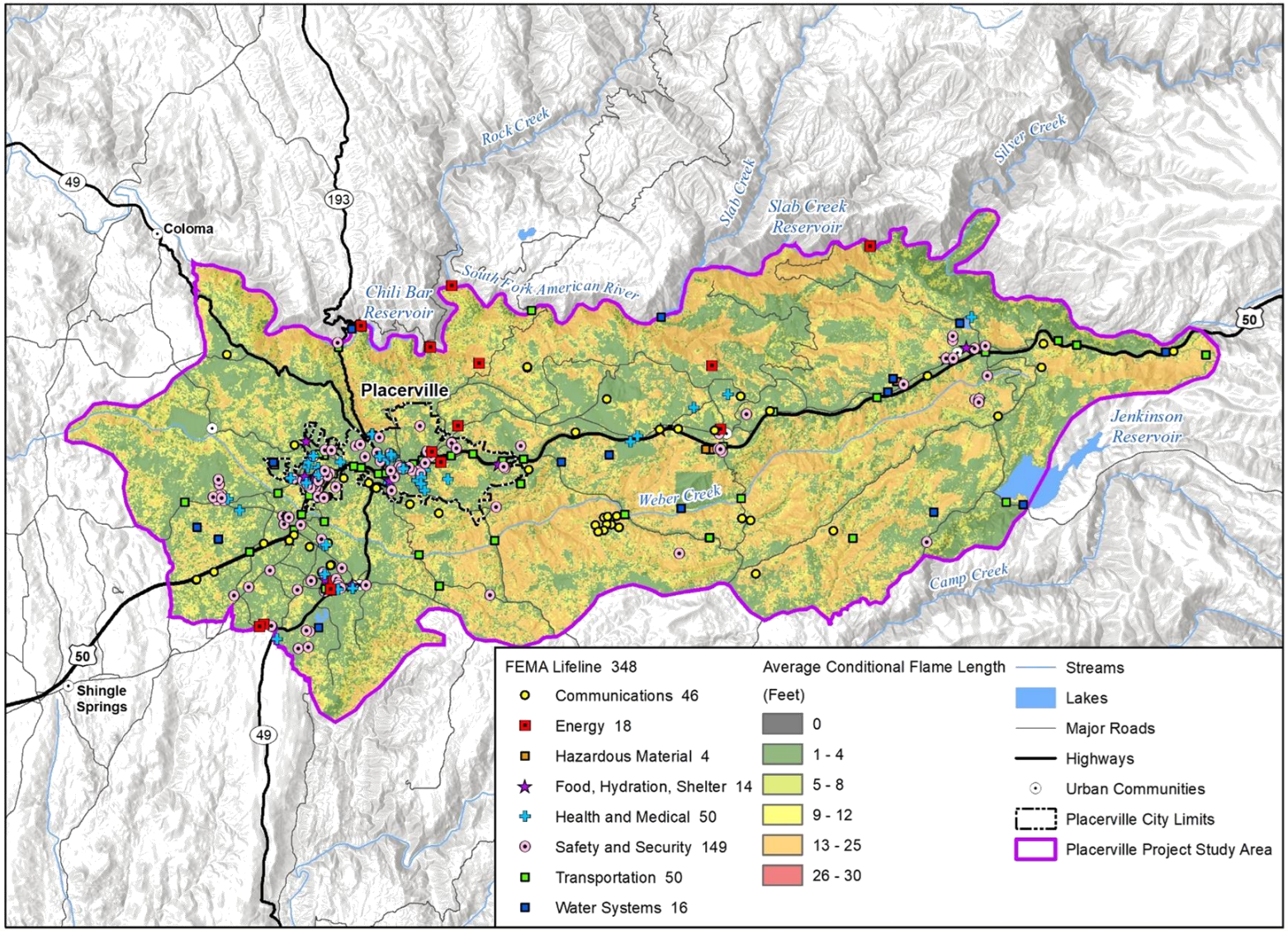


Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG

0 2.5 5 Miles

N

Figure 5-10 Mean Conditional Flame Length in relation to Critical Facilities and Utilities



Map compiled 1/2025;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG, HIFLD, California Department of Education, Georgetown Divide PUD

5.3.1. TAC and Community Input on Risk Assessment

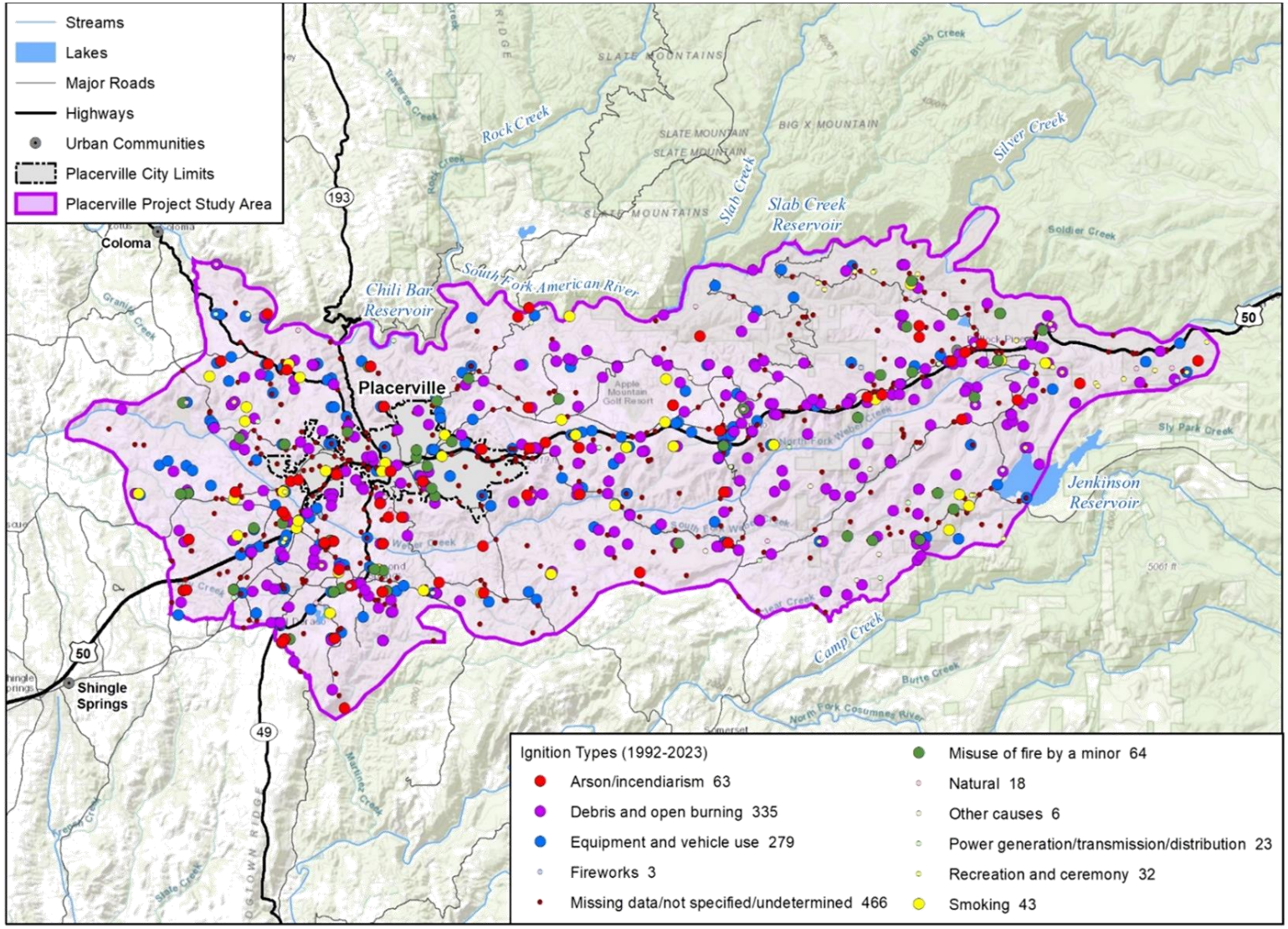
Unique to this assessment of wildfire risk and hazard in the PPSA is the engagement and involvement of the community–professionals with background in forestry and wildfire science, and the general public. Our team hosted several meetings with the community as well as producing a web-based survey that allowed participants to geospatially mark areas of concern throughout the PPSA. Additionally, the survey allowed participants to include notes, attach photos and documents. The 67 surveys submitted proved valuable in providing context for the analysis.

Furthermore, input was provided by the TAC in two meetings. Of particular concern to the TAC was the incorporation of dead and downed fuels, known fire ignition data, likely fire ignition locations, and fire weather into the analysis. Dead and downed fuel is addressed in the Planscape treatment scenario planning (discussed below). Ignition data was considered as well. However, this data proved problematic and ultimately disregarded. As shown in Figure 5-11, ignition locations in the PPSA clustered in areas with the highest population density—these are areas with the lowest fire risk. Most of the datapoints in the data set are categorized as missing data, not specified or undetermined. Moreover, in several cases, the ignition location was on the corner nearest to a firehouse, indicating that some of the reports were not accurate—thus drawing the entire dataset into question.

Likely ignition locations were similarly considered. While humans cause 89% of wildfires in the U.S. (Congressional Research Service 2023), the random nature of these ignitions (e.g., disregarded cigarettes, unattended campfires, equipment malfunction, etc.) make it impossible to predict their location. However, previous work in the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety and Resilience Study* provides four likely wildfire scenarios (Chili Bar Fire, Slab Creek Fire, Martinez Fire, and Bucks Bar Fire), so named by the general ignition area. These fire scenarios prove better for fuel treatment planning than attempting to predict specific locations where an ignition may occur as they provide a largescale, holistic approach to fire mitigation planning based on known hazards and risk.

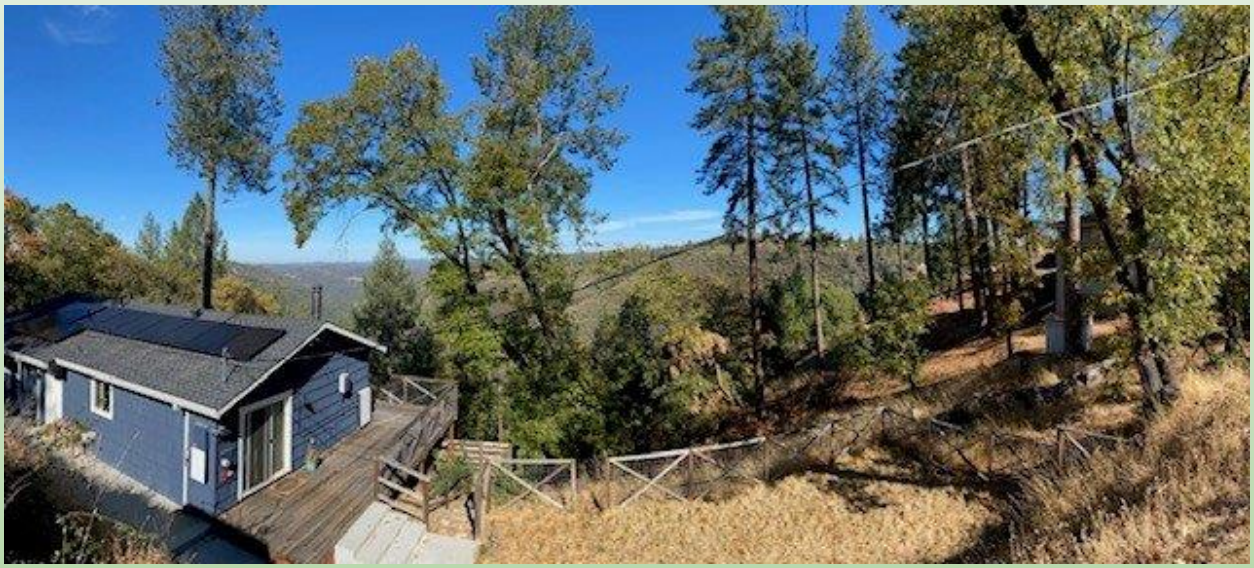
Similar to ignition prediction, weather prediction, as it relates to fire, is also problematic. The *Greater Placerville Wildfire Evacuation Preparedness Study: Existing Conditions Report* used the Caldor Fire as a case study and found that "the Caldor Fire was not significantly influenced by [the] prevailing winds" in the PPSA. The report went on to state that the "combination of uphill runs, trailing winds, and heavy forest formations most likely contributed to a significant increase in fire intensity and the development of firestorm conditions," thus highlighting that the randomness of ignition location, the surrounding geography and forest structure and conditions have more to do with fire outcomes that the prevailing winds within the PPSA. As such, it was determined that taking a holistic approach to fire mitigation planning is preferable to predictive planning.

Figure 5-11 Ignition Data for the PPSA



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG

View from Oak Terrace Road above Big Canyon. Note this home's wooden deck overhanging the steep, densely vegetated slope leading into Big Canyon.



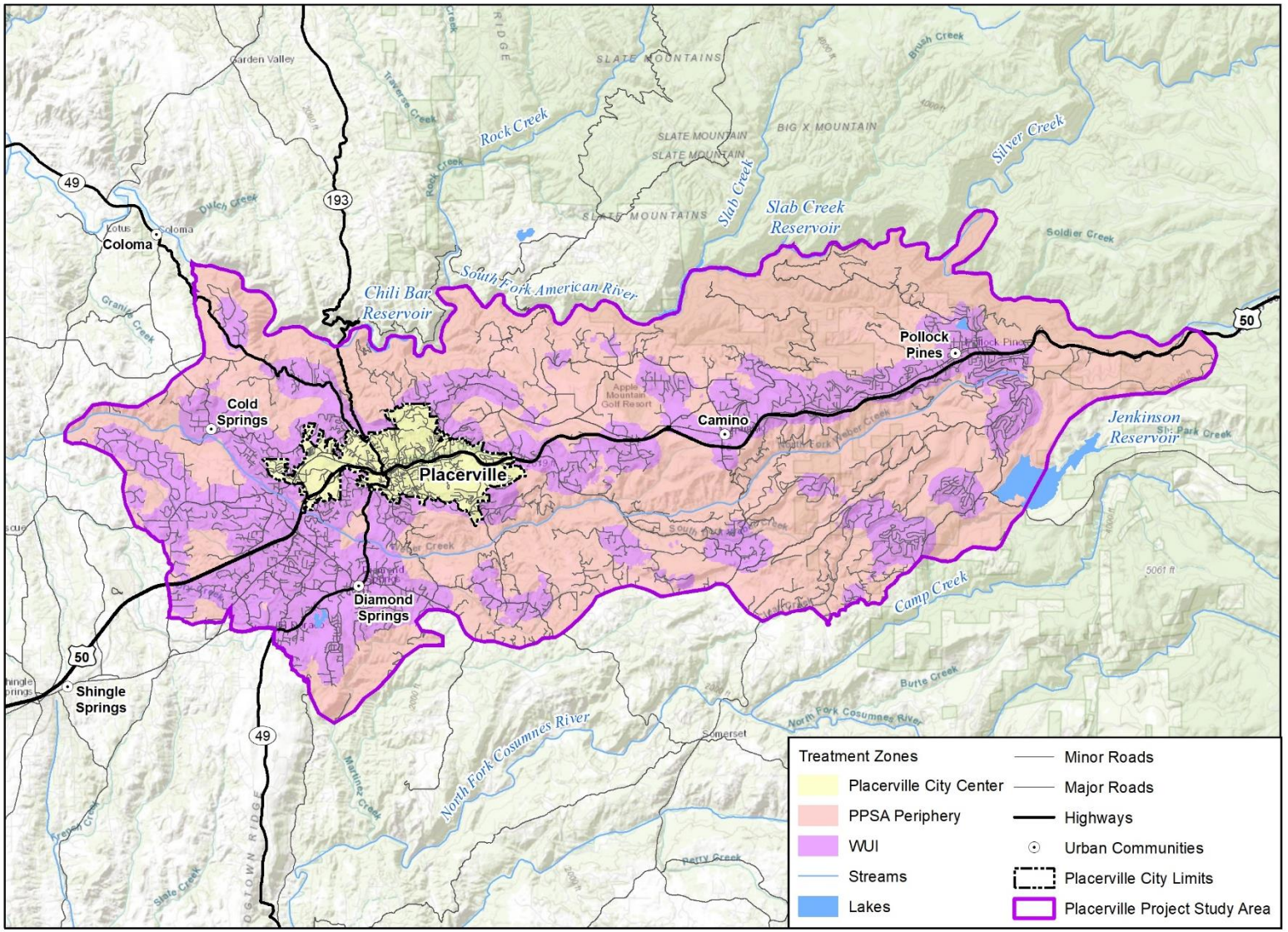
Source: WSP 2024 Juliana Prosperi

6. Fuel Treatment Suitability Analysis

6.1. Fuels Treatment Mitigation Strategy

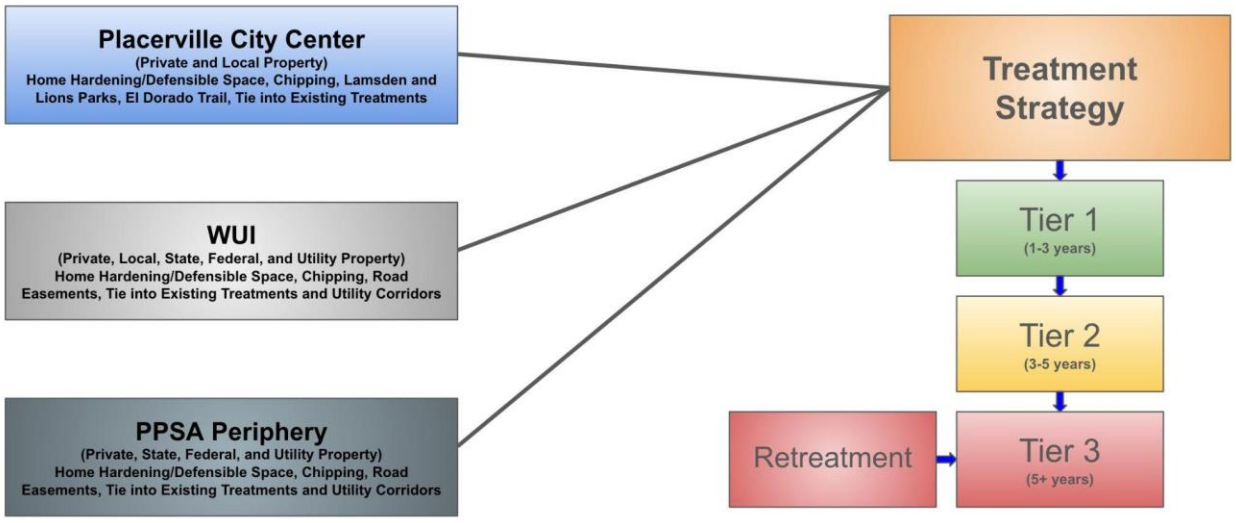
The fuels treatment mitigation strategy for the Placerville CWRS is organized into a three-pronged approach that offers a holistic, layered wildfire defense for the PPSA. The strategy focuses simultaneously on the Placerville city center, the surrounding WUI, and the periphery of the PPSA. These three treatment zones are depicted in Figure 6-1. Next, Figure 6-2 illustrates a three-pronged approach for these three treatment zones. The plan's layered design is structured to help protect life, property, and cultural and natural resources as it acknowledges the unpredictable nature of fire ignition locations, addresses fire pathways that allow wildfire to enter the built environment, and the need for private property owners to harden structures and create defensible space. At the same time, the strategy for where to prioritize treatment projects facilitates treatment connectivity throughout the PPSA by integrating planned, active/in-progress, and completed treatments from a variety of stakeholders often working independently on the wildfire issue.

Figure 6-1 Placerville Project Study Treatment Zones



The proposed three-pronged approach is tiered such that projects are ordered in 1-3 years (high priority), 3-5 years (medium priority), and 5+ years (long-term strategy) stages. Based on the vegetation dynamics in the PPSA, it is assumed that, by the time the third tier of the project is reached, areas previously treated will have regrown to a degree that they will need to be assessed for potential maintenance or retreatment. Accordingly, retreatment projects are built into the fuels mitigation strategy. Moreover, this approach addresses the three prongs of a wildfire mitigation strategy in each tier, such that the layered wildfire defense will be implemented from the beginning of the project and reinforced in each of the subsequent tiers. Figure 6-2 shows how the three-pronged approach to fuels mitigation is broken up into three temporal tiers with re-treatment projects entering the plan in the third (5+ year) tier of the strategy.

Figure 6-2 Three-Pronged Approach to Fuels Mitigation



Source: SIG 2024

6.2. Recommended Fuel Treatment Activities

6.2.1. Methodology

Approach and Alignment:

The CWRS is the product of a multi-faceted approach that integrates spatial data analysis, community and stakeholder engagement, and field-based observations. Key datasets used in the analysis of wildfire risk include conditional flame length (Figure 5-4), structure density (Figure 5-7), structure type (

Figure 2-7), structure build date as it relates to home hardening requirements (Figure 5-6), and a road network analysis (Figure 6-8). Furthermore, findings from natural hazard assessments and preparedness reports for El Dorado County and the City of Placerville were, where relevant, incorporated (Table 3-2). The information garnered from these sources provides critical insights into wildfire risk, potential fire behavior, and community vulnerability within the PPSA. Moreover, the alignment of the CWRS with previous reports and plans related to natural hazard mitigation and response creates continuity in plan structure, terminology, and focus. Finally, fuels and vegetation management projects (planned, active/in-progress, and completed) were integrated into the plan to create continuity and link together otherwise uncoordinated treatments in the PPSA in a cohesive wildfire defense strategy.

To ensure local relevance and alignment with on-the-ground realities, interactive public meetings were held (Table 3-1), and a community survey was conducted to capture residents' perspectives and concerns regarding wildfire risk and hazard, and potential mitigation measures (Figure 3-3). Planning input was further refined through collaboration with the TAC (Table 3-3). Finally, extensive project area tours were conducted with the El Dorado RCD, WSG, WSP, and SIG to validate GIS data and gather qualitative observations of terrain, vegetation conditions, and accessibility challenges. In order to augment and analyze the field team's observations, unmanned aerial vehicle (UAV) and ground-based imagery was captured as part of these tours.

Figure 6-3 shows UAV imagery of Placerville looking north across US Highway 50 from Sacramento Hill. El Dorado High School is visible on the left side of the image. Placerville is a densely vegetated city with narrow roads, and, in many cases, tightly packed structures. Such characteristics produce high fire risk concerns due to hazards in the city and, particularly, those outside the city in the WUI and periphery treatment areas.

Figure 6-3 UAV Image of Placerville and US Highway 50 Corridor

Source: SIG 2024

As noted above, the CWRS includes a review of natural hazard reports specific to the PPSA and its surroundings. These reports detail historical wildfire events, evacuation bottlenecks, and critical infrastructure vulnerabilities. The information garnered from the review and plan alignment process was compiled, translated into GIS layers, and combined with the fire risk and hazard layers produced specifically for the Placerville PWRS. Thus, a geospatial database representing the interplay between fire risk, community assets, and environmental constraints was created for both quantitative and qualitative treatment planning.

6.2.2. Existing, Planned, and Proposed Fuel Treatment Activities

A critical element of the CWRS is the integration of new (proposed) treatments with previously planned, active/in-progress, and completed fuel treatments in the PPSA. These treatments are or were organized by a variety of government agencies, utilities, not-for-profit organizations, and community organizations. As part of this data and plan integration process, potential need for retreatment of previously completed projects was assessed based on a given treatment's completion date and the prevailing vegetation type at the treatment location. The PPSA has a complex vegetation composition that is, in general, dominated by hardwood/herbaceous cover in the western, lower elevations, and conifers in the eastern, higher elevations. Based on the general change in vegetation types across the east-west elevation profile, the fire return intervals of the two primary vegetation types, and

input from experienced vegetation management professionals familiar with the PPSA, two retreatment intervals were established:

» **Hardwood/Herbaceous Vegetation**: Retreatment interval of **5 years or more**.

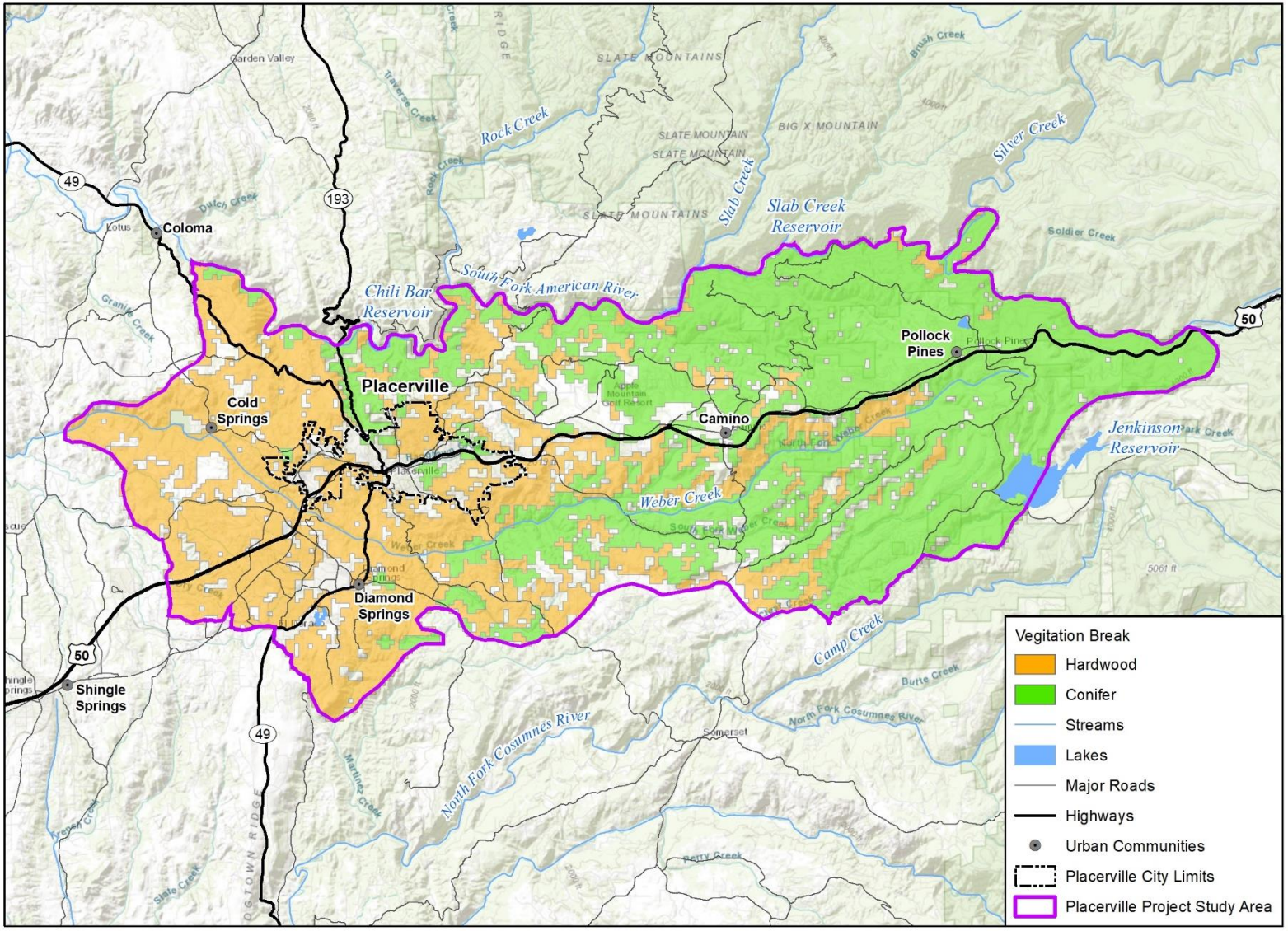
» **Conifer Vegetation:** Retreatment interval of **10 years or more.**

To establish the timeframe for a vegetation retreatment, a simplified vegetation map, as shown in Figure 6-4 was created to demarcate the break between the two primary vegetation types. The break point between the two primary vegetation types was based on the Classification and Assessment with LANDSAT of Visible Ecological Groupings (CALVEG) data, as shown in Figure 4-1.

Given the complex mosaic of vegetation in the PPSA, these retreatment intervals should be seen as suggestions and not guarantees of the need for retreatment. It is assumed that an on-the-ground assessment would be completed before planning a retreatment. With that in mind, it is advised that land managers assess retreatments on or ahead of schedule, as treating land early and ahead of the need should minimize the level of effort and cost for fuels reduction work associated with retreatment. While direct comparative studies in the Sierra Nevada assessing timing of treatment and cost effectiveness are scarce, tangential evidence suggests that timely retreatments are more economical than waiting until vegetation buildup becomes a hazard. Furthermore, proactive fuel management not only mitigates wildfire risks but also offers significant economic benefits by reducing suppression costs and protecting valuable resources in the event of fire (Taylor et al. 2013).

Figure 6-4 shows a retreatment interval and vegetation break map. Orange demarcates hardwood and herbaceous vegetation, green demarcates conifer dominant vegetation. When fuel treatments occur in the PPSA, they should be evaluated for retreatment around five years following completion for hardwood and herbaceous and ten years for conifers.

Figure 6-4 Retreatment Interval and Vegetation Break Map



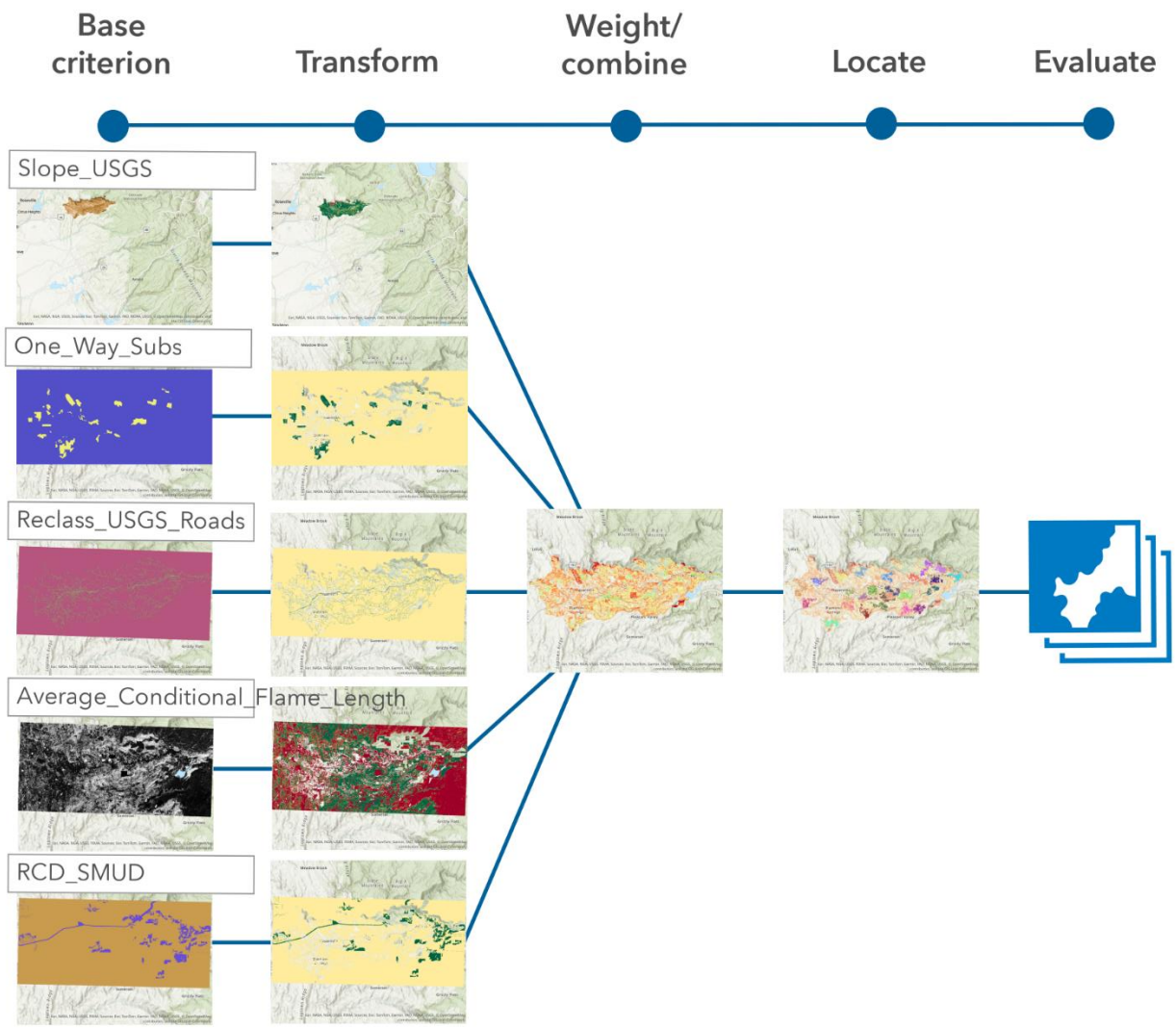
6.2.3. Suitability Modeler

Using the geospatial database discussed above, ArcGIS's suitability modeler (ESRI) was employed to identify and prioritize areas with overlapping risk factors and strategic importance for wildfire hazard mitigation. Figure 6-5 shows the inputs for the final iteration of the suitability model. The model is built off of a polygon of the PPSA that excludes Federal Lands (USFS and BLM) and a 100-foot defensible space radius around all building footprints. Within the remaining area of the PPSA, a slope classifications layer that prioritized lower angled terrain was added, as well as layers for one-way in/out neighborhoods, 50-foot road buffers, mean average conditional flame length, and the Sacramento Municipal Utility District (SMUD) transmission line corridor. The SMUD transmission corridor was included in the model as it offers the opportunity to tie together several treatments along the southern edge of the South Fork of the American River Canyon, as this is an area with significant fire hazard and extremely challenging terrain to treat.

Finally, previously planned and previously completed treatments targeted for retreatment were included to create continuity among the various groups and agencies working to address wildfire concerns in and around the PPSA. (Note: due to input constraints of the Suitability Modeler, the SMUD transmission line corridor and the planned treatments and retreatment classifications were combined into a single layer.) All layers included in the model were weighted equally.

The Suitability Modeler transforms the data into layers that are either binary (such as one-way in/out neighborhoods) or bucketed continuous data layers (such as conditional flame length), and then combines these layers to create a heat map that prioritizes pixels that have the greatest degree of overlap amongst the converted criteria. With this data, the model then selects the most suitable treatment areas.

Figure 6-5 ArcGIS Suitability Modeler output



Source: SIG 2024

6.2.4. Planscape

Planscape was employed to provide a comparative analysis to the treatment scenario outputs produced by the Suitability Modeler. The Planscape platform operates in two stages: an Explore stage that has been previously discussed (Chapter 5), and a Treatment Scenario Planning stage. The treatments scenario planning allows users to select treatment goals, as well as constraints, to produce customized treatment applications on the landscape. While the Suitability Model focuses on the overlap of specific features in the PPSA such as one-way in/out neighborhoods and transmission line corridors, Planscape focuses on a single metric applied to a landscape-scale analysis as the treatment goal.

Using Planscape, three treatment scenarios were modeled for the PPSA using the following treatment goals: WUI Fire Risk, Fuel Load Reduction, and High Severity Fire Areas. While the treatment goals varied for each of the three model runs, the constraints applied to each

remained consistent throughout. As shown in Table 6-1, the constraints acres treated, slope, cost, distance from roads, and stand size are uniform across all three of the treatment scenarios used in the CWRS planning process.

Table 6-1 Treatment Scenario Constraints

Constraint	Value
Max acres to be treated	16,000
Max Slope	45%
Treatment Cost	$2,470/acre
Distance from Roads	440 yards (¼ mile)
Stand Size	Small (10 acres)

Source: SIG Analysis 2024

The rationale for the constraints shown in Table 6-1 are as follows:

- The PPSA is ~80,000 acres, which is on the smaller end of what would be considered a landscape-scale treatment area in Planscape.
- Given the size of the PPSA, small treatment areas (ten acres stand size) and the minimum "max acres to be treated" (16,000 acres is the minimum allowed given the PPSA size) were opted for as they provide the greatest measure of flexibility to the model for treatment area selection.
- The treatment distance from roads and slope constraints were settled on due the increase in cost associated with treating areas further than a quarter mile from roads and on slopes greater than 45%.
- Treatment cost was set to the default $2,470 derived from the State of California's Sierra Nevada Regional Resource Kit. This default offers a good general estimate of treatment costs including moving material from the harvest site to processing locations as well as the costs of felling, processing, skidding and hauling timber in Sierra Nevada forests.

Planscape renders ten treatment areas per scenario and ranks each of the treatments based on their effectiveness at addressing the treatment goal and their cost. That is to say that, given the constraints discussed above, including treatment cost per acre and the treatment goal, Planscape models the best location to satisfy these inputs. Moreover, the model allows the user to compare them to other treatment goals to assess treatment areas with the greatest degree of crossover.

6.2.5. Treatment Zones

Treatments produced by the Suitability Model were overlaid on the treatment zones representing the three-pronged approach that focuses concurrently on the Placerville city center, the surrounding WUI, and the periphery of the PPSA (Figure 6-6). The Placerville city

center represents the densest concentration of homes, businesses, and critical infrastructure, necessitating maximum protection from wildfire.

While the Placerville city center does not display the same extreme fire risk seen elsewhere in the PPSA, the concentration of economic, health and safety, community, and historic assets in this zone requires special attention. The WUI, in this planning process, has been defined as all areas in the PPSA with one structure or more per five acres that is outside of the Placerville City limits. This WUI definition was tailored to the PPSA but is derived from the methodology described by Bar-Massada et al. (Bar-Massada et al 2013). The WUI represents an area of significant structure concentration intermixed with hazardous fuels that requires mitigation efforts for its own sake. At the same time, fuel treatment work within the WUI affects an insulating layer for the Placerville city center, thus increasing the value and importance of fuel mitigation projects in this area. Finally, the PPSA periphery is all areas that are not within the Placerville city limits or the WUI. Periphery areas are characterized by rugged topography, few roads, and dense vegetation. As a result, these areas pose significant limitations for large-scale, sustained vegetation management activities. However, targeted treatments in these areas offer a critical outer layer (first line) of defense against unmitigated wildfire moving through the PPSA and, potentially, through the WUI and into the Placerville city center.

6.2.6. Treatment Priority Tiers

With each of the three treatment zones, three priority tiers were established for treatment implementation based on a given treatment's location and suitability rankings (Figure 6-2). As previously noted, these tiers are broken-up into timeframes of 1–3 years, 3–5 years, and 5+ years. Areas identified by the Suitability Model as the most optimal—based on high-risk overlap and strategic importance—are scheduled for treatment in the first tier, with progressively lower priority areas assigned to later tiers. This tiered approach ensures that resources are allocated efficiently, addressing the most critical areas first while enabling longer-term planning for less accessible or lower-risk regions.

6.3. Key Assumptions

6.3.1. Vegetation and Fire Risk Data

The vegetation and fuel data for this analysis are based on Classification and Assessment with LANDSAT of Visible Ecological Groupings (CALVEG), which provides regional-scale vegetation classifications derived from satellite imagery. CALVEG assumes static vegetation conditions at the time of data acquisition and may generalize complex vegetation types into broader categories (USFS). Despite these limitations, it offers a consistent, landscape-level view of fuel types, essential for identifying priority treatment areas.

For fire risk, the First Street Foundation mean average conditional flame length provides modeled flame lengths under specific weather conditions. This dataset assumes a standardized set of fire weather conditions that may not capture local variability but remains useful for identifying areas where expected fire intensity is most likely to threaten infrastructure or ecological assets (FSF 2023). To incorporate future fire risk, projections from

the FRAP Fire Probability for Carbon Accounting (2021–2050) are used. These projections assume a continuation of current land use trends and climate trajectories, offering a valuable long-term perspective on areas likely to experience fire (FRAP). Together, these datasets provide complementary insights, enabling the strategic targeting of fuel treatment locations to address current and future wildfire risks within the PPSA.

6.3.2. Treatment Effectiveness

In the analysis of treatment effectiveness for the PPSA, several key assumptions were made regarding the longevity and scope of treatment effects. The modeled treatments, which aim to reduce fuel loads and increase fire resilience, are assumed to have specific durations based on the vegetation type and treatment history. The retreatment intervals were defined according to vegetation type, with hardwood/herbaceous areas requiring retreatment every five years, and coniferous areas every ten years, based on fire return intervals, vegetation characteristics, and subject-matter expert consultations. These intervals were selected to ensure that fuel reduction benefits persist and remain effective over time, especially given the PPSA's complex vegetation composition.

The effectiveness of treatments in modifying fire behavior, such as reducing flame length and slowing fire spread, was assumed to directly correlate with the extent of fuel reduction and the size of treatment areas. Mapping of treatment areas, as shown in Figure 6-6 shows both the current status of completed treatments and areas requiring future retreatment, and is color-coded accordingly. The simplified vegetation map (Figure 6-4) further clarifies where treatments should be focused, with CALVEG data providing the boundary between the two main vegetation types and aiding in the assignment of appropriate retreatment intervals. This modeling assumes that the full extent of treatments is implemented, barring any access or budgetary constraints. It is important to note that the effectiveness of treatments in real wildfire conditions can be decreased under more extreme weather conditions or if treatment areas are not able to be integrated into active suppression efforts (Urza, Hanberry, and Jain 2023).

In considering the ecological and operational aspects of treatment effectiveness for the PPSA, it is assumed that the land managers and planners will be able to work around specific environmental and logistical constraints while implementing the treatment strategies. Environmental constraints such as riparian buffers and steep slopes are recognized as limitations, but it is assumed that treatments will be adjusted to avoid these sensitive areas. For example, treatments in riparian zones will be excluded, and strategies for steep terrain will be tailored to ensure that treatments are conducted safely and effectively, perhaps through the use of specialized equipment or alternative methods that accommodate the challenging topography. Wildlife and habitat considerations, including the presence of owl habitat, are also factored into the treatment design. It is assumed that land managers and planners can incorporate buffers around critical wildlife areas to minimize disturbances, allowing treatments to proceed while preserving habitat integrity.

Given that 86% of the PPSA landownership is private, non-industrial property, operational feasibility assumes that access to private lands can be negotiated with landowners and that

necessary equipment and workforce will be available to carry out treatments, even in areas with restricted access or difficult terrain. The treatment areas (Figure 6-5) reflect these assumptions.

6.3.3. Foundational Reports and Key Datasets

As previously noted, the development of CWRS, and specifically, the data used to develop the fuels treatments Suitability Model builds upon a foundation of regional and local planning documents, hazard mitigation plans, and strategic frameworks that both directly and indirectly address the wildfire risk and hazard in the PPSA. These foundational reports support plan integration and provide context, priorities, and baseline data that have been integrated into the CWRS analysis and recommendations presented in this document. The integration of these reports ensures that the strategies proposed in the Placerville CWRS are aligned with existing plans and leverage the best available regional knowledge and priorities. (See Table 3-2 for the specific data and information incorporated into this analysis.)

To inform the analysis and prioritize wildfire mitigation treatments, a range of critical datasets were utilized from the reports (listed in Chapter 3). These datasets enhance the strategy's capacity to assess risks and design effective interventions. Key datasets include:

- **One-way in/out neighborhoods**: Identifying neighborhoods with limited evacuation routes to prioritize treatments that enhance safety and evacuation preparedness.
- **FEMA critical facilities locations**: Mapping critical infrastructure to safeguard essential services during wildfire events.
- **Likely fire scenarios affecting the PPSA**: Modeling expected fire behavior and impact areas to target high-risk zones.
- **Demographics**: Incorporating population data to assess vulnerabilities to sensitive populations and ensure equitable implementation of wildfire mitigation strategies.
- **Building codes and enforcement**: Evaluating existing regulations to understand structural vulnerabilities and opportunities for increased fire resilience.

These reports and data were assumed to reflect accurate and vetted information at the time of their publication. While it is beyond the scope of this analysis to independently verify every detail, they remain indispensable sources for understanding local and regional issues and challenges related to wildfire. In some cases, reliance on these reports acknowledges the necessarily dated nature of certain datasets. That said, these reports and datasets provide a comprehensive framework for understanding the region as it pertains to designing and implementing a tailored wildfire resilience strategy for the PPSA.

Finally, the fuels treatment recommendations made in this report rely in part on treatment data provided by a variety of stakeholders including government agencies, utilities, and NGOs. It is assumed that this data was submitted in good faith and reflects high-quality standards. While limitations in time and funding prevent independent verification of every dataset, it is expected that the contributing organizations ensure the data's reliability.

6.3.4. Treatment Model Limitations

While the models used to produce treatments in the PPSA offer significant benefits to

planners, they are not without limitations. For example, It is assumed that some areas of high risk and/or strategic defensive value will be excluded from treatment selection due, for example, to steep topography or limitations in the input data. As such, in a few cases, manually created treatment areas may be created based on information gained from field observations, local knowledge, or visually analyzing the data feeding the model.

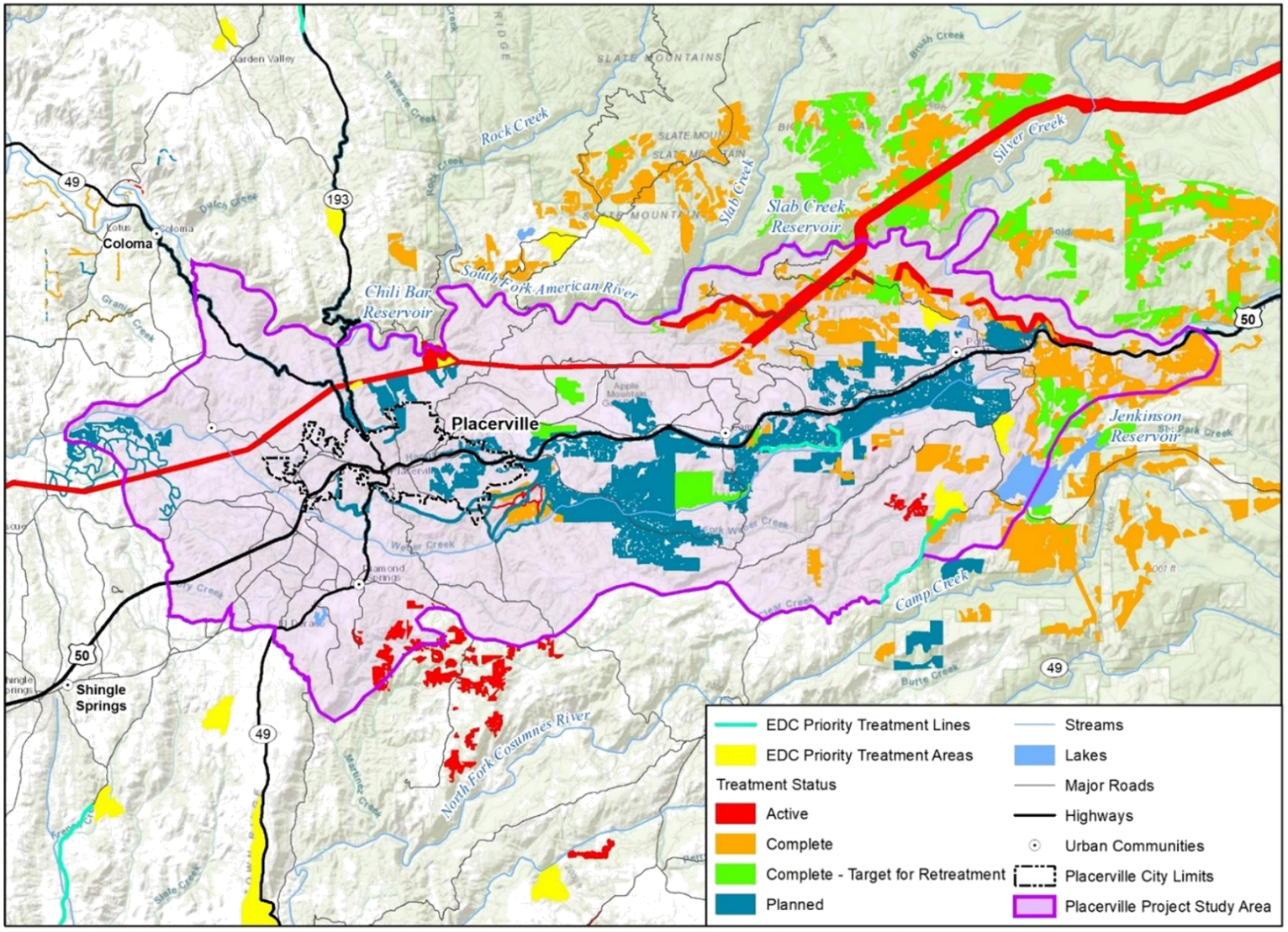
6.4. Existing, Active, and Proposed Fuels Treatments

As discussed throughout this report, a major component of the CWRS is the collection and collation of data outlining past, current (active/in-progress0, and future fuels and vegetation management projects in and around the PPSA. This component of the project required the collection of treatment data from the City of Placerville, El Dorado & Georgetown Divide Resource Conservation Districts, El Dorado County (OWPR) and Resilience, CalTrans, BLM, USFS, EID, SMUD, PG&E, and El Dorado County FSC (EDCFSC). Additionally, proposed treatments from the draft El Dorado County CWPP update were included. The data on existing treatment activities in the PPSA was collated such that the projects could be mapped and categorized by treatment status (planned, active/in-progress, and completed) and the need to evaluate previous treatments for retreatment as shown in Figure 6-6.

Figure 6-6 shows the PPSA overlaid with the USGS road network layer and the color-coded treatment polygons that represent fuels treatment projects that are active/in-progress (red), completed (light orange), completed but flagged for retreatment (green), and planned (blue). Finally, the priority treatments outlined in the draft El Dorado County CWPP update were included (dark orange and pink).

The integration of these treatment datasets is critical in the effort to align existing and newly proposed treatments with the goal of maximizing efficiency in labor, funding, and planning, including regulatory compliance. By integrating and unifying projects across various entities, this effort accesses resources developed in prior work while addressing gaps in mitigation planning. Moreover, tying together these treatments supports the overarching CWRS strategy that aims to create a layered, cohesive defense that mitigates a fire's ability to move from wildlands into the built environment.

Figure 6-6 Existing, Active/In-Progress and Proposed Fuel Treatment Projects as of January 2025



Map compiled 12/2024;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG

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El Dorado RCD has also focused on treatments (planned and completed) along the US Highway 50 corridor and in the east end of the PPSA. However, less effort has been focused in the more urbanized west end of the PPSA. Specifically, the Placerville city center, Diamond Springs, Gold Trail Park, and Cold Springs have seen few large-scale fuel mitigation projects despite having the greatest concentration of critical facilities, homes, businesses, and schools in the PPSA (Figure 5-10).

Nonetheless, there are strategically located treatments that are in progress or planned on the west end of the PPSA that not only address fire hazards and risks but also serve as tie-in points for additional, larger scale treatments. Specifically, the SMUD transmission line corridor running east/west on the northern side of the PPSA offers an opportunity for access to potential treatment sites as well as a convenient way to create continuity between several projects in otherwise difficult-to=treat areas. Similarly, the planned CalTrans roadside treatments along State Route 193 and State Route 49 in Big Canyon provide another opportunity to access and treat an area of high fire risk that otherwise presents significant physical impediments to treatment due to steep slopes and accessibility.

To the southeast of Diamond Springs, there is a patchwork of active BLM projects in the PPSA boundary that would complement much needed treatments on Tombstone Mountain that would help to mitigate wildfire risk related to built-up vegetation in the Martinez Creek drainage. Similarly, on the far west end of the PPSA there is a grouping of proposed vegetation management projects in the Greenstone subdivision that offer another good opportunity to develop an augmented treatment plan that would tie in with the SMUD transmission line corridor further creating wildfire defense continuity in the PPSA.

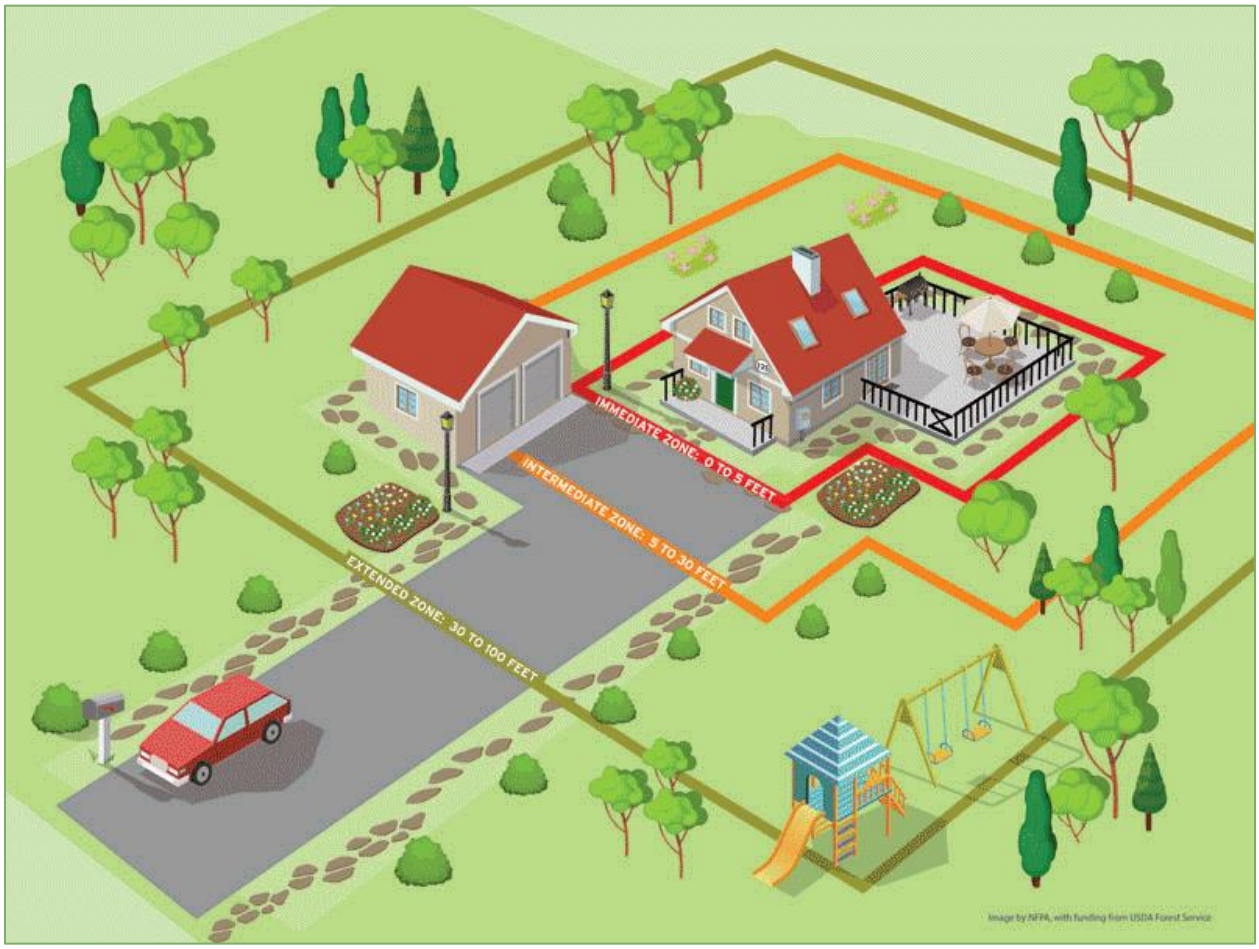
6.4.1. Proposed Fuel Treatments

In large part, the CWRS focuses on organizing and aligning the piecemeal fuels management projects previously planned and implemented in the PPSA and augmenting them with targeted treatments that create continuity, moving towards a layered defense that insulates the built environment from unmitigated wildfire. However, there are two additional aspects of this CWRS approach that have only been briefly touched on that are critical to this strategy. Namely, defensible space and roadside vegetation management are critical to support a layered and comprehensive fuel mitigation approach (Figure 6-8).

6.4.2. Defensible Space

California law mandates that private property owners create and maintain defensible space around structures to reduce wildfire risk. Under California PRC Section 4291, property owners in wildfire-prone areas must maintain a 100-foot defensible space zone around all buildings and structures. Additionally, California Government Code Section 51182 outlines similar requirements within the designated SRA. In El Dorado County, local ordinances, such as the El Dorado County Vegetation Management Ordinance (Chapter 8.09), complement state laws by requiring additional defensible space measures tailored to local conditions, including specific setback distances and regulations for vegetation clearance along roads and driveways as illustrated in Figure 6-7.

Figure 6-7 Diagram of Defensible Space Requirements



Source: USFS, 2024

Property owners in wildfire-prone areas must maintain a 100-foot defensible space zone around all buildings and structures. This zone is divided into three sections:

- **Immediate Zone**: (also called the Ember Zone) 0-5 feet closest to the structure.
- **Intermediate Zone** (also called the Lean, Clean, and Green Zone): 5- 30 feet around the structure.
- **Reduced Fuel Zone**: the remaining 70 feet of defensible space.

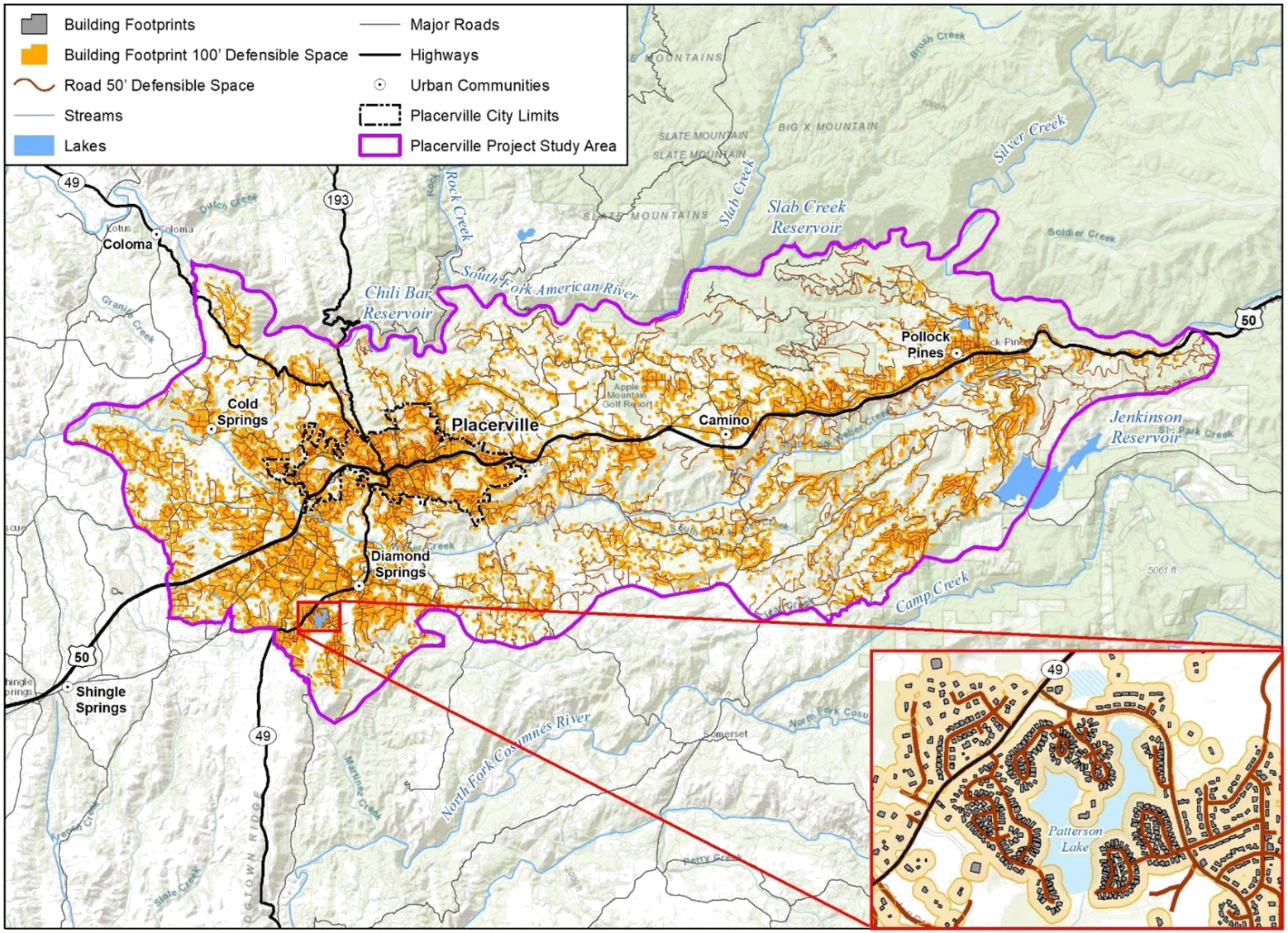
In the Immediate Zone, gravel or stone is recommended. In the Lean, Clean, and Green Zone, all dead vegetation, combustible materials, and overhanging tree limbs must be removed to minimize direct fire threats. The Reduced Fuel Zone requires strategic thinning of vegetation to reduce the potential for fire spread.

Enforcing defensible space regulations not only protects individual properties but also reinforces programmatic, landscape-scale treatments, such as the fuel breaks, strategic thinning, and prescribed burning recommended in the CWRS. When private property owners comply with defensible space requirements, they create buffers that can interrupt fire pathways, reducing the intensity and spread of fire from one structure to the next–particularly where structures are tightly spaced (CAL FIRE 2023a, Restaino et al. 2020).

Figure 6-8 shows the defensible space radii for all structures in the PPSA. Collectively, this space makes up approximately 15,054 acres or 19% of the PPSA. Given the extent of the area within the defensible space radii, supporting compliance with existing defensible space regulations through public funding and grant programs is highly recommended to ensure this work is completed and maintained. Funding such programs encourages property owners to undertake costly vegetation management activities. A discussion of potential neighborhoods outside of the proposed treatment areas to prioritize for defensible space programs can be found in the Planscape findings section below. Figure 6-8 also shows the road networks in the PPSA with the recommended 50-foot fuel reduction buffer. A comprehensive roadside fuel reduction project applied within this buffer would cover approximately 3% of the PPSA. It should be noted that there is some overlap between the suggested roadside treatments and the defensible space coverage discussed above. Nonetheless, roadside fuels treatments provide easy access for equipment and personnel to implement fuels treatments that can reduce fire intensity and obstructions along ingress and egress routes during wildfire events. Roadside treatments also provide firebreaks, which are a critical line of defensible space for firefighting operations.

Furthermore, implementing fuel reduction within the roadside treatment buffers aligns with state regulations such as California PRC 4292, which requires utility companies to manage vegetation near power lines, and PRC 4293, which mandates clearance to prevent fires from utility infrastructure. Additionally, El Dorado County Ordinance 5101 emphasizes vegetation management along roadways to enhance wildfire resilience. Namely, roadside treatments offer cost sharing, collaborative opportunities with utilities, government agencies, and private property owners. Such efforts also help to maximize the impact of landscape-scale mitigation efforts by linking defensible space initiatives with broader strategies, creating continuous, defensible corridors that can reduce the risk of fire spreading into or out of WUI neighborhoods.

Figure 6-8 PPSA Building and Road Defensible Space



Map compiled 1/2025;
Intended for planning purposes only.
Data Source: El Dorado County, DKS, Living Atlas, SIG

6.4.3. Landscape-Scale Fuel Treatments (Suitability Model)

The Suitability Model used to target landscape-scale treatments in the PPSA rendered 24 treatment areas covering approximately ten-thousand acres, as shown in Figure 6-9. These treatment areas are ranked based on the density of the overlap of the base criterion with the most suitable in dark green and the least in dark red. The outputs presented here are based on the final version of the model but were developed through an iterative process with the TAC. This process involved refining the selection of metrics to strike a balance between fuel treatment constraints—such as steep slopes—priority neighborhoods and assets, and alignment with planned, active, and completed projects.

Of the 24 treatments produced by the suitability model, eight treatments were selected as priorities to be addressed in the first tier (i.e. years 1-3) of the CRWS treatment plan (Figure 6-10). These treatments were selected for their overall benefit to the layered wildfire defense approach developed for the CWRS which simultaneously address wildfire mitigation work in the Placerville city center, WUI, and PPSA periphery. As a result, some treatments were chosen in areas with lower overall suitability but were the highest-ranked locations within their designated treatment zones. Treatment #24 is an example of such a treatment; it has a low overall ranking but is the highest ranked treatment in the Placerville city center. Other treatments were excluded as they overlap with planned treatments or do not contribute to the overall strategy despite their modeled suitability. Several areas in the east end of the PPSA meet these descriptions.

Additionally, two treatments were manually drawn in and included in the first-tier treatment plan. As discussed previously, the Suitability Model necessarily excluded areas that posed significant and costly impediments to treatment. However, there are cases where the effort and cost are outweighed by the risk posed by not addressing an area. As discussed in Chapter 5 (Fire Hazard and Risk Assessment Findings), Weber Creek between Cold Springs and State Route 49 is particularly concerning as it provides fire with a pathway into the Placerville city center, exposing numerous critical assets to unmitigated fire risk. As such, the Weber Creek and Cold Springs Fuels Treatment Master Plan treatment was added to the strategy. Similarly, the Jawbone treatment was manually added to the strategy as local subject-matter experts at the RCD, CAL FIRE and local fire departments singled out this area as one of considerable concern and useful in protecting the Placerville city center (Figure 6-10).

Figure 6-9 PPSA Proposed Treatments and Treatment Zones

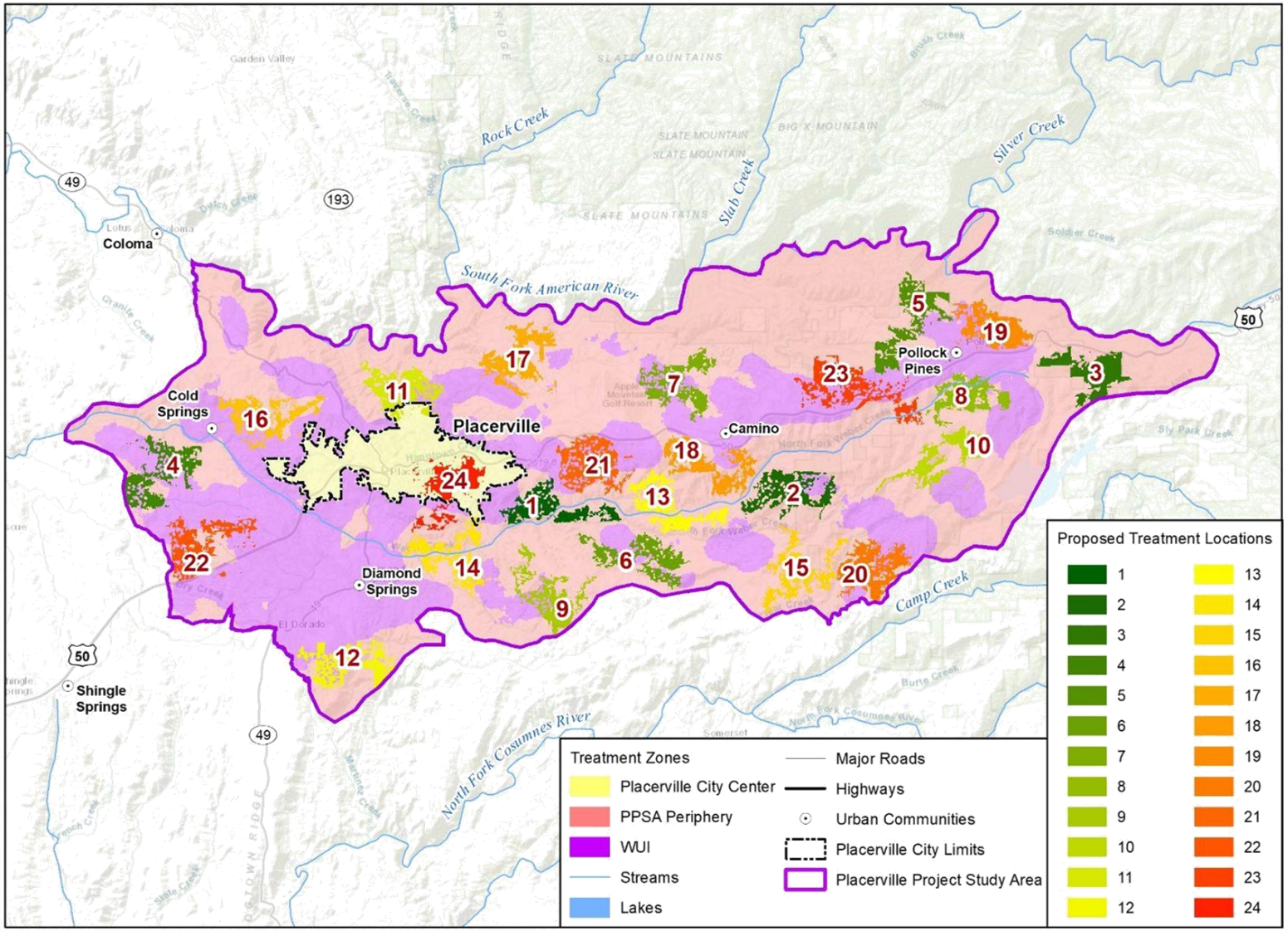
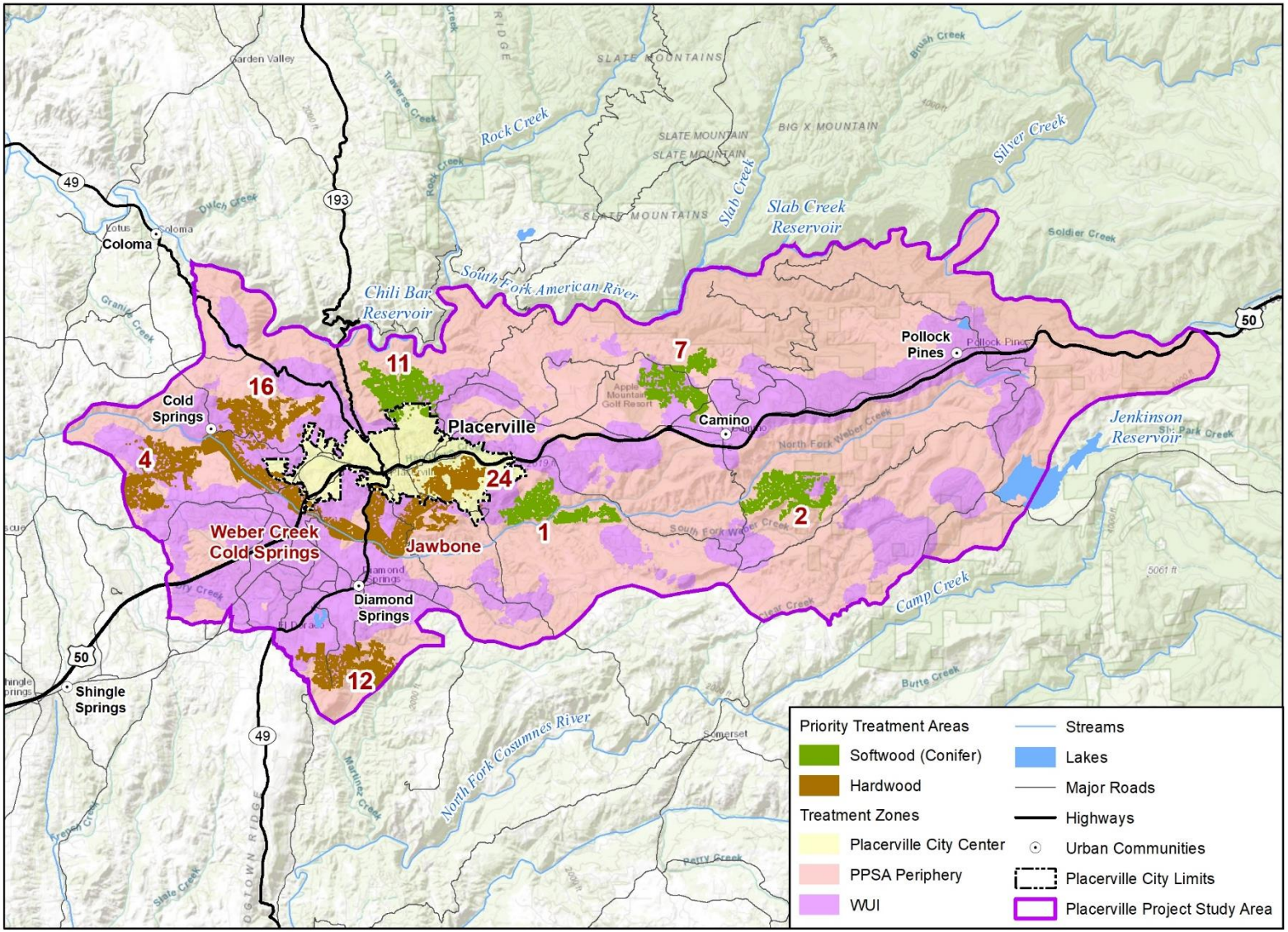


Figure 6-10 Tier 1 Treatments With Popouts



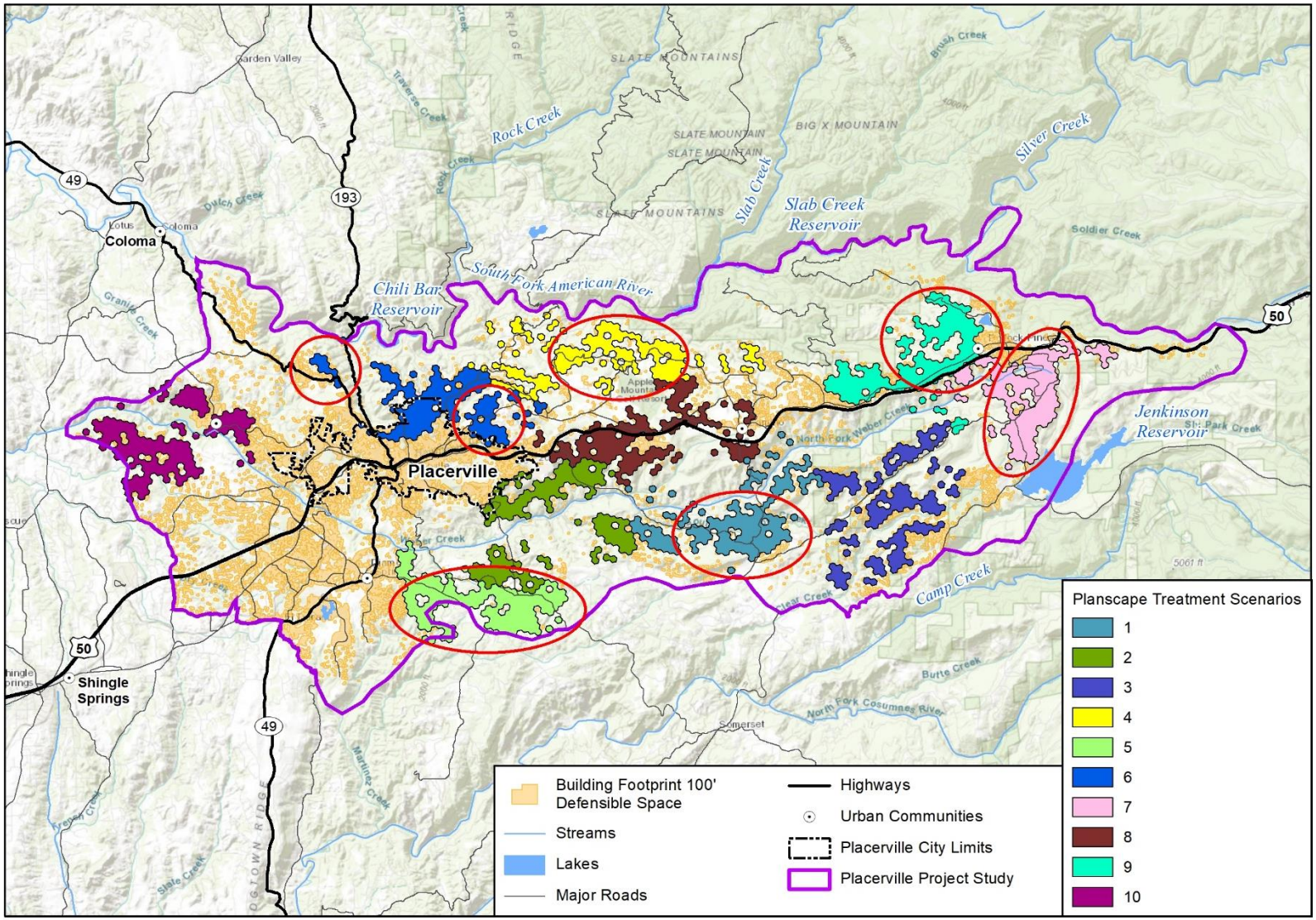
6.4.4.Planscape Treatment Scenarios

Three Planscape treatment scenarios were used to evaluate the Suitability Model's effectiveness in identifying areas where treatments would have the greatest impact on WUI fire risk, fuel load reduction, and high-severity fire in the PPSA. As discussed above, Planscape operates in a different fashion than the Suitability Model in that it sets a general treatment goal within certain constraints such as maximum slope or distance from roads. Whereas the Suitability Model works to balance several treatment goals simultaneously, selecting those areas with the greatest overlap. In addition to offering points of comparison, the WUI fire risk treatment scenario produced by Planscape allows for targeted efforts to support and/or fund neighborhoods where defensible space efforts would have the most impact.

Figure 6-11 shows the Planscape WUI fire risk, fuel load reduction, and reduced high severity fire, scenarios overlaid on the 100 foot defensible space layer for all structures in the PPSA. Red circles in the WUI fire risk map indicate neighborhoods that should be prioritized for defensible space program efforts and funding. Such efforts will work to promote connectivity among treatments in the PPSA, as well as providing planners with an order of operation for selecting neighborhoods to treat when working to thin and clear vegetation along roadways and in the landscape treatments produced by the Suitability Model. Enforcing and funding the defensible space regulations in circled neighborhoods would do much to consolidate treatments, creating a robust outer layer of defense against wildfire penetrating into the core of the PPSA.

Beyond helping to identify priority neighborhoods and road networks for treatment, the Planscape scenarios also validated the suitability model’s treatment selection. Most treatment areas show strong alignment with the Planscape scenarios, particularly in addressing WUI fire risk. Areas lacking overlap are typically those excluded from the Suitability Model due to planned treatments or dense housing concentrations, where the model assumes property owners will maintain defensible space. This lack of overlap is most noticeable in the eastern end of the PPSA but is also prevalent in the southern periphery zone.

Figure 6-11 Planscape Treatment Scenarios



6.4.5. Treatment Cards

As part of the CWRS, the ten first tier treatments received a detailed analysis for specific treatment prescriptions (Appendix B). As part of this planning stage, a detailed profile is provided for each of these treatment areas. Specifically, these treatment profiles include the treatment acreage; selection rationale; treatment zone (Placerville city center, WUI, periphery), connections to planned, active, and completed projects; the fire hazards and risks addressed; and the predominant vegetation type. Additionally, WSG provided specifics on treatment applications. The goal of providing such detail on individual treatment areas is to provide the El Dorado RCD with the best possible advantage in implementing the CWRS as soon as possible. Figure 6-13 shows an example treatment card for Camp Nauvoo-Newtown and the type of information included. Figure 6-12 shows the treatment areas for Camp Nauvoo-Newtown. Table 6-2 outlines the information in this treatment card that would be carried forward into the implementation plan.

Figure 6-12 Treatment #1 – Camp Nauvoo-Newtown

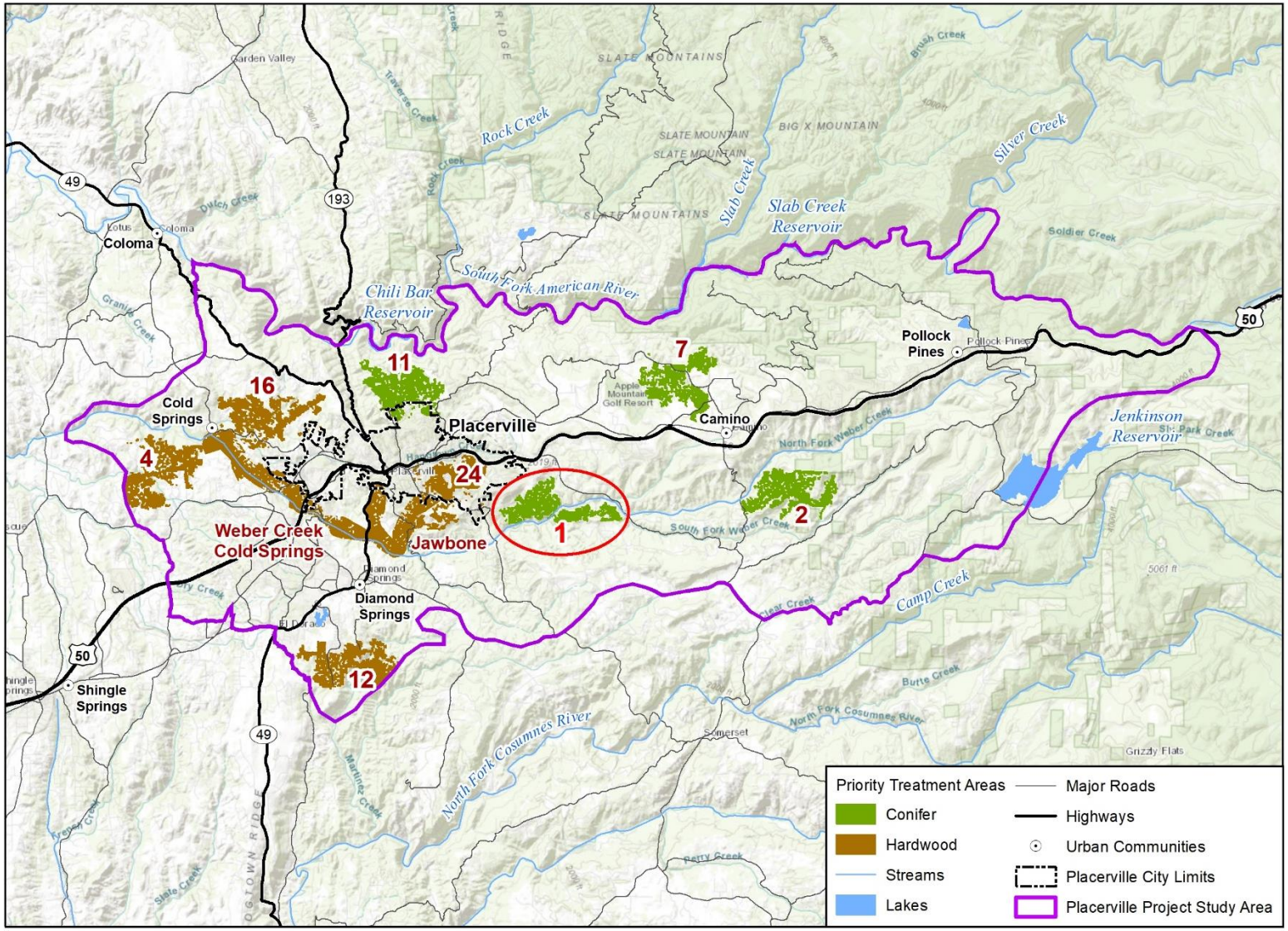


Figure 6-13 Treatment Card Example

Category	Details
Treatment Size:	450 acres
Selection Rational:	The proposed treatment between Camp Naivoo Rd. and Newtown Rd. enhances defensible space for a medium-sized neighborhood and establishes a critical fuel break for Motor City, addressing wildfire mitigation and evacuation concerns highlighted in the Bucks Bar Wildfire scenario. This project ties into active, planned, and completed treatments, including Texas Hill Fire Break, Texas Hill Weber South, and the Fire Adapted 50 project, ensuring coordination and connectivity of fuels treatment projects in the PPSA (and beyond) in an effort to maximize mitigation effectiveness. It also addresses key risks, including a one-way in/out subdivision and critical communications infrastructure.
Treatment Zone(s)	Primarily periphery with some WUI overlap
Treatment connectivity:	- Ties in with several treatments active, planned, and completed including Texas Hill Fire Break and Texas Hill Weber South, and Fire Adapted 50 project - This treatment should incorporate the defensible space and roadside treatments recommendations made in the CWRS for maximum impact and effectiveness.
Fire Hazard:	This project would target an area of high hazard with concentrations of medium to high Mean Average Conditional Flame Length (8-25'), which can help reduce fire intensity and spread potential.
Fire Risk:	The western portion of this treatment overlaps with a one-way in/out neighborhood south of the airport. The eastern portion of the treatment touches on a cluster of communications critical infrastructure sites. Very few structures in this treatment area were built after 2008 making adherence to structure hardening guidelines less likely.
Vegetation Type:	This treatment is dominated by Wildlife Habitat Relationships (WHR) coniferous forests but touches on herbaceous and hardwood vegetation types on the margins.

Source: WSG 2024

Table 6-2 Treatment Implementation Form: Camp Nauvoo-Newtown

General Project Information		
Prescription Reference	Mixed Conifer: Roadway Treatment, Landscape Treatment	
Target Acreage	450 acres	
Estimated Completion Time:	TBD	
Vegetation Management Details		
Primary Objective	Reduce fire risk and improve forest health	
Target Species for Removal	Overcrowded, Suppressed, or Diseased Trees, Invasive or Less Fire-Resistant Trees, Younger Dense Stands (in stands with singular age class and homogeneity, more aggressive thinning is necessary)	
Diameter at Breast Height (DBH) Thresholds for Removal	Selection based on species and vigor: minimum - 6-8" maximum - 18-20" +	
Target Retain Species: (based on vigor and spacing)	**Primary**: Ponderosa Pine (*Pinus ponderosa*), Sugar Pine (*Pinus lambertiana*), Douglas-Fir (*Pseudotsuga menziesii*), Incense Cedar (*Calocedrus decurrens*) **Secondary**: White Fir (*Abies concolor*)	

Treatment Methods	- Prune to thin crowns (30-40%) and remove ladder fuels
	- Clearance heights:
	  - 0-19% slope: 6-8' from grade
	  - 20-30% slope: 8-10' from grade
	  - 31-40% slope: 10-12' from grade
	- Do not exceed 1/3 of tree height; if not feasible, consider removing the tree	

Retained Specimens Treatment		
Crown Retention Percentage (%)	30-40%	
Crown Reduction Specifications:	- Create horizontal distance between trees: 20 feet between trunks, 8-15 feet between drip lines - Larger overstory trees (≥ 6 inches DBH) count as residual trees - Remove vegetation within drip lines to reduce ladder fuels	
Clearance Height From Grade	- 0-19% slope: 6-8' - 20-30% slope: 8-10' - 31-40% slope: 10-12'	
Riparian Zone Treatment Specifications		
Class I	Domestic supply sources, fish habitat, migration/ spawning	150 feet
Class II	Seasonal fish presence or aquatic habitat for non-fish species	100 feet
Class III	No aquatic life; sediment transport potential to Class I/II	25 feet (<30% slope), 50 feet (>30% slope)

General Project Information		
Class IV	Human-made watercourses	25 feet (<30% slope), 50 feet (>30% slope)
Treatment Methodology		
Preferred Method	Combination of hand and mechanical treatments	
Treatment Breakdown	- Lop & Scatter: ~55% - Pile to Burn: ~25% - Mastication: ~15% - Chip & Distribute: ~5% (within 50' of roads, trails, and structures)	
Hand Tools Used	Chainsaws, pole saws, loppers, handsaws, other	
Heavy Equipment Used	Skid steer, excavator, feller buncher, mastication equipment	
Estimated Production Pace	- Acres per day: 1-3 - Crew size required: 5	
Dimensional Specifications		
Shrub Treatment	- Remove understory fuels over 1' in height - Maintain 3-5x horizontal separation between plants - Retain individual plants <5' tall and <5' wide, where necessary	
Small Trees (DBH <10")	6-8"	
Large Trees (DBH > 10 in)	18-20"+	
Tree Spacing (feet)	20 feet	
Canopy Reduction (%)	30-40%	
Post-Treatment Tree Density (trees per acre)	40-70	
Environmental and Ecological Considerations		
Habitat Exclusion Areas:	[ ] Yes [ ] No (TBD)	
Exclusion Description	TBD	
Ecological Concerns	- Monitor for rare/endangered species presence - Identify and mitigate invasive species	
Soil and Water Protection	- Adhere to Watercourse and Lake Protection Zone (WPLZ) standards - Implement erosion control measures	
Applicable Forest Practice Rules	TBD	
Cost Estimation Factors		
Labor Costs	- Crew Size: 5 members - Hours per day: 40	
Equipment Costs	- Equipment: 10-ton excavator w/ masticating head, grapple claw, winch; Skid steer w/ grapple claw, masticating head, winch	

General Project Information					
	- Fuel & maintenance costs: TBD				
Material Costs	- Erosion control materials - Other required supplies				
Additional Notes	- Retain standing snags where safe for habitat value - Maintain snag count of ~1 per 0.25 acre				
Treatment Type	**Acres**	**Acres/ Day**	**$/ Acre**	**Days**	**ROM Estimate**
Hand Crew Treatment (Five-person crew)	350.00	1.50	2,159.00	233.33	825,670.00
Mechanical Treatment (Two machines, Four-person crew, mastication ~15%)	100.00	2.50	1,990.00	40.00	134,350.00
Material Processing (Lop & Scatter ~55%, Pile to Burn ~25%, Chip & Distribute ~5%)	350.00	3.50	961.00	100.00	432,640.00
Indirect Costs (Admin. & Overhead)	450.00	7.50	400.00	60.00	24,000.00
Total Estimated Cost	**$1,416,660.00**				

7. Potential Wildfire Mitigation Strategies

Protecting the Placerville area from wildfire risks requires a diverse suite of strategies rather than reliance on any single measure. The region's varied terrain, dense vegetation, and changing climate all contribute to the potential for significant fire behavior. To address these interconnected challenges, a multi-pronged mitigation plan must include measures such as vegetation management; land use, policy, and policy tools; property and critical infrastructure protection; and public education and awareness activities (FEMA 2013, NACo 2023). Specific measures within each category consist of landscape-level fuel treatment projects, defensible space clearances as mandated by the State and local ordinances, home hardening with fire-resistant materials, and infrastructure improvements to facilitate efficient firefighting response. Community education and engagement are equally vital; residents who understand fire risks and know how to prepare for emergencies can make informed decisions that protect both their properties and their neighbors.

Beyond these direct, on-the-ground actions, collaborative planning and resource-sharing among local agencies, utilities, and community groups in the Placerville area play a critical role in maintaining consistent fire preparedness. Strengthened building codes, updated land use policies, and routine emergency drills will help ensure that Placerville remains resilient in the face of evolving wildfire threats. By adopting a layered strategy that addresses prevention, preparedness, and response, the city and surrounding unincorporated areas, with the support of the El Dorado RCD, can better safeguard its homes, businesses, and natural landscapes. Each of these wildfire mitigation strategies will be summarized in more detail below.

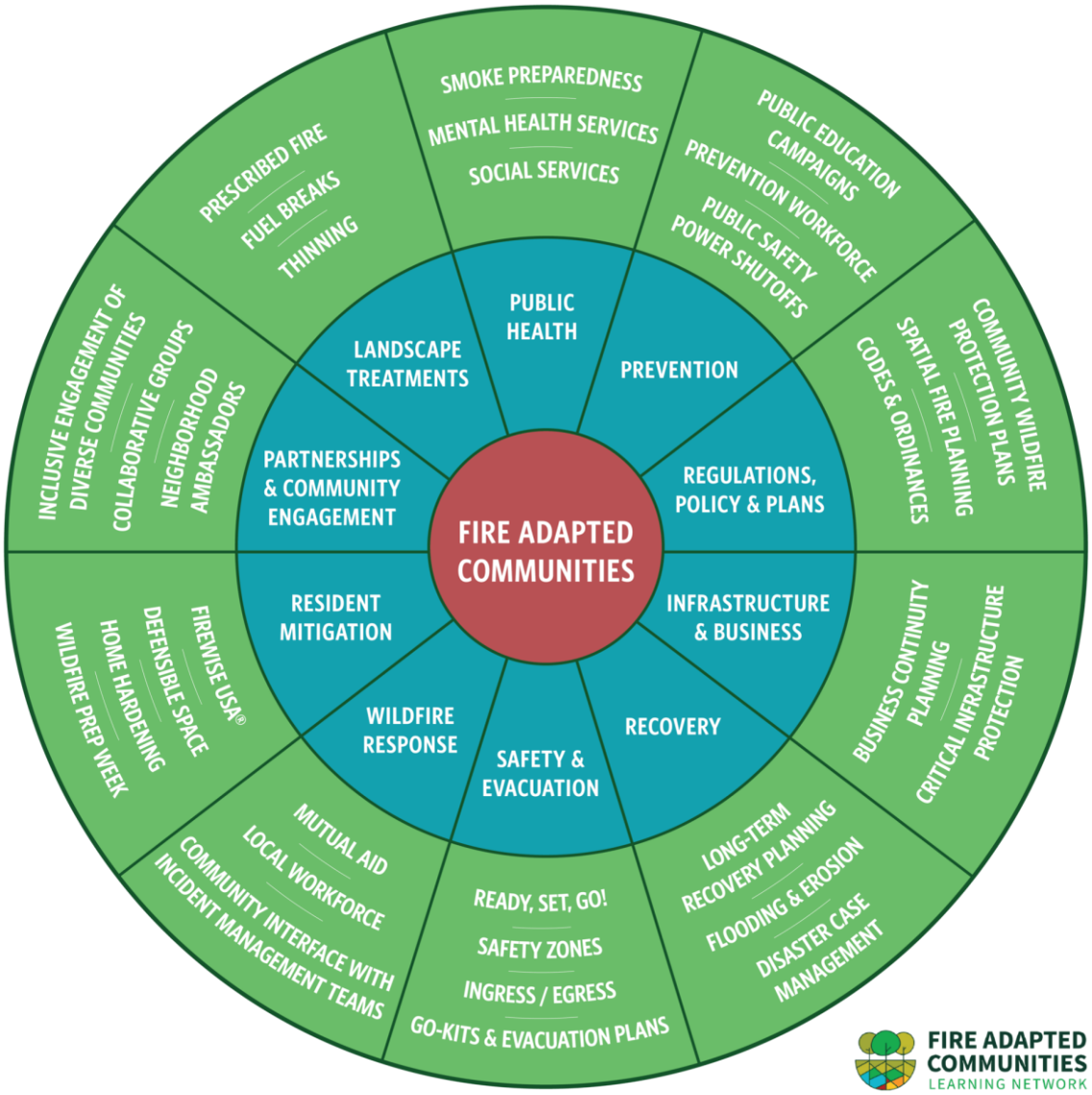
7.1. Landscape Treatment

Fire Adapted Communities (FAC) represents both a concept and a movement aimed at helping neighborhoods better prepare for, respond to, and recover from wildfires. By fostering cooperation among residents, local governments, fire departments, land managers, and other key stakeholders, FAC encourages a holistic approach that helps communities reduce wildfire risks and strengthen overall community resilience. As illustrated by the FAC Wheel in Figure 7-1, of the 10 interconnected elements, six of those elements are vital for creating fire-adapted communities: landscape treatments; resident mitigation (home and property protection); regulations, policy, and plans (community planning); partnership and community engagement and prevention activities (public education); wildfire response; and safety and evacuation preparedness.

This chapter focuses on potential strategies the City of Placerville and El Dorado RCD can consider that address each of these elements that support wildfire resilience, with a particular emphasis on fuels treatment mitigation. In addition, it offers high-level recommendations for protecting property, ensuring life safety, improving emergency communications, and refining evacuation planning. By examining these strategies in greater

detail, communities like Placerville can better understand how to adapt, prepare, and stand resilient in the face of wildfire threats. Vegetation management, including fuel treatment projects that consist of prescribed burning, slash pile burning, and fuel breaks are each summarized below as potential fuels mitigation project types.

Figure 7-1 Fire Adapted Communities Wheel



7.1.1. Landscape Treatments

FACs use landscape-level fuels reduction treatments to strategically manage fuel loads and reduce fire risk. These treatments methodologies include defensible space, hazardous fuels reduction projects in areas with high wildfire risk, fuel breaks, roadside thinning, and large-scale forest health and restoration treatments that combine prescribed fire, slash pile burning, and a combination of mechanical and manual techniques to treat lands within the WUI and the wildlands. Each treatment methodology involves collaborative work between residents and

organizations. Each treatment type is also connected to the proximity to structures. Defensible space requirements and fire code standards also apply to reducing fire intensity around structures whereas forest health and landscape wildfire resiliency apply to open spaces in the wildlands.

Fuels reduction treatment projects are initiatives designed to lessen the amount of overgrown vegetation in forests and other wildland areas. Over time, fire suppression policies and limited land management have allowed combustible materials—like dead trees, shrubs, and other vegetation—to accumulate. By using techniques such as prescribed fires, mechanical and manual tree thinning, pruning, chipping, mastication, and clearing around roadways, these projects help manage forest density and diminish the likelihood that a small spark will ignite a large-scale wildfire.

One of the primary benefits of these efforts is reducing both the severity and the potential spread of wildfires. When forests are overly dense, flames can climb through the ladder fuels into tree canopies and advance rapidly. By clearing out excess ladder fuels and creating strategic breaks in the landscape, landscape treatments like tree and brush thinning can slow fire behavior, protect nearby communities, and improve conditions for firefighters responding to wildfires. Beyond immediate fire concerns, these initiatives also promote healthier and more resilient forests; thinning out stands enables remaining trees to access more sunlight, water, and nutrients, encouraging improved growth and aiding overall forest recovery after disturbances.

Fuel reduction projects further support biodiversity by creating a mosaic of habitats that benefit a variety of plant and animal species. In many ecosystems, periodic low-intensity fires are a natural part of the cycle, helping certain plants germinate and maintain species diversity. By carefully reintroducing fire and removing excessive vegetation, land managers can restore these fire-dependent ecosystems that have been altered by decades of suppression. Additionally, healthier landscapes help protect watersheds and wildlife habitats from the severe impacts of catastrophic wildfires, ultimately fostering greater ecological balance and community safety.

The PPSA has an active and committed fuel treatment program lead by land managers at El Dorado County, El Dorado RCD, El Dorado Irrigation District (EID), SMUD, Caltrans and USFS. Figure 6-6 in the previous chapter showed the existing completed, active/in-progress, and planned fuel treatments in the planning area. This information is derived from CAL FIRE's Management Activity Project Planning and Event Reporter (CalMapper), El Dorado RCD, El Dorado County, EID, SMUD, Caltrans, and PG&E data sources. Each FSC and many of the smaller water districts and other agencies in the County have been involved in many large fuel treatment projects both in the PPSA and throughout the County. Given these fuel treatment project successes, the treatment momentum already observed in the PPSA and surrounding areas should be built upon as part of the CWRS to further increase fuel treatment effectiveness across the landscape.

One landscape-level fuel reduction project implemented by CAL FIRE and El Dorado RCD in El Dorado County is the Sly Park Vegetation Management Program (VMP), located near Pollock Pines. This program completed a strategic fuel break around Jenkinson Lake and surrounding recreational areas. By thinning overly dense stands of trees, removing excess underbrush via mastication, and clearing roadside vegetation, the project aims to slow potential wildfire spread and improve firefighter access and safety.

In addition to mitigating fire risks for nearby communities, the Sly Park VMP promotes healthier forest conditions. Thinning operations allow remaining trees to receive more sunlight, water, and nutrients, which helps them grow more robustly and resist pests and diseases. The fuels treatment project also makes use of prescribed fire in selected areas, restoring natural fire regimes that were historically part of the local ecosystem. Through these efforts, CAL FIRE and its partners protect local watersheds, improve habitat for wildlife, and enhance the overall resilience of the forested landscape around the City of Placerville and in El Dorado County.

7.1.2. Fuel Breaks

Fuel breaks are strategically created strips or blocks of land where vegetation and fuel loads are reduced to help slow or stop the spread of wildfires (NRCS 2020). These areas, often wide strips of land, are designed by thinning or removing trees, shrubs, and other dense vegetation while sometimes leaving a grass understory to provide soil cover. Fuel breaks serve as barriers that reduce the intensity of wildfires, making them easier to manage and control while also providing critical access points for firefighting operations.

The benefits of fuel breaks are numerous. By reducing available fuel, they limit the speed and spread of wildfires, offering valuable time for emergency responders to act. These areas provide safer access for firefighters and enable the use of firefighting tactics such as backfires to redirect or extinguish advancing flames. Additionally, fuel breaks protect communities, critical infrastructure, and evacuation routes during emergencies by creating buffers between wildland areas and populated regions. They also help break up large, continuous tracts of vegetation, reducing the risk of catastrophic fire events.

Fuel breaks can take different forms, including shaded fuel breaks, where some tree cover is maintained to minimize soil erosion and preserve habitat. Their effectiveness depends on careful planning, taking into account topography, wind patterns, and community needs. While fuel breaks alone cannot stop a wildfire, they are essential tools in wildfire management.

The Camino-Pollock Pines Fuel Break is a strategic wildfire mitigation project located along the ridgeline between the South Fork American River and the communities of Camino and Pollock Pines in El Dorado County. Spanning approximately 8 miles, this shaded fuel break is about 600 feet wide and involves thinning and masticating brush and smaller trees, removing dead trees, pile burning, and chipping. The project is a collaborative effort among the USFS, CAL FIRE, the El Dorado County and Georgetown Divide RCDs, and various private landowners.

This fuel break has proven effective during recent wildfire events, particularly the 2021 Caldor

Fire. As the fire approached the Highway 50 corridor near Jenkinson Lake, the fuel break provided a critical buffer that moderated fire behavior, allowing firefighters to operate safely and implement defensive tactics. The reduced fuel loads within the break slowed the fire's progression, contributing significantly to the protection of the communities of Pollock Pines and Sly Park, where no homes or structures were lost.

7.1.3. Vegetation Management

Vegetation management is the practice of controlling and modifying tree and plant growth to reduce wildfire risks, improve ecosystem health, and enhance public safety. Over time, forests and other wildland areas can accumulate excess vegetation, such as brush and dead plant material, creating hazardous conditions. By removing these materials, creating defensible spaces around structures, and promoting low-growing, fire-resistant vegetation, land managers and property owners can limit the potential for wildfires to ignite and spread.

One of the most important benefits of effective vegetation management is the reduction of wildfire severity. By thinning overgrown vegetation and supporting fire-resistant tree species in wildland areas and maintaining fire-resistant landscaping in the WUI, wildfires are less likely to climb through ladder fuels into tree canopies or reach homes and critical infrastructure. This practice also improves transmission reliability for utilities, as cleared and maintained vegetation reduces the risk of power line damage and service disruptions. Additionally, managing vegetation fosters healthier ecosystems by encouraging the growth of native trees and plants and providing better habitats for local wildlife.

Beyond immediate risk mitigation, proper vegetation management can lower long-term maintenance costs. Regularly scheduled assessments and preventive treatments reduce the likelihood of needed large-scale vegetation removal projects later. Ultimately, by limiting the intensity and spread of potential wildfires, vegetation management contributes to increased public safety and property protection, making communities more resilient in the face of natural hazards.

Prescribed Burning

Prescribed burns, also called controlled burns, are intentionally set fires used by land managers to achieve specific objectives. Unlike wildfires, which can ignite unexpectedly and spread uncontrollably, prescribed burns are carefully planned and implemented under precise conditions—such as favorable weather, proper fuel moisture levels, and designated safety measures. By applying scientific principles and historical knowledge of fire behavior, land managers can direct the fire's path and intensity, ensuring that it remains within set boundaries and does not pose risk to nearby communities or sensitive habitats.

One of the most significant benefits of prescribed burning is reducing hazardous fuels. When dead trees, dried grasses, and overgrown vegetation accumulate, they create the perfect conditions for a catastrophic wildfire. By burning off this excess material in a controlled manner, land managers limit the potential for large-scale fires to ignite and spread. According to the EDCFSC, prescribed burns help restore and maintain fire-dependent ecosystems in addition to mitigating wildfire risks. Many plant communities, such as the Gray Pine, Black Oak, and Ceanothus, and wildlife species, such as mule deer, black bears, and

mountain quails, rely on periodic fire to regenerate. Carefully timed burns remove invasive plants, encourage native flora to thrive, and renew vital nutrients in the soil, ultimately improving both the structure and biodiversity of the habitat (USFS n.d.). For wildlife, prescribed fire can yield fresh forage and more diverse habitats, while grazing animals benefit from the higher nutritional content often found in recently burned areas (USFS n.d.).

Beyond ecological advantages, prescribed burns play a key role in promoting long-term land stewardship. By releasing nutrients locked in dead vegetation, these fires help rejuvenate the soil, encouraging robust plant growth in subsequent seasons (Nelson 2022). When part of a broader land management strategy, prescribed burns can reduce maintenance costs, support healthier forest and rangeland conditions, and safeguard both natural areas and nearby communities from the destructive impacts of unplanned wildfires.

Prescribed burning in the Placerville area has occurred in the Eldorado National Forest, where the USFS conducts controlled burns in the Placerville Ranger District. These burns are typically part of larger fuels reduction or forest health projects aimed at removing excess brush, dead wood, and smaller trees. By carefully selecting burn locations and timing, the USFS can lower wildfire risks and restore the natural role of fire in the landscape. These projects not only reduce hazardous fuels but also recycle nutrients back into the soil, encourage new plant growth, and improve habitat for wildlife. Local fire districts and other agencies often partner with the USFS on these efforts, keeping the Placerville community informed about schedules and any potential smoke impacts.

Slash Pile Burning

Slash pile burning is a forest management technique that involves igniting and consuming woody debris—often referred to as slash—that remains after logging or thinning operations. These piles can include branches, brush, and small trees that would otherwise accumulate on the forest floor. By intentionally piling and burning this material, land managers can significantly reduce the amount of readily combustible material in an area, thus lowering the risk of large-scale wildfires. Like prescribed burns, slash pile burning is typically carried out under carefully controlled conditions, with attention to weather patterns, fuel moisture levels, and air quality regulations, to ensure safety and minimize smoke impacts.

Beyond mitigating wildfire hazards, slash pile burning offers several ecological and practical benefits. It helps maintain forest health and resilience by preventing the buildup of pests and disease in dead or dying vegetation. As the fire consumes the debris, it releases nutrients back into the soil, promoting new plant growth and creating diverse habitats for wildlife. In addition, this technique is a cost-effective way to manage logging residue, as it reduces the need for trucking or chipping large volumes of slash. By curtailing invasive species that may take hold in unmanaged slash piles, and providing a more open understory for native plants to flourish, slash pile burning plays an important role in sustainable forest management.

The Eldorado National Forest implements slash pile burning regularly in its ongoing vegetation management projects. These burns are part of efforts to reduce hazardous fuels accumulated from thinning operations, logging, or storm damage cleanup. Piles are created during mechanical thinning operations and then burned during favorable conditions to ensure safety and effectiveness.

One specific area where slash pile burning has been utilized is the Weber Creek Project, near Placerville. This initiative aims to reduce wildfire risks in the WUI by removing excess vegetation, thinning overgrown areas, and disposing of slash piles through controlled burns. These efforts not only reduce fuel loads but also improve forest health and provide safer conditions for firefighting operations in the event of a wildfire.

A controlled slash pile burn in progress, as featured on the El Dorado County Fire District's burn permit page, showcasing efforts to reduce wildfire risks and manage forest debris responsibly.
Source: El Dorado County Fire Protection District, 2025

In addition, private landowners and community groups, in coordination with CAL FIRE or the EDCFSC, carry out smaller-scale slash pile burns to maintain defensible space and manage vegetation on private properties.

7.1.4. Landscape Treatment Community-Pilot Projects

Below are examples of completed or ongoing landscape-level fuels treatment projects.

Weber Creek Project – 2025-2027

El Dorado County has secured a $25 million California Wildfire Mitigation Program grant for this three-year pilot project. The focus is on assisting approximately 525 homes within the high wildfire risk area along the Weber Creek drainage, south of Placerville. The project aims to create defensible space and retrofit homes with ignition-resistant building materials, enhancing the community's ability to withstand wildfires.

Fire Adapted 50 Project – 2020-2025

This project is part of the broader *Western El Dorado County CWPP*. It focuses on creating fuel breaks and implementing fuel reduction treatments along 50 strategic miles to protect communities from wildfire threats. The project involves collaboration among local FSCs, the USFS, CAL FIRE, and private landowners, aiming to enhance the resilience of communities by reducing hazardous fuels and improving forest health.

Sly Park Vegetation Management Plan – 2022-2025

This project is a collaborative wildfire mitigation initiative focused on reducing hazardous fuels and improving forest health in the Sly Park area, near Jenkinson Lake in El Dorado County. This program is managed by CAL FIRE in partnership with the EDCFSC, the USFS, and local stakeholders. It combines mechanical thinning, hand treatments, and prescribed burns to create defensible spaces and improve the overall fire resilience of the region. The program's objectives include reducing wildfire risk by removing dead and overgrown vegetation, improving access for firefighters, and protecting nearby communities, recreational areas, and critical infrastructure. A key component of the Sly Park VMP is the use

of prescribed burns to manage vegetation and restore the natural role of fire in the ecosystem. By reducing fuel loads and promoting healthier forests, the program also enhances wildlife habitat and safeguards local watersheds.

7.2. Land Use, Policy, and Planning

Communities can adopt a range of land use and planning tools focused on planning solutions that provide a holistic framework and set of policy and regulatory strategies for the WUI. These tools provide an important planning framework and create consistency between locally and regionally applicable plans and regulations, policies, and public investment programs used for implementation. Within the FAC structure this includes regulations, policy, and plans. The most fundamental planning tool communities can leverage to address wildfire risk in the WUI is the General Plan. The General Plan includes goals, policies, and implementation programs that address existing development and future growth in the WUI, community safety, accessibility and circulation patterns, natural systems, and post-disaster recovery. In California, the General Plan consists of seven mandatory chapters or elements (certain cities and counties must also develop air quality and environmental justice elements), such as the Safety Element that specifically addresses natural hazards like wildfires and public health and safety. The General Plan is also linked to other plans that focus on wildfire risk reduction, such as Local Hazard Mitigation Plans, (LHMPs), CWPPs, open space management plans, watershed plans, capital improvement plans, and emergency operations plans (EOPs). The examples highlighted in Figure 7-2 are types of functional plans that support WUI planning by incorporating land use strategies into short-term and long-term local activities. Additionally, neighborhood, district, or other scaled planning areas can advance the goals of the general plan by offering additional detail at a more granular scale.

Figure 7-2 Types of Land Use Plans that Align with WUI Planning

Source: WSP 2025

Taken together, plans provide an opportunity to reinforce wildfire risk reduction goals and objectives and ensure WUI hazard mitigation strategies are consistent with other land use policies and do not conflict with other community priorities.

While a variety of plans serve as the policy foundations for addressing risk in the WUI, regulations and building codes also provide communities with the legal means to implement policies. WUI regulations address both existing and future development in the WUI including structures roads, critical infrastructure, landscaping, and other development features. Key regulatory and code strategies can include the zoning code, subdivision regulations, fire code, building code, and WUI regulations. Table 7-1 provides an overview of the land use and community development features in the WUI that can be regulated by any of the code and regulatory tools organized by scale and the tool type.

Table 7-1 Land Use and Development Considerations Addressed by Regulatory Tools

WUI Regulatory Tools (by type)					
Land Use or Community Development Feature	Subdivision Regulations	Zoning Code	Building Code	Fire Code	WUI Code
Community Scale					
Refuge Areas	✓	✓		✓	✓
Hazardous Land Uses		✓		✓	✓
Land Uses (with dense populations)		✓		✓	✓
Safe growth	✓	✓			
Sensitive area protection	✓	✓			
Public open space, parks, and trails	✓	✓		✓	✓
Neighborhood/Subdivision Scale					
Buffers/Screening	✓	✓			✓
Roads and Bridges	✓			✓	✓
Secondary Access	✓			✓	✓
Setbacks	✓	✓			✓
Vegetation Management	✓	✓			✓
Water Supply	✓			✓	✓
Building/Lot Scale					
Building Materials and Construction		✓	✓	✓	✓
Building Numbering	✓		✓		✓
Building Siting	✓	✓		✓	✓
Decks and Attachments		✓	✓		

WUI Regulatory Tools (by type)					
Driveways	✓	✓		✓	✓
Landscaping		✓			✓
On-Site Water Storage	✓			✓	✓

Source: Adapted from Planning in the Wildland-Urban Interface Planning Advisory Service Report 594

Collectively, these tools can be implemented at a range of scales. Larger cities can mandate zoning code updates focused on development in the WUI or defensible space requirements. At the neighborhood scale, subdivision regulations can be applied to direct specific uses away from wildfire hazard areas or by creating landscaping ordinances that are compatible with the neighborhood and defensible space requirements. Lastly, at the individual lot scale, defensible space and home construction or retrofit standards provide homeowners with an understanding on how to incorporate ignition-resistant materials into home construction. Understanding there is a range of options is also key if there are local efforts to enforce stricter local standards than state requirements.

7.2.1. Land Use, Policy, and Planning Project

In 2024 El Dorado County was placed on the State Board of Forestry and Fire Protection's Fire Risk Reduction Community List, It was one of seven counties in California to receive this placement and is based on the application of best wildfire mitigation practices. This listing benefits the unincorporated portions of the County around the PPSA through prioritization of CAL FIRE Wildfire Prevention Grants and potential insurance discounts. The updates and amendments of several key land use policy and planning documents qualified the County for eligibility to be listed, including the adoption of a local ordinance designating the County a VHFHSZ, an updated Safety Element, and completion of recent fire safety recommendations from Board. The County also recently amended their Defensible Space Ordinance.

7.3. Property & Critical Infrastructure Protection

Property protection is a key component of wildfire mitigation, focusing on reducing the vulnerability of structures and landscapes to fire. Within the FAC structure this includes resident mitigation and infrastructure protection. Strategies include creating and maintaining defensible space around structures, including homes by clearing vegetation, removing combustible materials, and using fire-resistant landscaping. Structural hardening measures, such as installing fire-resistant roofing, siding, windows, and vents, further enhance a building's resilience. The strategies for critical facilities and infrastructure protection are equally important, as these assets support essential services and community resilience. Critical facilities, such as hospitals, emergency operations centers, water treatment plants, and power substations, must remain functional during and after wildfires to ensure public safety and effective response. As such mitigation efforts include implementing defensible space around these facilities, using fire-resistant construction materials, and enhancing facility designs to withstand wildfire impacts.

Infrastructure, such as transportation systems, power grid networks, and communication systems, plays a vital role in facilitating evacuations, supporting emergency services, and maintaining connectivity. Strategies like transportation infrastructure improvements along designated evacuation routes, undergrounding power lines, reinforcing utility poles, and creating firebreaks along transportation corridors help reduce vulnerabilities. Additionally, integrating wildfire risks into infrastructure planning and maintenance schedules ensures long-term resilience.

Community-level initiatives, such as enforcing building codes and promoting wildfire-resistant construction standards, also play a role in reducing fire risks. Programs like home evaluations, retrofitting incentives, and public education campaigns help property owners understand and implement mitigation measures. Property protection is therefore only effective when it is complemented by public outreach and engagement activities that involve educating private property owners about local defensible space ordinances and structural hardening.

By emphasizing property and critical infrastructure protection, these efforts not only safeguard individual homes and businesses and key infrastructure but also contribute to broader community resilience. Mitigated properties are less likely to ignite and spread fires, protecting neighboring structures and reducing overall wildfire impacts.

A type of vegetation management in El Dorado County includes the EDCFSC's Defensible Space Program, which provides direct assistance to vulnerable residents—including seniors, veterans, and individuals with disabilities or limited resources—to help create fire-resistant clearance zones around their homes. Through grants and partnerships with local fire districts and agencies such as CAL FIRE, EDCFSC helps ensure that residents who may not have the physical ability or financial means to maintain their property are still able to comply with defensible space guidelines. The program's goal is to improve community safety overall, creating a buffer that can slow or even stop oncoming wildfire. In turn, this reduces risks to individual homes, limits the spread of potential fires into neighborhoods, and provides safer conditions for firefighting efforts. Ultimately, by focusing on vulnerable members of the community, the Defensible Space Program helps protect lives and property while fostering a culture of shared responsibility and resilience throughout El Dorado County.

7.4. Life Safety Protection

Life safety protection is the highest priority in wildfire mitigation, aiming to safeguard residents, emergency responders, and vulnerable populations from harm. Within the FAC structure this includes wildfire response and safety and evacuation procedures. Effective strategies include developing and disseminating evacuation plans, assessing, and ensuring clear and accessible ingress and egress routes, establishing safety zones, and utilizing early warning systems like Wireless Emergency Alerts (WEA) and Reverse 911 to notify communities of imminent threats. Wildfire response also involves mutual aid assistance and close coordination with incident command centers.

Community education on evacuation readiness, such as assembling emergency kits and understanding evacuation zones, enhances individual preparedness. Specialized support for

vulnerable populations, including the elderly, disabled, and non-English speakers, ensures equitable access to life-saving resources and information. For emergency responders, providing robust training, clear communication, and adequate resources minimizes risks during firefighting and rescue operations.

7.5. Public Education and Awareness

Raising public awareness and fostering education on wildfire preparedness are fundamental steps in mitigating the impacts of wildfires. Within the FAC structure this includes partnerships and community engagement and specific prevention activities. The following strategies outline actionable ways to empower communities, enhance understanding of wildfire risks, and promote proactive measures to safeguard lives and property.

- **Defensible Space Awareness:** Educating residents on creating and maintaining defensible space around homes, emphasizing vegetation management and compliance with local regulations like California's five-foot ember-resistant zone requirements. The City of Placerville has Defensible Space Guidelines in educate citizens.
- **Home Hardening Outreach:** Promoting knowledge of structural hardening techniques, such as upgrading to fire-resistant roofing, vents, and siding, and retrofitting homes to meet wildfire-resistant building standards.
- **Community Engagement Programs:** Utilizing FSCs, workshops, and public meetings to involve communities in wildfire preparedness, evacuation planning, and mitigation projects. Virtual tools like webinars have proven effective for broader engagement.
- **Risk Communication:** Providing clear and accessible information about local fire risks, defensible space guidelines, and preparedness resources through local agencies, social media, and direct community outreach.
- **Collaborative Efforts:** Partnering with schools, businesses, and civic organizations to embed fire safety education into broader community activities and initiatives.
- **Preparedness Drills:** Organizing and promoting community-wide fire drills to familiarize residents with evacuation routes and safety protocols.

By implementing these public education and awareness strategies, communities can strengthen their resilience against wildfires. An informed and prepared population is a critical defense in reducing wildfire risks.

Effective emergency notifications and communications play a critical role in mitigating the impacts of wildfires by ensuring timely and accurate information reaches at-risk populations. Systems like WEA, Reverse 911, and social media platforms provide real-time updates about wildfire threats, evacuation orders, and safety instructions. These tools are essential for coordinating evacuations, helping residents understand evacuation zones, routes, and shelters, which reduces chaos and ensures a more orderly response.

Before wildfires occur, communication systems disseminate preparedness information, such as tips on creating defensible space, assembling emergency kits, and developing evacuation plans, to enhance community readiness. During active wildfires, clear and consistent messaging from reliable sources builds public trust, encourages adherence to safety

protocols, and reduces misinformation and panic. Communications also support emergency responders by facilitating coordinated efforts and providing updates throughout the recovery phase, such as return-to-home instructions and the availability of resources.

7.5.1. Public Education and Awareness Pilot Project

Below is an example of an ongoing public outreach and awareness project.

Placerville FSC (PFSC)

Established by local citizens in January 2019, the PFSC is an all-volunteer organization operating as a satellite group of the El Dorado County FSC. The council focuses on addressing wildfire threats through community engagement, education, and the development of localized CWPPs. These plans identify specific wildfire risks and outline strategies to mitigate them, tailored to the unique needs of the Placerville area.

Controlled burns in Tahoe National Forest.

Source: Kevin Cooley for the New Yorker

8. Action Plan

The action plan describes the wildfire mitigation strategy for the City of Placerville. The plan is intended to provide project recommendations and implementation guidance to the city, El Dorado RCD, and El Dorado County. It describes how the city and RCD set goals, reviewed possible wildfire mitigation actions, and drafted the action plan. The plan recognizes that wildfire mitigation and preparedness and resiliency must incorporate both pre- and post-disaster actions. This action plan has been aligned with the city's *General Plan Health and Safety Element*, *El Dorado County MJHMP* and City of Placerville Annex, the *Placerville FSC CWPP*, and EOP. The plan has also been aligned with the strategies in the 2021 *California Wildfire and Forest Resilience Action Plan* and the draft strategies in the *Western El Dorado County CWPP*.

The action plan goals and recommendations have been developed around the themes of the four main goals of the States' Wildfire and Forest Resilience Action Plan focused on increasing the pace and scale of forest health projects, strengthening the protection of communities, managing forests to achieve the State's economic and environmental goals, and driving innovation and measure progress.

8.1. Mitigation Goals

As part of the planning process, the City of Placerville and El Dorado RCD assessed wildfire hazards and risks, engaged the community around wildfire resiliency, and documented wildfire mitigation capabilities based on past and current planning efforts. During the planning process, the El Dorado RCD held a series of meetings designed to achieve a collaborative mitigation strategy. Goals developed during the TAC meetings, stakeholder workshops, and public workshops were defined for the purpose of this action plan as broad-based public policy statements that:

- Represent the long-term desires for the community related to wildfire resiliency;
- Encompass the whole community, including both public and private land owners;
- Are non-specific of the outcome (in that they refer to the quality not the quantity);
- Are future oriented and achievable; and
- Are time independent and not scheduled events.

These goal parameters helped the TAC and stakeholders consider goals; they were also drafted following the review of the wildfire hazard and wildfire risk assessment results. The risk assessment identified key priority areas for fuel treatments and areas for improvement. The city and El Dorado RCD, in collaboration with the TAC, developed the following new goals.

GOAL 1: RESTORE AND MAINTAIN HEALTHY FORESTS

Reducing wildfire risk requires more than simply relying on suppression efforts. It calls for thoughtful, collaborative planning among the people and organizations impacted by wildfires to develop and implement both short- and long-term strategies. Effective landscape treatment and vegetation management are critical to reducing wildfire risk and promoting forest health in and around Placerville. The

primary focus under this goal is increasing the pace and scale of fuel reduction projects to decrease fire intensity, slow fire spread, and enhance forest resiliency.

Key Action Types

Vegetation Management:

Effective vegetation management is necessary for reducing wildfire risks in high-risk areas. This strategy type emphasizes larger-scale forest health and restoration treatments that involve thinning dense vegetation and removing dead or dying trees to lower fuel loads, slow fire spread, and increase resiliency to catastrophic wildfire. Additionally, implementing landscape-level forest health projects enhances ecosystem resilience, making forests better equipped to withstand and recover from wildfires. By prioritizing treatments on both public and private lands in the most vulnerable locations, resources can be allocated more efficiently, maximizing the impact of mitigation efforts. The majority of the vegetation management actions would occur outside the Placerville City Limits and within the WUI or the PPSA Periphery treatment zones. Figure 6-1 in the previous chapter illustrated the three treatment zones in the city center, WUI, and periphery.

Fuel Breaks

Establishing and maintaining strategic fuel breaks not only reduces wildfire risk but plays a critical role in restoring and preserving healthy forests. By creating zones where fire intensity and spread are lowered, fuel breaks help firefighters contain wildfires more effectively while maintaining the ecological balance needed for long-term forest resilience. In addition, they can safeguard vital infrastructure—such as water treatment facilities, power lines, and transportation corridors—and provide safer evacuation routes, ultimately strengthening the protection of both communities and the natural environment. Fuel break actions would occur in any of the three treatment zones.

Prescribed Burning

Reintroducing fire in a controlled setting to fire-dependent ecosystems reduces hazardous fuel loads and curbs the intensity of potential wildfires while supporting crucial ecological processes. Prescribed burns are cost-effective, allowing for the efficient management of large areas of land. A notable example is the Prescribed Burning on Private Lands (PBPL) Pilot Program in Placer County, which offers landowners the guidance and resources to use prescribed fire safely and effectively. This initiative highlights how proactive partnerships and responsible land stewardship can help bolster forest health and enhance wildfire resilience. Prescribed burning actions would occur within the WUI and the PPSA Periphery treatment zones.

Fuel Treatment and Reduction

Implementing a diverse range of fuel treatment strategies, including roadside treatments and fuel reduction on private land, is essential for restoring and maintaining healthy forests while minimizing wildfire risk. Roadside treatments not only improve evacuation routes but also enhance firefighter access, allowing for quicker responses when emergencies arise. By encouraging and supporting fuel reduction on private properties through education and

assistance programs, the overall area of treated land expands, creating a more fire-resilient landscape and reducing the potential intensity of wildfires. Landscape-level fuel reduction treatments would occur in all three treatment zones.

Additionally, utilizing an array of treatment methods, such as mastication, chipping, and biomass removal, enables land managers and property owners to tailor approaches to specific site conditions. This flexibility ensures that forests are nurtured back to health in ways best suited to local ecosystems, while mitigating the buildup of hazardous fuels that can ignite or spread fires rapidly. Collectively, these efforts can strengthen both forest ecosystems and surrounding communities.

GOAL 2: FIRE ADAPTED COMMUNITIES

Building FACs ensures that people and infrastructure are prepared to respond to and recover from wildfire events. This goal focuses on increasing community awareness, preparedness, and mitigation efforts at the individual property owner and neighborhood scale so that human populations and infrastructure can withstand a wildfire without loss of life and property.

Key Actions

Defensible Space Programs

Promoting and enforcing defensible space requirements is a critical step toward creating a fire-adapted community in Placerville. By ensuring properties in high-risk zones reduce fuel loads around structures, homeowners and land managers help slow fire spread and support more effective firefighting efforts. Initiatives like EDCFSC's Defensible Space Program - specifically designed for seniors, veterans, low-income, and disabled residents it encourages community-wide participation and builds resilience against wildfires. Expanded defensible space programming would mainly occur within the city, given the County has made recent updates to their Defensible Space Ordinance.

El Dorado County's Defensible Space Ordinance consolidates all relevant laws, codes, and requirements, making it easier for residents to understand and meet their obligations. Additionally, the County OWPR conducts defensible space inspections in response to citizen complaints and proactively in identified County Emphasis Areas (CEAs). Together, these programs and enforcement measures unite residents, local government, and community organizations in safeguarding Placerville, exemplifying how a concerted effort to maintain defensible space fosters both wildfire risk reduction and a truly fire-adapted community. Key actions under this goal would focus on expanding and updating the City of Placerville defensible space programs.

Home Hardening Assistance

The city and El Dorado County could design a home hardening assistance program, designed to help high fire risk communities collectively achieve home hardening in combination with defensible space maintenance. The State is also in the process of developing their first home hardening assistance program also designed to support low-

income communities. The State program is currently in the demonstration phase and being piloted in multiple counties, like Shasta County, San Diego County, Tuolumne County, and Lake County, and including the Weber Creek pilot project in El Dorado County. The program will encourage cost-effective structure hardening and retrofitting, facilitate vegetation management and the creation and maintenance of defensible space, and other fuel modification activities. Similar pilot projects could be proposed within the city through collaboration with El Dorado County and El Dorado RCD staff. Home hardening applies to all treatment zones.

Public Education and Outreach

Public education and outreach are crucial to cultivating a fire-adapted community and reducing wildfire risk. By offering workshops and distributing educational materials around wildfire risk, defensible space requirements, and evacuation protocols the Placerville FSC empowers residents with knowledge about wildfire preparedness, home hardening, and evacuation planning. Public workshops delve into topics such as the purpose of wildfire protection plans, risk assessment, and mitigation strategies, equipping attendees with practical ways to reduce hazards around their properties.

Through these outreach efforts, homeowners learn the importance of creating and maintaining defensible space, hardening structures to prevent ember intrusion, and developing personal evacuation plans that align with local emergency protocols. An informed and engaged community is far more likely to take proactive steps that not only protect individual properties but also enhance the collective resilience of Placerville to withstand and recover from wildfire events. Public education actions apply to all treatment zones.

Community Partnerships

Fostering community partnerships is fundamental to creating a fire-adapted community and reducing wildfire risk. The El Dorado RCD, for example, often leads or collaborates on projects that reduce hazardous fuels, promotes responsible land management, and protects local watersheds, while offering technical expertise, securing project funding, and facilitating multi-stakeholder engagement efforts. Local FSCs and Firewise Communities also play critical roles, educating residents about fire-safe practices and implementing tailored mitigation projects that directly address local needs. These collaborations promote open communication, pool resources, and foster shared responsibility in wildfire prevention and preparedness—ultimately strengthening Placerville's resilience and advancing the goal of a truly fire-adapted community. Community partnerships should be established across all the treatment zones and beyond the PPSA.

GOAL 3: CRITICAL FACILITY RESILIENCE

Ensuring the resilience of critical facilities is essential for maintaining public safety and continuity of services during wildfire events. This goal emphasizes proactive measures to protect essential infrastructure and resources.

Key actions

Facility Assessments

Conducting thorough assessments of facilities such as water treatment plants, power stations, and emergency response centers can identify vulnerabilities and capability gaps before a wildfire strikes. While the risk and vulnerability assessments in a jurisdiction's LHMP provides a baseline understanding of facility exposure, additional focused assessments are also valuable in understanding how to mitigate risk and harden the facility. The Cybersecurity and Infrastructure Security Agency (CISA) offers voluntary, nonregulatory assessments that can uncover these weaknesses, as well as potential interdependencies between infrastructure systems. With a clear understanding of its most pressing vulnerabilities, the city and its utility partners can prioritize mitigation efforts to strengthen and modernize critical infrastructure, thereby enhancing overall community resilience. By proactively investing in facility hardening and preparedness measures, the city is better positioned to maintain essential services during emergencies, protect residents, and support rapid recovery from wildfire events. These facility actions would apply to projects in all treatment zones and should be focused on city-owned facilities.

Protective Measures

Implementing fire-resistant upgrades—such as hardening structures and creating defensible zones around facilities—can significantly bolster the city's capacity to withstand wildfire threats. Placerville's requirements for fire-safe buildings help prevent fires from rapidly igniting and spreading. In addition, creating defensible space around structures and using fire-resistant groundcover in high-risk areas are crucial measures that further mitigate wildfire dangers. Specific projects should also focus on thinning along 50 to 100 feet of roads.

These steps increase the likelihood of critical facilities surviving a wildfire event, thereby ensuring that key infrastructure and services remain operational when the community needs them most. By continually refining and enforcing these measures, Placerville demonstrates a proactive commitment to both preserving public safety and maintaining the resilience of its critical facilities. Protective measures can apply to all treatment zones and should focus on projects or actions that complement utility-scaled wildfire mitigation efforts around vegetation management along utility corridors and fuel treatment efforts associated with roads, potential evacuation routes, water, wastewater, and electrical infrastructure.

Collaborative Planning

By coordinating with local emergency services, utility providers, and other relevant stakeholders, Placerville can safeguard key assets and maintain essential infrastructure during wildfire events. This collaborative planning process identifies improvements to infrastructure that facilitate efficient evacuation routes and support rapid first-responder access. Additionally, prioritizing enhanced emergency response capabilities underscores a collective commitment to bolstering community safety. Interagency cooperation and a

shared focus on infrastructure resilience and effective planning allows communities to be better prepared to protect residents, minimize wildfire damage, and preserve critical services in times of crisis.

GOAL 4: WILDFIRE RESPONSE

A safe and efficient wildfire management framework is vital for minimizing losses and protecting lives during wildfire events. A balanced wildfire response requires integrated pre-fire planning combined with coordinated emergency response efforts. Pre-fire planning enables tailored responses to wildfires across different jurisdictions and landscape units, each with unique uses and management objectives. Enhancing predictions and understanding of weather, fire behavior, and contingencies during wildfire events can improve firefighting effectiveness, reduce losses, and minimize risks to both firefighters and public health and safety.

Key Actions

Pre-Fire Planning

Proactive pre-fire planning is essential for ensuring an effective wildfire response while reducing overall fire risk. By developing and regularly updating response plans that integrate evacuation routes, resource allocation strategies, and scenario analyses, communities like Placerville can better anticipate and adapt to evolving wildfire threats. For example, the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study* modeled four potential wildfire scenarios to assess evacuation routes, calculate evacuation time estimates, and recommend both operational strategies and infrastructure improvements. This kind of forward-looking approach not only strengthens the ability to respond swiftly and decisively when wildfires occur, but also spotlights where vulnerabilities in critical facilities and infrastructure can be addressed in advance. By prioritizing these mitigation efforts before a fire starts, Placerville can enhance its resilience, protect vital services, and support more effective wildfire response when speed and coordination matter most. These pre-fire planning actions, including both the operational strategies and the infrastructure improvements apply to all treatment zones in the PPSA. These actions also include those same operational strategies and infrastructure improvements included in the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*, the *El Dorado County MJHMP* and *Wildfire Evacuation Study*, and the *City of Placerville LHMP*.

Interagency Coordination

Strengthening partnerships among fire agencies, local governments, and community organizations like FSCs is critical to achieving both effective wildfire response and overall risk reduction. Through interagency collaboration, vital communication channels remain open, and resources are shared more efficiently, ultimately enhancing every stage of wildfire management—from prevention and preparedness to evacuation and recovery. This unified effort promotes a strategic, area-wide approach that ensures communities are better equipped to respond quickly to potential threats, protect critical infrastructure, and safeguard

residents during wildfire events. Such coordination must apply to all treatment zones.

Training and Equipment

Ensuring local fire departments have the training and resources necessary to respond effectively to wildfires is a key component of both immediate response and overall risk reduction. CAL FIRE's three state-of-the-art Training Centers provide year-round programs covering fire prevention, emergency response, and law enforcement, all within realistic operational environments. This advanced level of instruction equips firefighters with vital skills in fire control, arson investigation, leadership development, and various specialized areas. In addition, modern firefighting equipment—such as fire suppression bulldozers—significantly boosts the ability to control and contain wildfires, as illustrated by one agency's recent investment in a new bulldozer and trailer specifically designed for fire suppression.

By prioritizing ongoing training and ensuring access to up-to-date equipment, Placerville can strengthen interagency coordination, enhance firefighter readiness, and ultimately reduce the potential impacts of wildfire events. This proactive approach not only improves immediate response capabilities but also mitigates wildfire risk by building a more skilled, resilient, and well-equipped firefighting force.

8.2. Identification of Wildfire Mitigation Actions

The next step in the mitigation action plan is to identify and analyze the range of wildfire mitigation actions and projects to reduce the wildfire risks in the PPSA. During the planning process, the TAC and stakeholder groups reviewed and considered wildfire mitigation tools that are considered in the National Cohesive Wildland Fire Management Strategy and those included in the 2021 California Wildfire and Forest Resilience Action Plan. Potential action categories are organized around best practices guidance from key federal and state sources:

- **Landscape Treatment:** Activities that reduce wildfire fuel loads and also preserve or restore the functions of forest systems.
- **Land Use, Policy, and Planning:** Administrative or regulatory tools that influence the way land and the built environment is developed.
- **Property and Critical Facility Protection:** Actions that involve the modification around existing buildings or structures to protect them from wildfire hazards or remove them from the hazard area.
- **Life Safety Protection:** Actions that protect wildfire responders and people and property during and after a wildfire event.
- **Public Education and Awareness:** Actions that inform, educate, and involve public citizens, elected officials, and property owners about wildfire hazards and ways to mitigate the impacts.

While the focus of this Action Plan is on landscape treatment, the plan also takes into account the city's existing authority, policies, programs, and resources and the ability to expand on and improve these existing plans and programs. There are numerous plans and programs the Placerville CWRS builds upon and aligns with to promote efficiency and to ensure plan consistency. This process of understanding existing capabilities also allowed the TAC and

stakeholders to identify gaps that can be addressed and enhancements that can be considered in this action plan. An example is a gap in an enforcement program around defensible space maintenance can be addressed through additional staff capacity or a change in the city's *Health and Safety Element* policies and implementation procedures.

8.3. Prioritization Criteria and Selection Process

Once the wildfire mitigation actions were identified, two sets of prioritization criteria were considered: one set based on design criteria specific to the fuel treatment scenarios and the second based on the ten pillars of resilience. These criteria were used as a starting point to decide why one recommended priority landscape treatment area may be more important or more effective than another. The same criteria were used in deciding why a land use planning tool like a Defensible Space Ordinance revision may be effective as a priority action. The following design criteria was considered during the wildfire modeling process as built-in data layers to select fuel treatment scenarios:

- High-severity Fire Areas
- Reduce WUI Fire Risk
- Fuel-load Reduction Opportunities
- Areas for Prescribed Burns
- Reduce Fire Risk to Riparian Habitat
- Reduce Fire Risk in Owl Habitat
- Wildlife Richness Exposure to Fire
- Threatened/Endangered Species
- Exposure to Fire
- Areas with Long-term Carbon Storage
- Reduce Fire Risk in Carbon Sinks

The TAC also considered the State's framework for resilience comprised of three main components: pillars, elements, and metrics. Pillars are desired long-term, landscape-level outcomes of restoring resilience. They include ecological values, such as biodiversity, as well as societal benefits to communities, like water security. Elements represent the primary processes that make up the pillar such as water quality. Metrics describe the characteristics of the elements in quantitative or qualitative terms. Figure 8-1 shows the pillars of resilience.

Figure 8-1 Pillars of Resilience

Source: Tahoe-Central Sierra Initiative Framework for Resilience 2023

Each pillar is described in more detail below, including their associated elements and metrics. This information has been summarized based on the *Tahoe-Central Sierra Initiative Framework for Resilience*.

- **Air Quality:** Clean air is important to human health and wellness, clean water, biodiversity, and ecosystems. Catastrophic wildfires degrade air quality and cause respiratory illnesses that affect millions of people, especially children and people who work outdoors. Particulate matter, visibility, and greenhouse gas emissions are associated elements and wildfire emissions, prescribed fire emissions, visual quality, and ozone are associated metrics.
- **Biodiversity Conservation:** Biodiversity plays a major role in our ecosystems and society. Native plants and animals help forests recover after a fire, control flooding and soil erosion, and cycle nutrients. Biodiversity also holds cultural value, including Native American uses, and provides recreational benefits like birdwatching. Focal species, species diversity, and community integrity are associated elements. Suitable habitat, critical habitat, species diversity, and non-native species distribution are associated metrics.
- **Carbon Sequestration:** Carbon sequestration is the process by which carbon dioxide is taken up by trees, grasses, and other plants and stored as carbon in biomass and soils. Resilient forests and wetlands can be net sinks of carbon and can play an important role in reducing greenhouse gas emissions into the atmosphere, thereby

mitigating climate change. Storage and stability are associated elements. Mass and persistence are associated metrics. Certain proposed fuel treatment projects are also modelled for carbon sequestration potential as part of the Placerville CWRS.

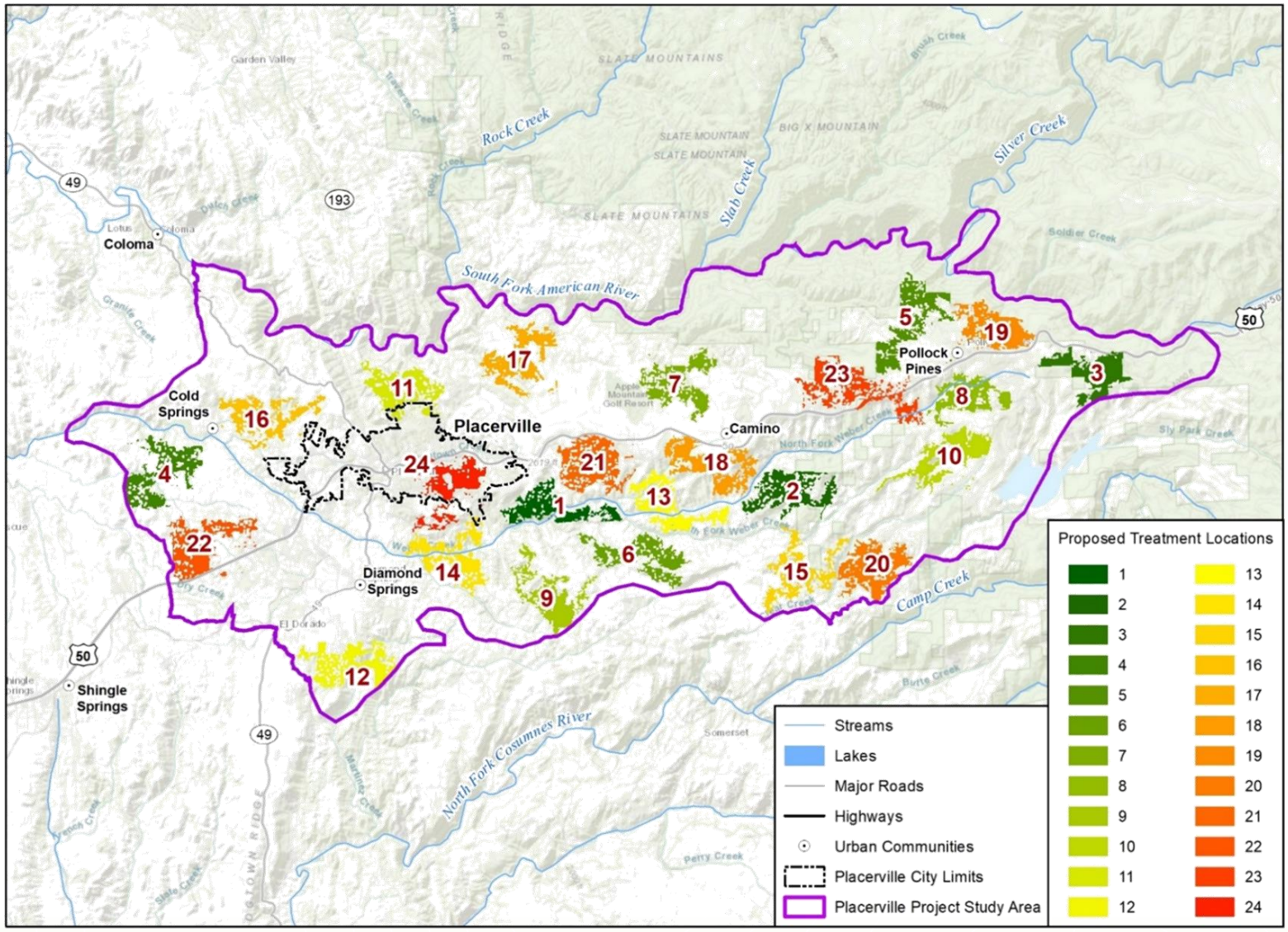
- **Economic Diversity:** Economic diversity increases business opportunities that provide regional economic vitality and additional benefits to rural and vulnerable populations. Resilient forests provide ecosystem services and forest products that in turn provide a foundation for many local and regional economic activities and employment opportunities, including recreation, tourism, and natural resource management. Wood product, recreation, and water industries and economic health are associated elements. Sawtimber supply and demand, biomass supply and demand, and processing capacity are some of the associated elements.
- **Fire Dynamics:** Fire is an integral part of Sierra Nevada forest ecosystems, which are evolutionarily adapted to fire. Ideally prescribed fires and managed wildfires would be allowed to burn across the landscape periodically. They would burn primarily at low to moderate severity in a mosaic pattern that covers large areas, which would provide substantial ecological benefits. Severity and functional fire are associated elements. Risk and a high-severity fire and high-intensity patch fires are associated metrics.
- **FACs:** Due to climate change and other drivers, wildfires increasingly threaten homes and communities, especially in the WUI. FACs are knowledgeable and engaged. They accept fire as part of the surrounding landscape, take action to reduce their vulnerability to fire, and adapt to live safely with fire. Hazard and preparedness are associated elements. Risk of high and moderate-severity fire threat and CWPPs are associated metrics.
- **Forest Resilience:** Resilient forests provide ecosystem services, including wildlife habitat, clean water, stable soils, recreational opportunities, biodiversity, wood products, and carbon sequestration. They play an important role in both mitigating and adapting to climate change. Structure, composition, and disturbance are associated elements. Tree density, basal area, and large/tall tree density are associated metrics.
- **Social & Cultural Well Being:** A growing body of evidence indicates that greater exposure to nature is associated with better health and well-being. Sierra Nevada forests allow people to build and maintain active cultural and social connections to a place. Public health and public engagement are associated elements. Smoke-induced illness and public health susceptibility are associated metrics.
- **Water Security:** Resilient forested watersheds are key for regional and statewide water security. The economic value of California's water far exceeds that of any other forest product. Water flows from forests into rivers that provide critical aquatic and wetland habitat, and that supply agricultural and drinking water for tens of millions of people. Associated elements include quantity, storage and timing, and quality. Associated metrics include groundwater, water yield, snow accumulation, and reservoir storage.
- **Wetland Integrity:** Wetlands provide critical habitat, filter, and retain nutrient pollution, store carbon, enhance water quality, control erosion, and provide spaces for recreation. Structure, composition, and hydrologic function are associated elements. Stream channel morphology and alluvium storage capacity are associated metrics.

In addition to these prioritization criteria the wildfire model and suitability analysis built in five priority metrics as part of the analysis: 1) slope, 2) one-way in/out neighborhoods, 3) 50-foot road vegetation clearances, 4) average conditional flame length, and 5) major transmission corridors. As described in Chapter 6 and Figure 6-5, these five metrics were transformed, weighted, and combined to determine top priority scenarios for fuels treatments.

It is important to note that while the two sets of prioritization criteria outline a risk-based prioritization process (in combination with the fuel treatment suitability model), a substantial amount of stakeholder and public input was provided throughout the planning process as part of the public survey, neighborhood conversations, and public workshop series. The selected projects did not only consider high risk wildfire areas over other factors. Collaboration with the TAC and the public was a key part and another tool used to direct where the city and El Dorado RCD considers doing fuel treatment projects.

This risk-informed prioritization process combines both quantitative and qualitative analysis, Planscape wildfire modelling tool, and the professional judgement from the TAC's subject-matter experts, fire professionals, planning staff, and decision-makers. Taken together, all three-prioritization metrics were considered as part of an iterative process in reviewing and comparing priority treatment scenarios. Figure 8-2 shows the top 24 priority treatment scenarios that are described in numerical order in the action plan. These 24 proposed treatment areas correlated to the fuels reduction projects in the action plan.

Figure 8-2 Priority Proposed Treatment Projects



8.4. Action Plan

The final part of the Placerville CWRS planning process included a list of key wildfire mitigation actions or projects specific to the City of Placerville and the PPSA. Table 8-1 lists the wildfire mitigation actions for the city organized by landscape treatment; land use planning, policy, and planning tools, property and critical facility protection; life safety protection; and public outreach and engagement. The numbers referenced in the list of landscape treatment actions refers to the proposed treatment locations listed in Figure 8-2.

The TAC identified and prioritized the mitigation actions based on the risk assessment, goal statements, and the wildfire mitigation action types. Background information is provided on how the action will be administered and implemented. Information on the responsible agency or organization, partners, cost estimate, potential funding sources, timeframe, and priority are also included. Projects that were incorporated as part of a separate but related planning effort (e.g., *EDC MJHMP*, *Western EDC CWPP*, *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*) are also noted and integrated into the action plan.

The **Lead Agency** column lists the main agency, organization, or FSC leading the action using the assuming the following main agencies or organizations:

- City of Placerville
- El Dorado RCD
- EDC OWPR
- Placerville FSC

The **Cost Estimate** column describes the estimated project costs using the following categories:

- Little to no cost
- Low: Less than $10,000
- Moderate: $10,000-$100,000
- High: $100,000-$1,000,000
- Very High: More than $1,000,000

The **Timeline** column describes the estimated time of completion for each project using the following categories:

- Short-Term: 1-3 years
- Medium-Term: 3-5 years
- Long-Term: 5+ years
- Ongoing: Action is implemented every year, or treatment area is retreated every ten years

The **Priority** column summarizes the project ranking:

- High Priority: Projects that should be prioritized for implementation within 1-3 years
- Medium Priority: Projects that should be prioritized for implementation within 3-5 years
- Low Priority: Projects that have no urgent timeframe for implementation.

Table 8-1 Action Plan

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	Landscape Treatment							
1	**Camp Nauvoo-Newtown (1) Fuels Reduction Project.** Treatment involves vegetation and brush management and was selected because it ties into other treatment projects, addresses wildfire risk in a one-way in/out neighborhood in the WUI and the periphery treatment zone, and helps protect a critical facility - the Placerville Municipal Airport. This treatment would establish a fuel break for Motor City and address evacuation concerns in the Bucks Bar wildfire scenario assessed in the EDC MJHMP and Wildfire Evacuation Study. The project would complement several other existing and ongoing treatments: Texas Hill Fuel Load Reduction Project, Texas Hill Weber South, and the Fire Adapted 50 Project; thereby enhancing connectivity and fuel treatment effectiveness.	EDC RCD	EDC OWPR	Very High	CAL FIRE Wildfire Prevention Grant, SNC WIP Grants	Short-Term	High	CWPP
2	**Rancho del Sol (2) Fuels Reduction Project**. Rancho del Sol is predominantly rural residential and designated Firewise one-way in/out gated community situated between North Fork Weber Creek and South Fork Weber Creek with moderate to steep slopes along the canyons and ridge lines. It was also evaluated as part of the El Dorado County MJHMP Wildfire Evacuation Plan. This project would complement completed and planned sections of the Fire Adapted 50 Phase III and the Highway 50 Forest Health Improvement projects. This project will reduce fire risk in a neighborhood primarily built before the new construction standards and complement the transportation-focused recommendations and considerations in the Wildfire Evacuation Plan. It will also create continuity and connectivity across existing efforts with a focus on critical ingress/egress concerns that could occur associated with the Bucks Bar wildfire scenario.	EDC RCD	EDC OWPR. EDC OES	Very High	CAL FIRE Wildfire Prevention Grant, SNC WIP Grants	Short-Term	High	CWPP, EDC MJHMP Wildfire Evacuation Study
3	**Fresh Pond (3) Fuels Reduction Project.** This project will help to reduce fire risk. Fuels treatment involves cutting back trees and shrubs around the Fresh	EDC RCD	EDC OWPR	Very High	CAL FIRE Wildfire Prevention	Short-Term	High	CWPP

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	Pond area south of US Highway 50. The remaining trees would be trimmed and spaced out, and almost all the underbrush is removed.				Grant, SNC WIP Grants			
4	**Countryside (4) Fuels Reduction Project.** This project will help mitigate fire risk and promote forest health in the Greenstone and Countryside subdivisions. Located within the periphery of the PPSA the project complements existing fuels treatment and fuel break projects, such as the Greenstone Project, SMUD Fuels Break project, and creates connectivity for landscape-scale fire mitigation. The project would involve strategic tree and brush management, such as selective thinning and chipping to create a healthier, more resilient ecosystem in an area with medium to high mean average conditional flame lengths near homes. It would also complement existing defensible space efforts in the neighborhood where most construction predates 2008 home hardening building code changes.	EDC RCD	EDC OWPR	Very High	CAL FIRE Wildfire Prevention Grant, SNC WIP Grants	Short-Term	High	CWPP
5	**Badger Hill - Pollock Pines (5) Fuels Reduction Project.** This project is situated to the northwest of Pollock Pines and extends in an east to southwest direction. It will mitigate fire risk and promote forest health in the Pollock Pines area.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Short-Term	High	CWPP
6	**Happy Valley (6) Fuels Reduction Project.** This project would be situated east of Pleasant Valley and north of the Grizzly Flats community near Butte Creek and Camp Creek. It will be another wildfire mitigation project intended to promote forest health.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Short-Term	High	CWPP
7	**North Canyon (7) Fuels Reduction Project.** The fuel reduction project is focused on a high-risk WUI area situated in the heart of the Apple Hill area within Camino Firewise Community. The project would enhance treatment connectivity between the SMUD Fuels Reduction Project/Forest Health and Shaded Fuel Break, Fire Adapted 50 Phase III Project, and Highway 50 corridor projects. It addresses wildfire mitigation in a dense on-way in/out subdivision where most structures predate the 2008 construction standards. Treatment	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Short-Term	High	CWPP

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	would also target areas with medium to high mean average conditional flame lengths. The project would consist of tree and brush management around a predominantly agricultural area that contains apple orchards, vineyards, and tree farms surrounded by conifer forest habitat. The project would also address concerns associated with a Slab Creek fire scenario.							
8	**North Fork Weber Creek (8) Fuels Reduction Project.** This project would occur within the Gold Ridge Forest Firewise Community. Fuel treatment efforts would consist of tree and brush management within the community west of Sly Park Road.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Short-Term	High	CWPP
9	**Somerset (9) Fuels Reduction Project.** This project would occur near the community of Somerset and include vegetation management treatment, including tree and brush removal around roads and within private property.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
10	**Sly Park (10) Fuels Reduction Project.** Fuels treatment would occur north of Sly Park Road near North Fork Clear Creek and South Fork Weber Creek. This project would complement the Fire Adapted 50 project and a series of wildfire fuel reduction projects within Sly Park on the east side of Sly Park Road.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
11	**Big Canyon Easter Rim – Chili Bar (11) Road Thinning Treatment Project.** This fuel treatment project would address a very high wildfire risk area and medium to high mean average conditional flame lengths near SR 193 and Chili Bar by the South Fork American River Crossing. An extreme wildfire scenario for the Chili Bar area was addressed in the Greater Placerville Wildfire Evacuation Preparedness Study. The scenario has the potential to result in road closures along SR 193, SR 49 near Old Toll Road, US Highway 50 east of Bedford Avenue, and US Highway 50 eastbound and westbound near Placerville. Fuels treatment along the State and local roads would help reduce fuel loads and wildfire risk. Treatment in this area would enhance wildfire resilience by linking key projects in an area that is a critical wildfire	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP, Greater Placerville Wildfire Evacuation Preparedness Study

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	pathway into the Placerville city center. The treatment would also complement key transportation improvements at Placerville Drive/Pierroz Road (roundabout), Cold Springs Road/Pierroz Road (signage/stripping, roundabout, traffic signal), Placerville Drive/Green Valley Road (modified signal), Placerville Drive, US 50 Westbound (modified signal), El Dorado Road/Green Valley Road (roundabout), and US 50/Canal Street (modified signal)							
12	**Martinez Creek - Logtown (12) Fuels Treatment Project.** This fuels treatment project would address a very high wildfire risk area near the SR 49 corridor where the topography consists of moderate to steep slopes and mostly hardwood and woodland mixed in with hardwood forests. The neighborhood was evaluated as part of the El Dorado County MJHMP Wildfire Evacuation Plan. This project will reduce fire risk and complement the recommendations and considerations in the Wildfire Evacuation Plan. Tree and brush removal, including selective thinning and chipping would complement emergency manual traffic control allocations to the area and key transportation improvements along SR 49, Pleasant Valley Road, Mother Lode Drive, Forni Road, Crystal Boulevard, and Monitor Road. Fuel treatment would also complement a proposed roundabout at the SR-49 and Pleasant Valley Road intersection and a connected central signal system at Mother Lode Road, Pleasant Valley Road, and Missouri Flat Road.	EDC RCD	EDC OWPR, EDC OES	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	EDC MJHMP Wildfire Evacuation Study
13	**Lower Camino Heights (13) Fuels Treatment Project.** This project is located mostly north of the North Fork of Weber Creek within the Camino Firewise Community and due east of the Texas Hill area. Fuel treatment efforts would consist of tree and brush management.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
14	**Weber Creek (14) Fuels Reduction Project.** This fuels reduction project will complement a California Wildfire Mitigation Program (CWMP) grant in place to assist in creating defensible space and retrofitting 525 homes with ignition-resistant building materials in an area identified as high wildfire risk	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	along the Weber Creek drainage, south of Placerville. The complementary project will include strategic tree and brush management to create a healthier and more resilient ecosystem.							
15	**Pleasant Valley (15) Fuels Treatment Project.** This project would occur north of Pleasant Valley. Fuel treatment efforts would consist of tree and brush management.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
16	**Cold Springs-Gold Trail Park (16) Fuels Treatment Project.** This project would occur south of SR 49 around Gold Trail Park and the area east of Cold Springs. Fuel treatment efforts would consist of tree and brush management.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
17	**South Fork American River (17) & SMUD Fuels Treatment Project.** This fuels treatment project would complement existing vegetation management and utility corridor clearances around SMUD-electrical transmission corridors that run in an east-west direction south of the South Fork American River. Efforts would focus mainly on road thinning.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
18	**Camino (18) Fuels Treatment Project.** This treatment project would occur south of US Highway 50 and north of the Weber Reservoir between Snows Road and China Creek. Fuel treatment efforts would consist of tree and brush management.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
19	**El Dorado Ditch (19) Fuels Treatment Project.** This treatment project would occur east of Pollock Pines and south of the South Fork American River and north of the El Dorado Ditch. The area consists of relatively steep slopes and rugged terrain but parallels a key water infrastructure ditch operated by El Dorado Irrigation District. Fuel treatment efforts would consist of tree and brush removal from nearby access roads.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
20	**Sierra Springs (20) Fuels Treatment Project.** This project would occur near Sierra Springs east of Clear Creek. Fuel treatment efforts would consist of tree	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	and brush management.							
21	**Motor City (21) Fuels Treatment Project.** This project would occur near Motor City south of US Highway 50. Fuel treatment efforts would consist of tree and brush management.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
22	**Indian Creek (22) Fuels Treatment Project.** This project would occur west of Indian Creek and north of US Highway 50. Fuel treatment efforts would consist of tree and brush management. It would complement defensible space treatments in the one-way in/out Silver Lode neighborhood to the south. Fuel treatment efforts would consist of tree and brush management and road thinning.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
23	**Ghost Mountain (23) Fuels Treatment Project.** This project would occur near the Ghost Mountain RV Campground. It would complement several Fire Adapted 50 fuels reduction treatment projects.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
24	**Jaw Bone-Lumsden Park (24) Fuels Treatment Project.** This is the only fuels treatment project within the city center. Located off Wiltse Road the project would involve vegetation management throughout the city-owned park to highlight the value reducing wildfire risk within the city.	EDC RCD	EDC OWPR	Very High	CAL FIRE, SNC WIP Grants	Long-Term	Medium	CWPP
25	**Fuel Load Reduction in Fire-Prone Areas.** Reduce fuel loading within identified city areas subject to wildland fires.	City of Placerville, Private Property Owners, EDC FSC, California Conservation Corps,	EDC OWPR	High	CAL FIRE, FEMA HMA, HMGP, FMAG, PA 406, NFIC Rural Fire Assistance Grant, USDA Community Fire Protection Program, USDA, DOI, National	Short-Term	High	EDC MJHMP City of Placerville Annex

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
					Fire Plan			
26	**Fire-Prone Area Identification and Partnership Development.** Identify the fire prone areas surrounding established facilities within the city with strong potential for fires. Develop partnerships with County Fire and adjacent neighbors to institute weed/brush abatement around/near EID facilities	City of Placerville	County FSC, CAL FIRE, El Dorado County Fire, Placerville FSC	Moderate	General Fund, EID Funds	Short-Term	High	EDC MJHMP City of Placerville Annex
27	**Emergency Vehicle Access Road Reconstruction.** Enhance emergency vehicle ingress and egress by reconstructing and widening critical access roads in high-risk wildfire areas, including but not limited to the road near the DC Wastewater Treatment Plant (WWTP). Improvements will align with County Fire Department standards, ensuring roads meet width, grade, and clearance requirements for fire apparatus and evacuation efficiency.	City of Placerville, City Engineering Personnel	None	Very High	General Fund, PA 406, NFIC Rural Fire Assistance Grant, USDA Rural Development Grants, FEMA HMA, BRIC, HMGP	Short-Term	High	EDC MJHMP City of Placerville Annex
28	**Work with Public and Private Entities to Remove Overgrown Fuels in areas within City Center.** Remove overgrowth fuels in populated communities, such as Lumsden Park, Eskaton Village, and area around Placerville Jail. Priorities should be placed on primary access/egress routes throughout the County, in highly populated neighborhoods and in neighborhoods in the County with one access/egress route.	City of Placerville	EDC OWPR	Moderate	General Fund	Short-Term	High	Western El Dorado County CWPP
	Land Use, Policy, and Planning							
29	**Adopt Local Ordinance designating city Very High Fire Hazard Severity Zone (VHFHSZ).** Adoption of a local ordinance designating the city a VHFHSZ	City of	EDC OWPR	Low	General Fund	Short-Term	High	City of Placerville

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	pursuant to Government Code § 51179(a). This designation is a required step for communities located in LRAs seeking inclusion on the Fire Risk Reduction Community List (FRRCL), maintained by the California Board of Forestry and Fire Protection. By formally adopting this ordinance, the city will align with state-recognized wildfire risk reduction measures and bolster eligibility for inclusion on FRRCL.	Placerville						Zoning Code, City of Placerville General Plan
30	**Update General Plan Health and Safety Element.** Complete a full update of the Health and Safety Element pursuant to current State statutory requirements related to wildfire risk, climate change, evacuation accessibility, extreme heat, and plan integration consistent with the California Board of Forestry and Fire Protection's assessment review tool.	City of Placerville	EDC OWPR	Moderate	General Fund, Caltrans Sustainable Transportation Planning Grant	Medium-Term	High	City of Placerville General Plan Policy Document
31	**Fire Safety Recommendations.** Compile a progress report to demonstrate implementation on fire safety recommendations from Board of Forestry and Fire Protection and Fire Safety Survey pursuant to 14 CCR § 1267.01 for the city. The Board in consultation with the State Fire Marshall shall survey local governments like the city to identify existing subdivisions that lack adequate secondary egress routes in LRA mapped as VHFHSZs.	City of Placerville	EDC OWPR	Low	General Fund	Short-Term	Medium	City of Placerville General Plan Policy Document
32	**Adopt One or More Local Regulations that Exceed Minimum Fire Safe Regulations.** The city should adopt at least one local regulation that exceeds the minimum regulations in the State's Fire Safe Regulations (14 CCR § 1270.00-1276.04) (e.g., turnarounds are required on driveways and dead-end roads, roads must be identified by a name or number through a consistent system that provides for sequenced or patterned numbering).	City of Placerville	EDC OWPR	Low	General Fund	Short-Term	Low	City of Placerville General Plan Policy Document
33	**Adopt a WUI Code.** The City of Placerville should adopt a WUI Code stricter than Chapter 49, Part 9, of Title 24 of the California Code of Regulations to enhance wildfire resilience, improve emergency response, and qualify for FRRCL. Key improvements could include fire-resistant construction standards, expanded defensible space, stricter fuel management, and enhanced	City of Placerville	EDC OWPR	Moderate	General Fund	Short-Term	Low	City of Placerville Zoning Code

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	evacuation access. Implementation may require a gap analysis, stakeholder engagement, ordinance adoption, and enforcement mechanisms.							
34	**Amend the city's Chapter 5 Zone Regulations to address Wildfire:** Develop a Wildfire Mitigation Area Overlay Zone and other potential amendments to the Code that complements the city's Hazardous Vegetation and Combustible Material requirements (Chapter 16). Ensure the ordinance or overlay zone exceeds state minimum requirements. Such requirements may address safe zones or areas of refuge, structure density, ornamental vegetation, subdivision design, structure design features, or other safety features.	City of Placerville	EDC OWPR	Moderate	CALFIRE, FEMA HMA	Short-Term	Medium	City of Placerville Zoning Code
35	**Adopt Comprehensive Retrofit Code or Plan for Existing Homes in VHFHSZs.** Comprehensive retrofits codes for homes in VHFHSZs should include low-cost retrofits that provide site and structure fire risk reduction. They should protect structures or homes from fires spreading from adjacent structures. They should also include requirements for compliance with vegetation management and defensible space provisions. California WUI compliance requirements are in California Building Code Chapter 7A and California Residential Code R337.	City of Placerville	EDC OWPR	Low	General Fund	Medium-Term	Medium	City of Placerville Zoning Code
36	**Continue to Review the city's Chapter 16 Hazardous Vegetation and Combustible Materials Ordinance for Improvement**. Regularly review the city's Chapter 16 – Hazardous Vegetation and Combustible Materials known as the Placerville Hazardous Vegetation and Combustible Materials Abatement Ordinance (Ordinance 1698; Amended August 13, 2019) related to hazardous vegetation and combustible materials to address updated requirements consistent with State law Public Resources Code (PRC) 4291 and defensible space inspections administered by CAL FIRE and local FPDs. Adding new requirements helps reduce the potential for fire and promotes the safety of the community. Regular review also helps the city incorporate and consolidate applicable defensible space laws, codes, and requirements in one location for city staff and residents to understand. Regular updates	City of Placerville	CAL FIRE, EDC OWPR	Moderate	CAL FIRE, FEMA HMA	Medium-Term	High	EDC Public, Health, Safety, and Noise Element

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	also address the unique climatic and geographic characteristics of the PPSA that can be implemented in conjunction with existing State law.							
37	**Zoning Code Consistency Review.** If the city adopts a Wildfire Mitigation Area Overlay Zone there are other areas in the city's Code that could conflict and require resolution between the new and existing requirements. Sections may include the fire regulations, hazardous vegetation and combustible materials requirements, and subdivision regulations.	City of Placerville	NA	Low	General Fund	Medium-Term	High	City of Placerville Zoning Code
38	**Update the El Dorado Trail Management Plan.** The portion of the multi-use El Dorado Trail that runs through the city elevates wildfire concerns related to fire ignition potential, invasive species overgrowth that can act as ladder fuels, and potential dumping of debris and other combustible materials. This would provide a comprehensive approach to support long-term management of the trail corridor with respect to wildfire risk and fuel management concerns.	EDC Parks and Trails Department	City of Placerville	Low	General Fund	Long-Term	Low	Parks and Trails Master Plan . Update
39	**Fire Risk Reduction Community List.** The City of Placerville is within a VHFHSZ based on the Local Responsibility Area (LRA) from 2007-2011. The Fire Risk Reduction Community List (FRRCL) as mandated by PRC 4290.1 is a list of local agencies located in an SRA or a very high FHSZ that meet best practices for local fire planning. The list is maintained by the California Board of Forestry and Fire Protection. The listing would benefit the City of Placerville by getting priority for CAL FIRE Wildfire Prevention Grants and possible insurance discounts. The city should meet the following mandatory criteria to be considered: 1) adopt local ordinance designating VHFHSZ pursuant to Government Code § 51179(a), 2) update Safety Element, and 3) complete progress reports on recent fire safety recommendations from Board. Optional criteria includes 1) adoption of one or more local regulations which exceed the minimum regulations adopted by the State in the Fire Safe Regulations (14 CCR § 1270.00-1276.04), 2) adoption of one or more local defensible space ordinances, 3) adoption of a Wildland Urban Interface Code	City of Placerville	EDC OWPR	Moderate	General Fund	Short-Term	High	General Plan Health and Safety Element, Zoning Ordinance, EDC MJHMP City of Placerville Annex

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	(stricter than Chapter 49, Part 9 of Title 24 of CCRs), adoption of zoning ordinance or special overlay zone that includes fire hazard mitigation requirements that exceed state minimum standards, 4) adoption of a comprehensive retrofit code or plan for existing homes, and 5) identification of wildfire as a high priority hazard in a LHMP or MJHMP.							
40	**Code and Enforcement Standards.** Review published wildfire risk mitigation recommendations to keep local codes, standards, ordinances, and guidance documents up to date with the current wildfire research	City of Placerville	El Dorado RCD	Low	General Fund	Long-Term	Low	Western El Dorado County CWPP Update
41	**Climate Change Study on Long-Term Impacts at the Landscape- and Stand-Level to Support Future Prioritization of Landscape Treatments.** Broaden existing Placerville CWRS to amend plan within upcoming years with a study that focuses on the effects of climate change on fuel treatment selections in the future. Integrate climate change projections from County studies like the Climate Vulnerability Assessment and this report to revise where priority treatments should occur.	El Dorado RCD	City of Placerville, EDC OWPR	Low	General Fund	Long-Term	Low	Western El Dorado County CWPP Update
42	**Landowner Guidelines for Vegetation Density and Species Composition.** Develop guidelines for private property owners around proper vegetation density and species composition specific to the different vegetation and habitat types in the PPSA.	El Dorado RCD	City of Placerville, EDC OWPR	Low	General Fund	Long-Term	Low	Western El Dorado County CWPP Update
	Property and Critical Facility Protection							
43	**Home Ignition Zone Assessment Program.** Establish a program to conduct defensible space inspections both in response to citizen complaints and for residential, commercial, industrial buildings in SRA and lands designated as VHFHSZs.	City of Placerville	CAL FIRE	Low	CAL FIRE	Medium-Term	Medium	EDC Defensible Space Program (Chapter 8.09 – Hazardous Vegetation and Defensible Space

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
								Ordinance)
44	**Weber Creek Fuels Treatment Master Plan.** Weber Creek traverses the western portion of the PPSA and includes over 20 miles of waterway and adjacent riparian area surrounded by dense vegetation that has a very high wildfire risk. The portion that runs through the western portion of the PPSA elevates wildfire concerns associated with the need for tree and vegetation removal in the riparian zone. This zone can make it difficult to balance ecological requirements for a wetland zone while reducing hazardous wildland vegetation. A Master Plan that contains specific prescriptions for treatment will help address treatment in this sensitive area.	EDC Parks and Trails Department	EDC OWPR	High	General Fund, Caltrans Sustainable Communities Grant	Medium-Term	Low	Parks and Trails Master Plan Update
45	**Expand Resources for Enforcing Defensible Space Ordinance inspections.** Identify ways to conduct more and better inspections in order to improve the city's inspection coverage in coordination with CAL FIRE.	City of Placerville	CAL FIRE	Low	General Fund	Medium-Term	Medium	City of Placerville Annex
46	**Coordinate with Caltrans to Develop Projects to Thin and Remove Overgrown Fuels.** Work with Caltrans to work on priority routes that include primary access/egress routes and highly populated areas that have limited accessibility and need vegetation thinning.	City of Placerville	CAL FIRE, El Dorado RCD	Low	General Fund	Medium-Term	Low	Western El Dorado County CWPP Update
47	**Establish Protocols for Water Supply for Fire Suppression during Drought Events.** The city in coordination with local water providers like EID should ensure adequate water resources are identified in strategic locations in the city during peak wildfire season.	City of Placerville	EID	Low	General Fund, EID Funds	Medium-Term	Medium	City of Placerville EOP
48	**Develop WUI Pre-Fire Plans for Public Safety Agency Coordination.** This action would serve to facilitate safe and effective wildfire response. IT would utilize evacuation information from the EDC MJHMP Wildfire Evacuation Study and the Greater Placerville Wildfire Preparedness Study.	City of Placerville	CAL FIRE, EDC	Low	CAL FIRE	Medium-Term	Medium	AEU Strategic Fire Plan

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
49	**Identify Populations in city with Disabilities and AFN to address needs during evacuations.** Consider approaches to evaluate vulnerable populations into the design of education and outreach programs and the pre-planning process for evacuation scenarios.	City of Placerville	EDC OES	Low	General Fund	Short-Term	High	EDC MJHMP City of Placerville Annex
50	**Develop Priority Notifications and Defensible Space Inspections for Neighborhoods that lack two Evacuation Routes.** Neighborhoods with poor ingress and egress routes need potential solutions for wildfire mitigation including prioritized defensible space inspections.	City of Placerville	EDC OWPR (model CEA program)	Low	General Fund	Short-Term	High	EDC MJHMP City of Placerville Annex
51	**Undertake Study to Identify and Provide Recommendations for Mitigating Common Ignition Sources.** Ignition sources are mapped within the PPSA but this action would complement an existing action in the Western El Dorado County CWPP to reduce the number of ignitions by using the National Fire Danger Rating System and outlining actions on high fire danger days and appropriate restrictions.	City of Placerville	EDC OWPR	Low	General Fund, SNC WIP Grants, FMAG	Medium-Term	Medium	Western El Dorado County CWPP Update
52	**Fuel Break Study.** Undertake a study to identify critical fuel breaks and landscape fuel treatments that should undergo immediate maintenance by building off the risk assessment information provided in the CWRS. Following a fire, projections on future risk should be updated for burned areas. Part of this action was addressed as part of the selection of priority fuels treatment scenarios that include strategic fuel breaks; it could be expanded to include when to retreat existing, planned, and proposed fuel treatments	City of Placerville, El Dorado RCD	EDC OWPR	Medium	CAL FIRE Wildfire Prevention Grants, SNC WIP Grants, FMAG, SAFER	Medium-Term	Medium	Western El Dorado County CWPP Update
53	**Collaborate with the Navigation Center to provide recommendations for Mitigating Ignition Sources.** This action will include strategies to reduce the number and frequency of ignitions in the Placerville area.	City of Placerville	EDC OWPR	Low	General Fund	Long-Term	Low	Western El Dorado CWPP
54	**Develop Plans to address Specific Areas with Vulnerable Ingress/Egress Routes to increase Evacuation Capacity and Access for First Responders.** Prepare first responders in the event that a major road or road used for	City of Placerville	EDC OWPR	Moderate	CAL FIRE Wildfire Prevention Grants	Short-Term	High	Western El Dorado CWPP

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
	emergency egress is closed due to traffic.							
	Public Awareness and Education							
55	**EDC's Fuel Reduction Public Awareness & Education Campaign.** Expand the existing public awareness and education platform for El Dorado RCD's fuel reduction projects by enhancing the public outreach tools to include additional information on new and priority projects in the PPSA on the RCD's webpage, social media channels, traditional local newspapers, flyers, and printed media materials, and through ongoing public workshops and pop-up events. Materials can advertise the key and current fuel reduction treatment projects designed to promote forest health and to mitigate wildfire risks.	El Dorado RCD	City of Placerville, Placerville FSC	Moderate	CAL FIRE, SNC WIP Grants, FMAG, SAFER	Short-Term	High	EDC General Plan Safety Element
56	**Create Partnerships with Local Farmers and Ranchers in the Camino-Fruitridge Gold Hill, and Pleasant Valley Agricultural Districts in the County and the County and CAL FIRE.** Many local farmers and local ranchers have private access roads that can aid Incident Management Teams with fire suppression operations and expedite resource response. Local land owners in these agricultural districts can also facilitate successful landscape-level fuel treatment projects.	Camino-Fruitridge Agricultural District, Gold Hill Agricultural District, Pleasant Valley Agricultural District	EDC OWPR	Low	CAL FIRE, SNC WIP Grants, AFG, EMPG, SAFER	Medium-Term	Medium	EDC General Plan Safety Element
57	**Promote Public Education to Increase Awareness about Maintaining Defensible Space.** Develop outreach materials for the City of Placerville Defensible Space Ordinance and the El Dorado County Vegetation Management and Defensible Space Ordinance. Key information should focus on the "Ember-Resistant Zone" (0-5 feet from a structure).	City of Placerville	EDC OWPR	Low	General Fund	Short-Term	High	Safety Element, EDC MJHMP Update, City of Placerville Annex
NOTE: The numbers referenced in the list of landscape treatment actions refer to the proposed treatment locations listed in Figure 8-2.								

#	Action/Description	Lead Agency	Partners	Cost Estimate	Funding Sources	Timeframe	Priority	Plan Integration
Acronyms of funding sources are defined as follows:								
AFG – Assistance to Firefighters Grant Program EID – El Dorado Irrigation District EMPG – FEMA's Emergency Management Performance Grant FEMA – Federal Emergency Management Agency FMAG – FEMA's Fire Management Assistance Grant Program HMA – FEMA's Hazard Mitigation Assistance Grants NFIC – National Interagency Fire Center					PA 406 – FEMA's Public Assistance 406 Mitigation SAFER – FEMA's Staffing For Adequate Fire and Emergency Response SNC – Sierra Nevada Conservancy USDA – U.S. Department of Agriculture DOI – Department of the Interior WIP – SNC's Watershed Improvement Program Capacity-Building			

9. Fuel Treatment Benefits

This chapter uses the Forest Carbon Analysis (FCAT) tool to assess the benefits of the leading fuel treatment projects, focusing on each treatment's potential to reduce greenhouse gas (GHG) emissions, enhance forest growth and carbon sequestration, and modify wildfire behavior to reduce risk. The FCAT tool evaluates the emission profiles associated with the top treatments by simulating spatial models of forest growth, wildfire, and the effects of wildfires. The tool's outputs help the planning team assess the long-term net carbon storage resulting from the landscape fuel treatment project, compared to a scenario where the treatment area is affected by wildfire.

Fuel treatments aim to reduce or remove biomass, which may initially decrease on-site carbon stocks. However, continued carbon storage in thinned areas, along with avoided emissions from wildfires, offers long-term benefits. These treatments have been shown to increase forest growth, yield, and carbon sequestration potential. The FCAT tool models the carbon mitigation impacts on forestlands, providing data on carbon sequestration, forest stand structure, fire behavior, fire effects, and emissions for both treated and untreated areas. FCAT builds on the Reduced Emissions from Megafires (REM) methodology to quantify and monetize the carbon emissions avoided by reducing the severity and scope of wildfires through fuel treatments.

The evaluation of fuel treatment benefits includes reductions in fire spread and intensity within and outside the PPSA, as well as changes in carbon storage. It calculates the carbon gains and losses from the top fuel treatment projects, accounting for their impact on fire risk reduction and corresponding changes in carbon storage in untreated areas of the PPSA.

9.1. Reduced Emissions from Megafires Report

Using the annual burn probability (ABP) from Kearns et al., which is around 1.58% for the area of interest around the PPSA, the landscape-level fuel treatments as well as the defensible space and roadside clearance areas were found to have a potential negative impact in the form of emissions (Kearns 2022). However, since the ABP data from Kearns et al. (Kearns 2022) is highly localized and high resolution, it may underestimate the actual fire risk. When using an ABP value of 4% for the landscape level treatments and 5% for the defensible space and roadside clearance treatments, the effects of treatments were shown to be climate-beneficial. Specifically, with an ABP of 4%, the landscape-level treatments avoided an estimated 25 thousand Forecasted Mitigation Units (FMUs), or metric tons of carbon dioxide equivalent (CO2e) avoided, which is equivalent to 9 FMUs per acre. CO2e is a way to measure and compare GHG emissions by considering their global warming potential (GWP). In contrast with an ABP of 5% for the defensible space and roadside clearance treatments were climate beneficial, generating 8,000 FMUs, or approximately two FMUs per acre.

The analysis revealed that, while total stand carbon was decreased in the project scenario due to biomass removal and foregone sequestration from harvested trees, forest recovery

over the project period led to similar projected carbon growth trajectories in both the baseline and project scenarios. Additionally, although forest stand metrics, such as forest density, were affected by the removal of biomass within the project scenario, fuel reduction treatments significantly improved fire behavior metrics. These improvements reduced risks, such as surface flame severity, potential torching, and basal area mortality. These findings indicate that while active vegetation management may initially result in carbon loss, the long-term benefits of reduced fire risk offer significant climatic advantages.

It is important to note that, while use of the REM methodology is supported by the Climate Forward platform, a sub-platform of the Climate Action Reserve's registry, there are limitations to its using it to assess fuel treatment projects for potential climate benefits. For example, the tool relies on TreeMap data which is a composite of remotely sensed and forest inventory data. As a result, TreeMap may not accurately reflect the on-the-ground forest treatments as well as local land management experts in the field. Additionally, GHG emissions are significantly influenced by slash disposal, which is modeled using the Forest Vegetation Simulator (FVS). Treatments that leave slash on the ground, like those modeled in this project, tend to generate more emissions compared to treatments where slash is hauled off. Another limitation is the size and spatial spread of the treatments, which can reduce their effectiveness depending on the TreeMap coverage within the area. Proposed treated areas that are narrow and located along urban features, such as the proposed roadside and defensible space treatments, are modeled as less effective because TreeMap typically does not capture coverage in these areas.

9.2. Methods

9.2.1. GIS Preprocessing

The development of the Placerville CWRS proposed fuel treatment projects, including landscape, roadside, and defensible space treatments is discussed in detail in Chapter 6 of this report. The ten priority landscape treatment polygons identified through this process are classified into two categories, hardwood or conifer, based on the dominant vegetation type in the treatment area. These classifications are essential for both for the planning and executing the treatments, as well as for scheduling re-treatments, since regrowth varies by vegetation type. Additionally, modelling the potential benefits of these treatments requires these distinctions to ensure meaningful and accurate results. The spatial distribution of the priority treatments and their vegetation designation is shown in Figure 9-1 below.

The defensible space fuel treatment was created by applying a 100-foot radius buffer around all building footprints in the PPSA. Similarly, the roadside treatment consists of a 50-foot zone along both sides of all the roads in the PPSA. For the FCAT analysis, the roadside and defensible space treatment areas were combined in Figure 9-2 to provide the model with the necessary area for optimal results as much of the area around buildings and roads is not recognized as forested or vegetated. Where needed, the model used more intensive fuel treatments prescriptions to ensure conservative estimates of treatment benefits.

Figure 9-1 Hardwood (Blue) and Softwood (Gold) Final Landscape Treatment

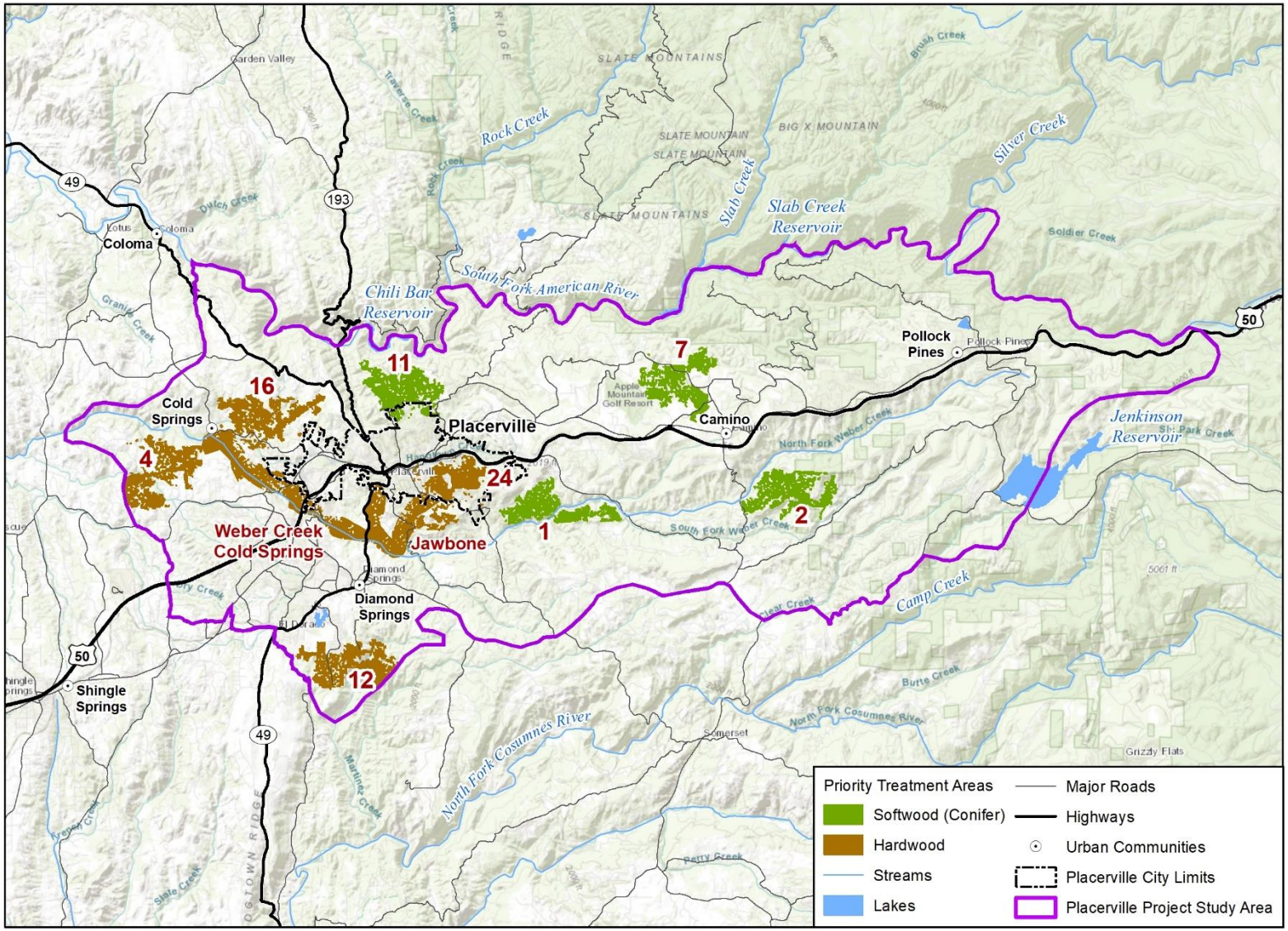
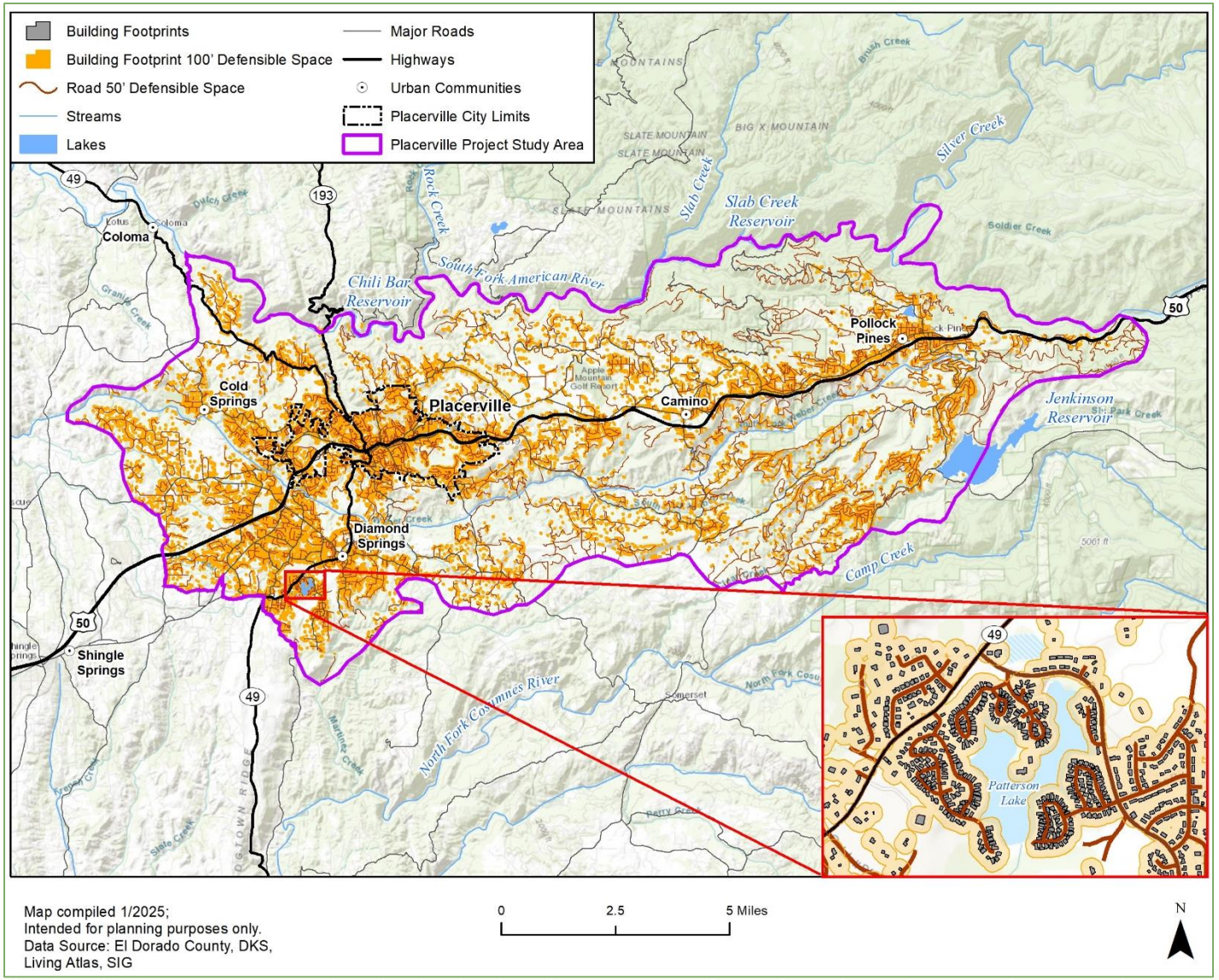


Figure 9-2 Roadside Treatment Areas and Defensible Space Treatments



Note: Roadside treatment areas and defensible space treatments are both in cream and orange. The brown lines make up the road network.

9.3. Fuel Treatment Prescriptions

Landscape forest fuels reduction treatments were developed in collaboration with El Dorado RCD and WSG. It was determined that simplifying potential treatments based on vegetation type – hardwood or softwood dominance – would be most effective. As a result, two generalized treatment prescriptions were created to address the specific needs of each vegetation type.

The landscape treatments for hardwood dominated forest included thinning from below to a target of 109 trees per acre, followed by pile and burn, mastication and chipping of materials, and pruning to thin 35% of the live crown. In developing the hardwood-dominated forest landscape treatment, certain tree species were excluded from thinning activities within the FVS model. These species included Blue Oak, White Oak, Valley Oak, Interior Live Oak, Black Oak, Ponderosa Pine, Douglas-Fir, Dogwood, and California Chestnut.

The softwood dominated landscape treatments included thinning from below to a target of 55 trees per acre, followed by pile and burn, mastication and chipping of materials, and pruning to thin 35% of the live crown. Certain species were excluded from cutting in the softwood-dominated forest landscape treatments including Ponderosa Pine, Sugar Pine, Douglas-Fir, Incense Cedar, White Fir, and Gray Pine. Fuel treatment key component parameters (KCPs) are further included in Appendix D.

Roadside clearance treatments and defensible space treatments were also developed by El Dorado RCD and WSG. For the roadside clearance treatment, descriptions for both softwood- and hardwood-dominated areas were combined to improve the geospatial analysis over small acreages. To conservatively estimate GHG emissions, the more intensive treatment prescriptions from both softwood and hardwood areas were selected.

The roadside clearance treatment involved thinning from below to achieve a residual canopy cover of 20% within diameter breast height (DBH) range of 12 feet to 22 feet, along with pile and burn, mastication and chipping of materials, and pruning to reduce the live crown by 35%. The defensible space treatment involved thinning from below to a residual canopy cover of 30% within a DBH range of 7 inches to 14 inches, representing the largest defensible space zone (30-100 feet), which is most representative of the entire shapefile created. Additionally, defensible space treatments included pile and burn, mastication and chipping of material, and pruning to reduce the live crown by 35%.

In both the defensible space and the roadside clearance treatments, certain species were excluded from thinning activities. These species included Douglas Fir, Ponderosa Pine, Incense Cedar, Sugar Pine, White Fir, Blue Oak, Black Oak, Interior Live Oak, White Oak, Dogwood, Valley Oak, and Giant Chinquapin. Additional details on the key KCPs for roadside clearance and defensible space are included in Appendix D.

9.4. Modeling Avoided Wildfire Emissions

9.4.1. FCAT introduction

SIG developed a semi-automated FCAT, a command-line tool designed to assess the potential for mitigating GHG emissions through fuel treatments. All data sources and models used by FCAT are in the publicly available. FCAT fully implements the methodology for calculating Avoided Wildfire Emissions (AWE) as outlined under the REM framework, enabling fuel treatments to be listed in the carbon market under Climate Forward. The tool uses simulations of forest growth, carbon flux, and fire behavior, based on pixel-based measurements of vegetation type, structure, and wildland fuels. Key components of FCAT include GIS processing, Forest Vegetation Simulator (FVS) modeling for forest growth and fuel treatments, GridFire Monte Carlo for wildfire behavior simulations, First Order Fire Effects Model (FOFEM) for smoke emission estimates, and carbon quantification (Keane and Lutes 2020). FCAT's flexible design allows these components to function as microservices, supporting this scope of work and for other projects beyond GHG mitigation assessments.

9.4.2. Implementing FCAT projects

The FCAT Modeling Process consists of a series of semi-automated microservices:

1. GIS Pre-Processing:
    - Prepare the area of interest (AOI), which is defined as a 15km buffer around the treated areas with a minimum bounding box around this buffer.
    - Include baseline (e.g., "let grow") and project conditions (e.g., implementing fuel treatments), as well as disturbances (e.g., burn scars).
    - Assigned areas are the scenarios within the treated acres.
    - The only project-specific data input required in this context are treatment locations and prescriptions. All other inputs (e.g., vegetation and climate data, burn probabilities) are look-up based or derived from publicly available datasets.
2. Identify Unique Combinations:
    - Identify each unique combination from TreeMap ID, past disturbance, and future treatment rasters.
3. Build an USFS FVS input database:
    - Each unique combination is simulated as an individual forest stand.
    - Instructions for simulating disturbances and treatments are embedded (see section below).
4. Execute FVS:
    - Use R script to automate building and executing FVS key files for various FVS simulations in 5-year time intervals over a 40-year time horizon.
    - FVS post-processing,

- Compute the acreage represented by each FVS stand.

5. USFS First Order Fire Effects Model (FOFEM):
   - Automate data formatting and execution of FOFEM.
6. Run Pyregence's GridFire Simulations:
   - Automate data setup and execution of GridFire,
   - Calculate conditional burn probability (CBP) ratio for each stand.
7. Final Processing:
   - Produce carbon tables including GHG impacts, carbon stock trajectories, biomass removed, and other relevant data.

With this process the planning team (and consultant team) can:

- Efficiently update TreeMap vegetation inventory data to current year with rFVS,
- Update the initial spatial fuels data going into FVS and GridFire with FireFactor methods,
- Run rFVS at full TreeMap resolution (30-m pixels) on large areas (possibly unprecedented),
- Simulate virtually any disturbance, management, or fuels treatment at any point in the future,
- Run virtually any AOI on demand and into the future as far as needed,
- Query data on carbon, forest stand, fire behavior, fire effects, and emissions data with and without treatments at every timestep.

9.4.3. Compile Past Disturbance Data

The information used to update the 2016 TreeMap inventory data can linked to either wildfires or past disturbances such as forestry operations or fuel treatments. Spatial data on past disturbances is gathered from a variety of public and private data sources across the contiguous U.S. and compiled into a single GIS vector file (Kearns et al. 2022). Each feature in the vector file represents a past disturbance, including the disturbance date and its name (e.g., "tree encroachment control"). These features may overlap; for example, a feature might represent a preliminary fuel treatment in a specific area one year, while another feature might represent a follow-up fuel treatment in the same area in a later year. The past disturbances are summarized by type, severity, and year for updating the TreeMap data.

Non-Wildfire Disturbances

Three primary LANDFIRE disturbance types are used:

- **Fire:** In this context, this refers solely to prescribed fire.
- **Mechanical Add**: This typically involves modifying fuels, such as mowing or chipping.
- **Mechanical Remove:** This treatment involves removing biomass (merchantable or non-merchantable) from the site, such as through group harvest.

Each disturbance type is categorized into one of three severity levels - low, medium, and

high- based on its impact on landcover.

Wildfire

Spatial information about past wildfires is compiled in a raster format rather than vector data. Fire perimeters are sourced from MTBS (2013-2020) or NIFC (2011, 2022) and fire severity is calculated using a Google Earth Engine tool (Kearns et al., 2022). Each raster cell is assigned a code from which the time since disturbance (either one year or two-five years) and severity (unburned, low, medium, or high) can be extracted.

Currently, we include past disturbances covering the period 01 January 2017 - 31 October 2022 and wildfires from January 1, 2017 to June 30, 2022. Any events before January 1, 2017, are considered already represented in the latest TreeMap data. We typically compile new data on past disturbances and wildfires annually.

MTBS only reports on wildfires that are one year and older. This is because the MTBS wildfire severity mapping relies on tree survival for at least one year, which can be recorded after the fact.

Set up FVS

Once the GIS data on past disturbances and wildfires are formatted, the planning team (consultant team) runs a custom Python script that "flattens" the past disturbances and extracts all unique combinations of TreeMap ID, past disturbances, and wildfires. Flattening the overlapping vector features allows the team to simulate repeated disturbances in the same area in different years. To keep the Python processing manageable, only medium- and high-severity past disturbances are included, as low-severity disturbances are unlikely to significantly affect the FVS simulation anyway. In the event that there are more than three past disturbances for any given TreeMap ID, only the three most recent past disturbances will be included.

Execute FVS

This list of unique combinations is then used by another Python script to build the FVS input database. Each unique combination is treated as an individually simulated forest stand in FVS. During the earlier processing steps, rasters are generated that spatially link each stand to the landscape. A given stand can occur in multiple locations across the landscape, so the planning team can produce a table that defines the total area represented by each stand.

The 2016 TreeMap FIA-based tree inventory data serves as the foundation for the FVS simulation. The past disturbance and wildfire information developed earlier is used to assign appropriate FVS add files to any disturbed stands. Each unique combination of disturbance severity, type, and year (e.g., moderate-severity mechanical add in 2017) has its own add file containing the necessary FVS keywords to simulate that disturbance. The same applies to each combination of wildfire severity and time since disturbance (e.g., moderate-severity

wildfire one year ago).

Finally, the FVS simulation begins in 2016 and runs until the year of interest. It models forest growth, fuel accretion, fuel decay, and other factors, incorporating the past disturbances and wildfires for each stand. The results are then reported in various database tables which may be combined and queried, as needed later.

REM Modeling with FCAT

The REM Forecast Methodology uses a modeling-based approach to quantify the net difference in GHG emissions between a baseline scenario (without fuel treatment) and a project scenario (with fuel treatment). Potential GHG emissions are modeled and quantified over a 40-year project duration, accounting for carbon in standing live trees, shrubs, and herbaceous understory; standing dead trees; dead surface fuels (woody debris, litter, and duff); harvested wood products; biomass combustion emissions from fires (prescribed and wildfire); mobile combustion emissions; and biological emissions from the decomposition of forest products.

Total cumulative emissions (scaled by the annual burn probability ABP) and total cumulative carbon stocks are calculated for both the baseline scenario and project scenarios. To achieve net reduced GHG emissions, the project scenario must reduce emissions while maintaining sufficient forest carbon stocks compared to the baseline scenario, as shown in Figure 9-3.

Figure 9-3 Gross GHG Emissions

$$\text{Gross GHG Emissions} = \left(\sum_i BaselineEmissions - \sum_i BaselineCarbonStocks\right) - \left(\sum_i ProjectEmissions - \sum_I ProjectCarbonStocks\right)$$

Source: SIG 2024

Emissions for the baseline and project scenarios are calculated using a combination of fire spread and fire effects modeling. The expected emissions for each stand, should it burn, are estimated using the First Order Fire Effects Model (FOFEM) (Keane & Lutes, 2020). For the baseline scenario, wildfire emissions are summed to calculate metric tons of CO 2 equivalent (tCO 2e) per acre (1 acre = ~0.4 ha).

For the project scenario, prescribed fire emissions (if applicable) are estimated with FOFEM. Mobile and biological emissions are estimated from the literature, and the wildfire emissions are calculated by summing the tCO 2e after first multiplying each stand's expected emissions by the ratio of project conditional burn probability (CBP) to baseline CBP.

The CBP for both scenarios is estimated using Monte Carlo fire spread simulations under 97th percentile weather and fuel moisture conditions. Each simulation starts with a randomly placed ignition that burns for 8 hours. If the fuel treatment is effective at reducing fire behavior, particularly fire rate of spread, less area should burn in each project scenario simulation compared to a baseline scenario.

If less area burns, the ratio of project CBP to baseline CBP will be less than 1 inside treated areas and potentially indirectly impacted untreated areas (referred to as "shadow" areas in the REM Forecast Methodology). Carbon stock loss from delayed reforestation due to high severity wildfire is also factored into emissions for both the baseline and project scenarios.

The FVS Fire and Fuels Extension (FVS-FFE) (Rebain et al., 2010) is used to model wildfire under 97th percentile environmental conditions to identify forest stands that could experience delayed reforestation. Delayed reforestation is assumed when FVS-FFE estimates flame length greater than 1.22 meters. A forest type-specific scaling factor, based on literature, is then used to estimate the percentage of the stand that would experience mortality and therefore delayed reforestation.

Forest carbon stocks over the 40-year project duration are modeled using the Forest Vegetation Simulator (FVS) (Dixon, 2024). The model tracks tree growth, mortality, harvested wood volume, and dead wood decay. FVS uses a collection of distance independent, individual tree growth models to estimate growth (i.e. increases in carbon stock) through time. Growth models are dependent upon species, tree diameter at breast height (DBH), height, stand site index, and stand basal area (BA).

FVS also includes mortality models to estimate individual tree loss over a given time period. These models are based on species, DBH, stand BA, and site index. To estimate harvested wood volume, FVS calculates by computing the volume of merchantable wood cut and removed from the stand.

Dead wood decay is modeled in FVS-FFE depends on species and diameter. Both growth and mortality models vary based on tree species and stand conditions. Individual susceptibility to fire-induced mortality depends on the species (Abrahamson 2024). Stand condition also affects fuel loading, fire behavior, and the likelihood of fire-induced mortality.

Additionally, Annual Burn Probability (ABP) directly influences gross potential emissions by acting as a scaling factor. A higher AFP correlates to higher gross emissions estimates for both the baseline and project scenarios. Therefore, as AFP changes, the effectiveness of a fuel treatment in reducing net reduced GHG emissions will also vary.

Key Metrics Evaluated

Carbon Stock Change

Carbon stock across different carbon pools is measured using the CARBCALC keyword in FVS.

Carbon is represented in short tons per acre across several categories: total aboveground live tree carbon, aboveground merchantable live, belowground live carbon (only in roots), standing dead carbon, downed dead wood carbon, total stand carbon, total removed carbon, and carbon released from a fire. Merchantable wood is defined by FVS variant guides. In this region, which falls within the western Sierra Nevada variant, merchantable hardwoods and softwoods as trees with a diameter greater than 7" diameter (Keyser & Dixon, 2022).

Stand Metrics

Stand metrics such as canopy cover (CC), trees per acre (TPA), basal area (BA), stand density index (SDI, as calculated in Reinecke), quadratic mean diameter (QMD), total cubic feet of wood (TCuFT), and merchantable cubic feet of wood (MCuFt) are represented as calculated by the FVS-FEE within the FCAT tool.

Fire Behavior Metrics

FVS estimated fire behavior under high severity weather and fuel moisture conditions including the following parameters: surface flame length (in feet) (surf flame severity), probability of torching (PTorch Sev), percentage of basal area mortality (Mortality BA Sev), potential smoke emissions (tons/acre) (Pot Smoke Sev), canopy base height (in feet) (CBH), canopy bulk density (in lbs/ft3) (CBD), percent canopy cover (CC) (which can indicate both fire behavior and stand health and was therefore included twice), and canopy height (in feet) (CHT).

Forest Type tied to Delayed Regeneration

The fraction of the forest that experiences high severity fire is shown, categorized by the common forest types in the area. These forest types include Blue oak, Canyon-interior live oak, Douglas-fir, California mixed conifer, Oregon white oak, California black oak, FVS other hardwoods, Coast live oak, Pacific madrone, California laurel, Ponderosa pine, Gray pine, Nonstocked, Cottonwood, and Knobcone pine.

Emissions

Emissions are modeled using FOFEM for each stand within the project area as if it were to burn. Emissions are calculated for Particulate Matter (PM) 10um, PM 2.5um, Methane (CH^4), CO, Carbon Dioxide (CO_2), Nitrous Oxide (NOX), Sulfur Dioxide (SO_2), and Biomass consumed. all represented in short tons.

Forecasted Mitigation Units (FMUs)

Forecasted mitigation units (FMUs) represent the estimated net GHG reductions from a mitigation project, with one FMU equal to one metric ton of carbon dioxide (CO2e) expected to be reduced or sequestered. A positive FMU value indicates emissions avoided or sequestered, while a negative value (represented by a parathesis) represents emissions released from the treatment.

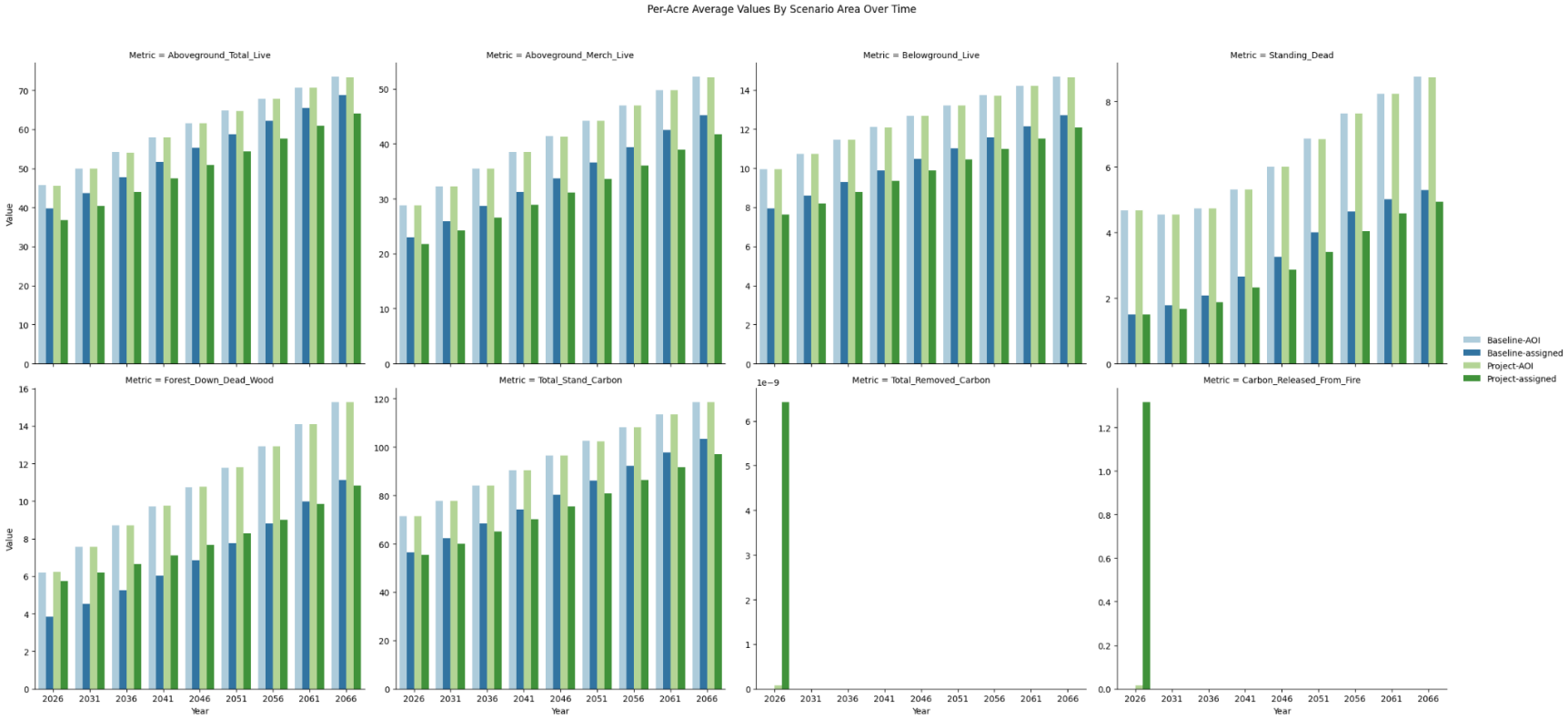
9.5. Results

9.5.1. Carbon Stock Change by Pool

Carbon stocks are presented as per-acre average values across all scenarios in Figure 9-4 for landscape treatments and Figure 9-5 for defensible space and roadside clearance treatments. Both treatment scenarios show similar patterns in the average per acre values. Due to the biomass removal in the project scenarios, average carbon stocks across all pools, are lower compared to the baseline across the AOI and assigned scales. The overall trend in carbon loss is reflected in the metric for total stand carbon.

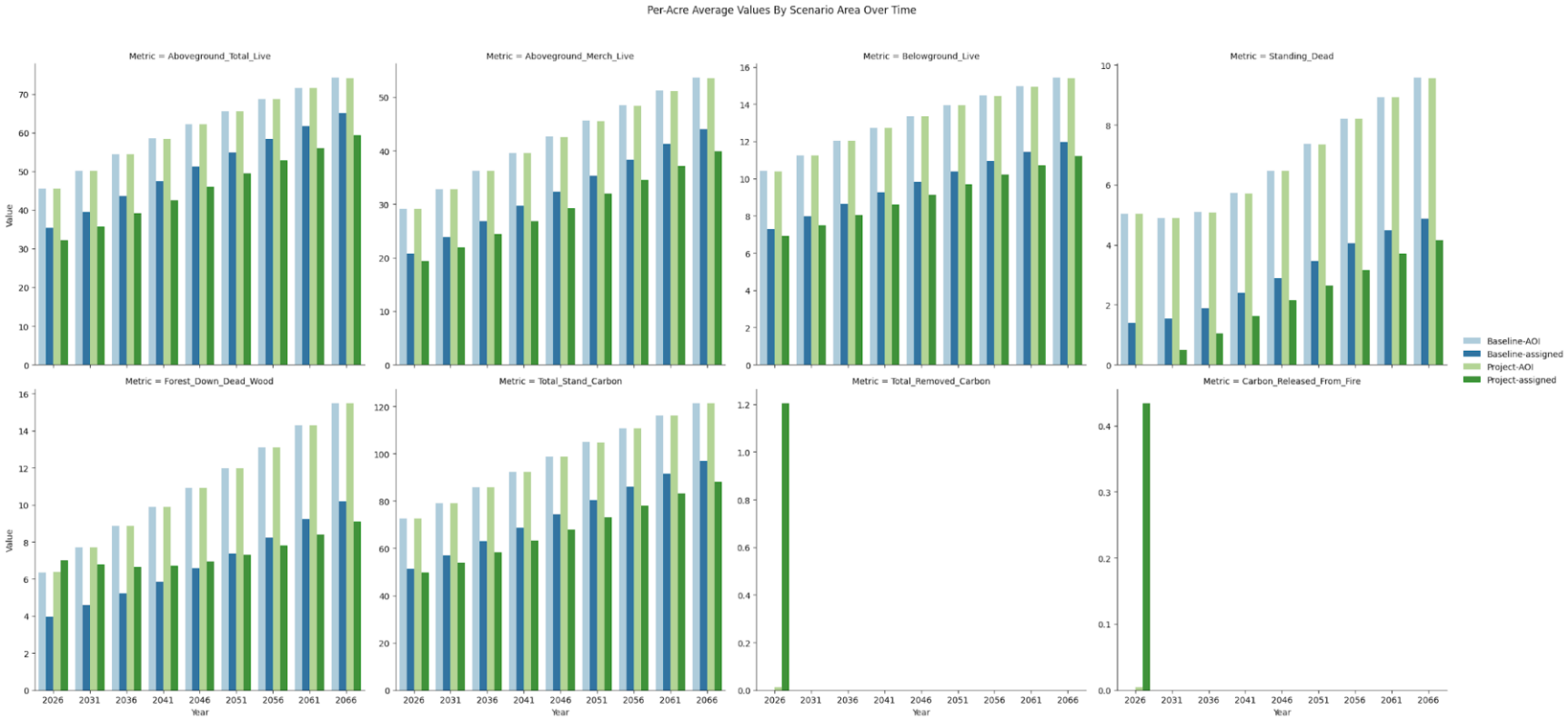
Moreover, the amount of carbon removed in the modeled treatment year of 2026 is significant in the project scenario, as shown in the metric for total removed carbon. Carbon released from fire is also notable in the project-assigned scenario, primarily due to the smaller spatial scale associated with pile and burn treatments. Figure 9-5 highlights that, within the standing dead carbon metric, the removal of salvage wood in 2026 is apparent, as seen in the absence project-assigned bar within the category.

Figure 9-4 Carbon Stocks Across Pools With and Without Landscape Level Treatments.



Source: SIG FCAT Analysis 2024

Figure 9-5 Carbon Stocks Across Pools With and Without Defensible Space and Roadside Clearance Treatments



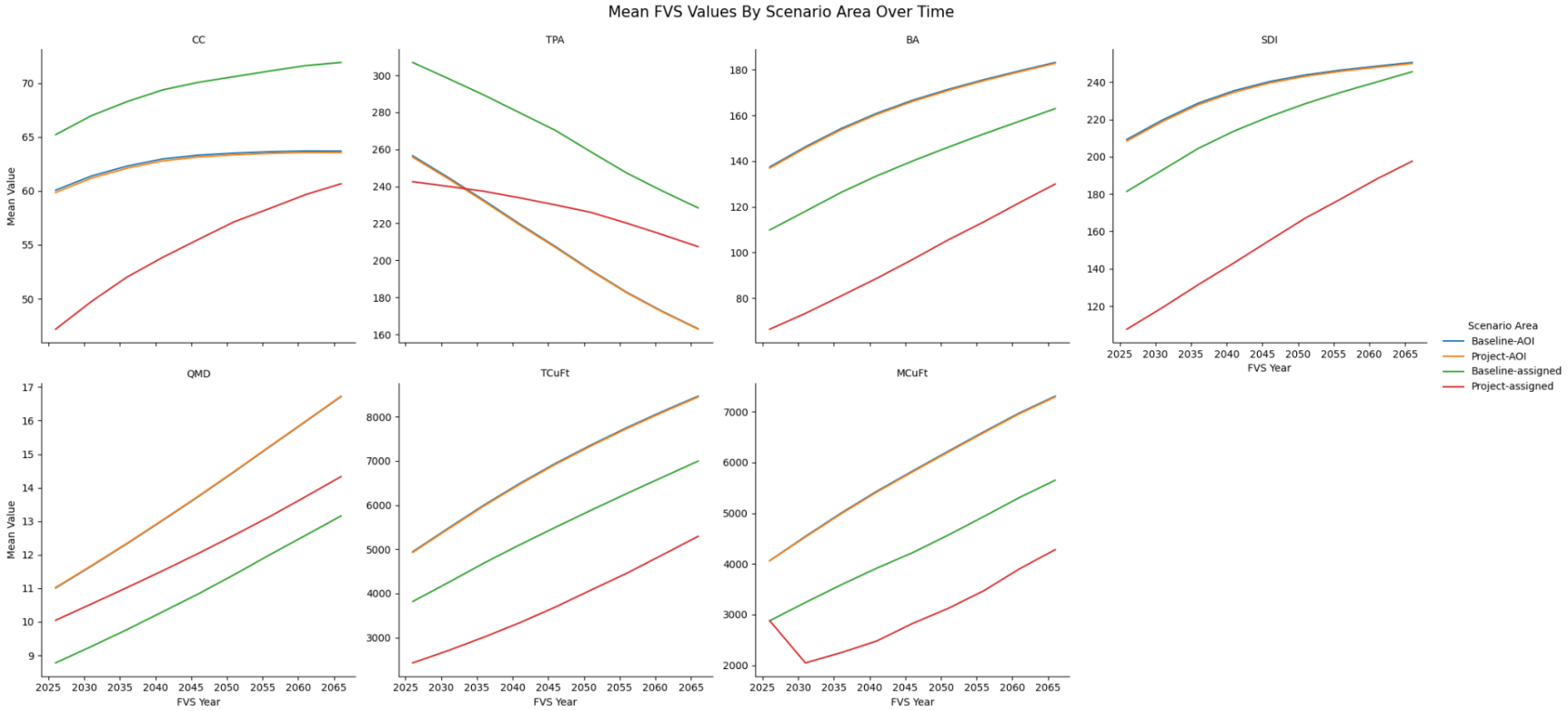
Source: SIG FCAT Analysis 2024

9.5.2. Stand Metrics Results

Forest stand metrics over the project period in Figure 9-6 for the landscape level treatments and Figure 9-7 for the roadside clearance and defensible space treatments. At the AOI level, the stand metrics for both the baseline and the project scenarios are nearly identical. This is because the larger spatial extent of the AOI causes the effects of the fuel treatments to be diluted and almost imperceptible at this scale.

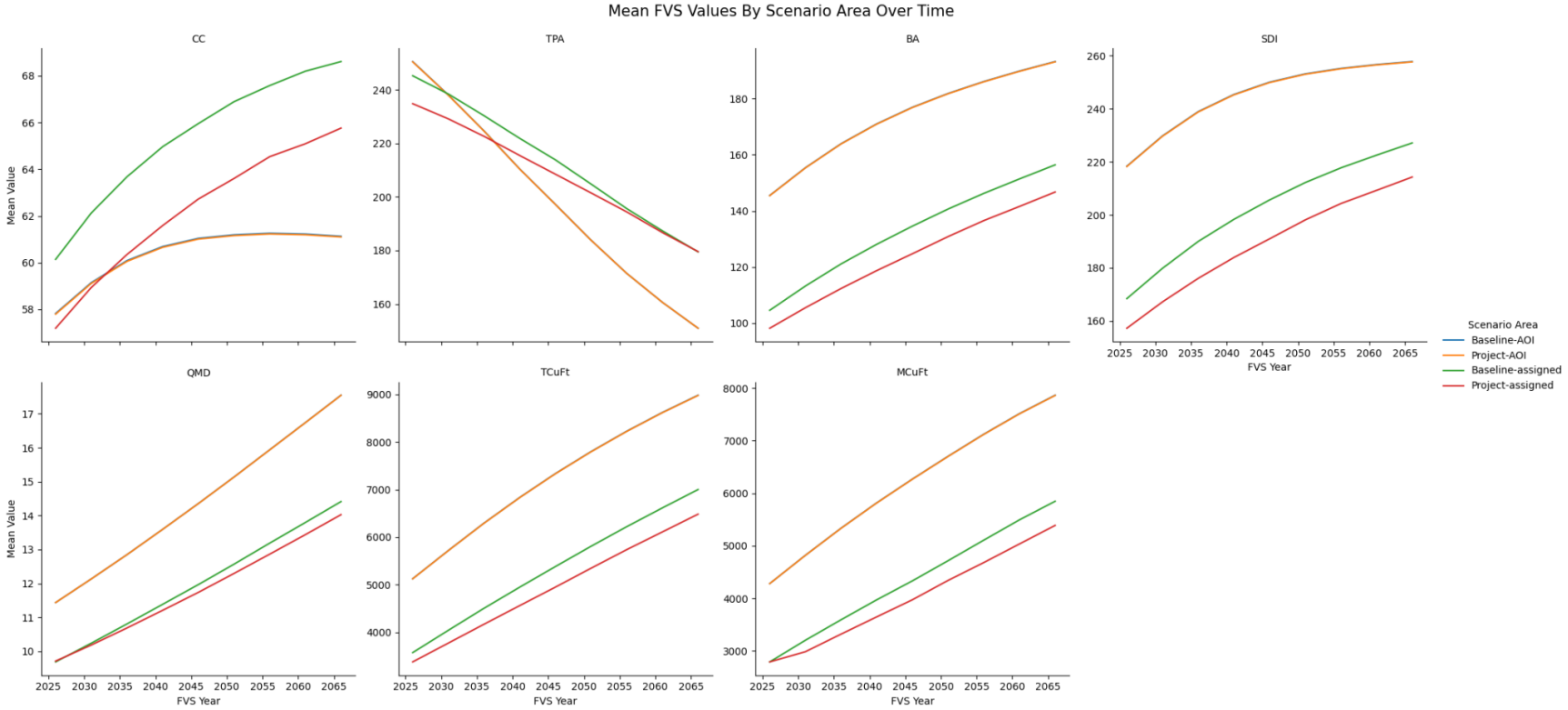
However, within the assigned stands, the project scenario shows lower average stand metrics compared to the baseline, primarily due to biomass removal, which reduces stand metrics on a smaller spatial scale. As a result of the landscape level treatments, there is an increase in quadratic mean diameter (QMD) compared to the baseline, indicating that larger trees were left standing, which is beneficial for forest health. In contrast, with the defensible space treatments, (Figure 9-7), QMD is reduced as expected from the designated treatment.

Figure 9-6 Stand Metrics Resulting From Landscape Level Treatments



Source: SIG FCAT Analysis 2024

Figure 9-7 Stand Metrics Resulting From Defensible Space and Roadside Clearance Treatments



Source: SIG FCAT Analysis 2024

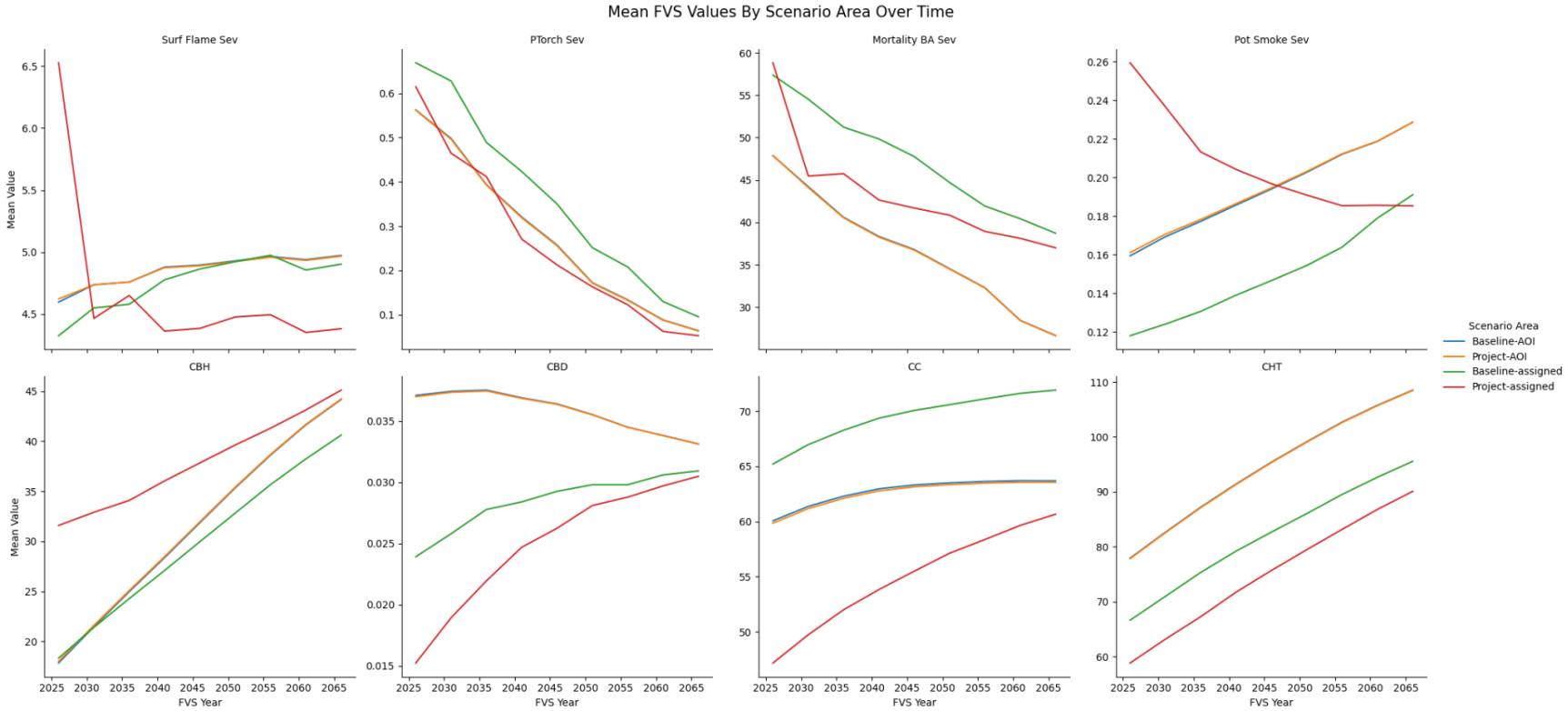
9.5.3. Fire Behavior Metrics

As with the stand metrics, the average fire behavior metrics across the AOI show strong similarities between the project and baseline scenarios in both the landscape (Figure 9-8) and the combined roadside and defensible space treatments (Figure 9-9). Both treatment scenarios exhibit similar changes in fire behavior.

In terms of fire risk metrics (e.g., surface flame length, probability of torching, percent basal area mortality), the project-assigned scenario shows significant reductions when compared to the baseline-assigned scenario. However, for canopy structure metrics (e.g., canopy bulk density [CDB] and canopy cover [CC]), the baseline-assigned scenario reflects the absence of management activities, resulting in higher values compared to the project-assigned scenario.

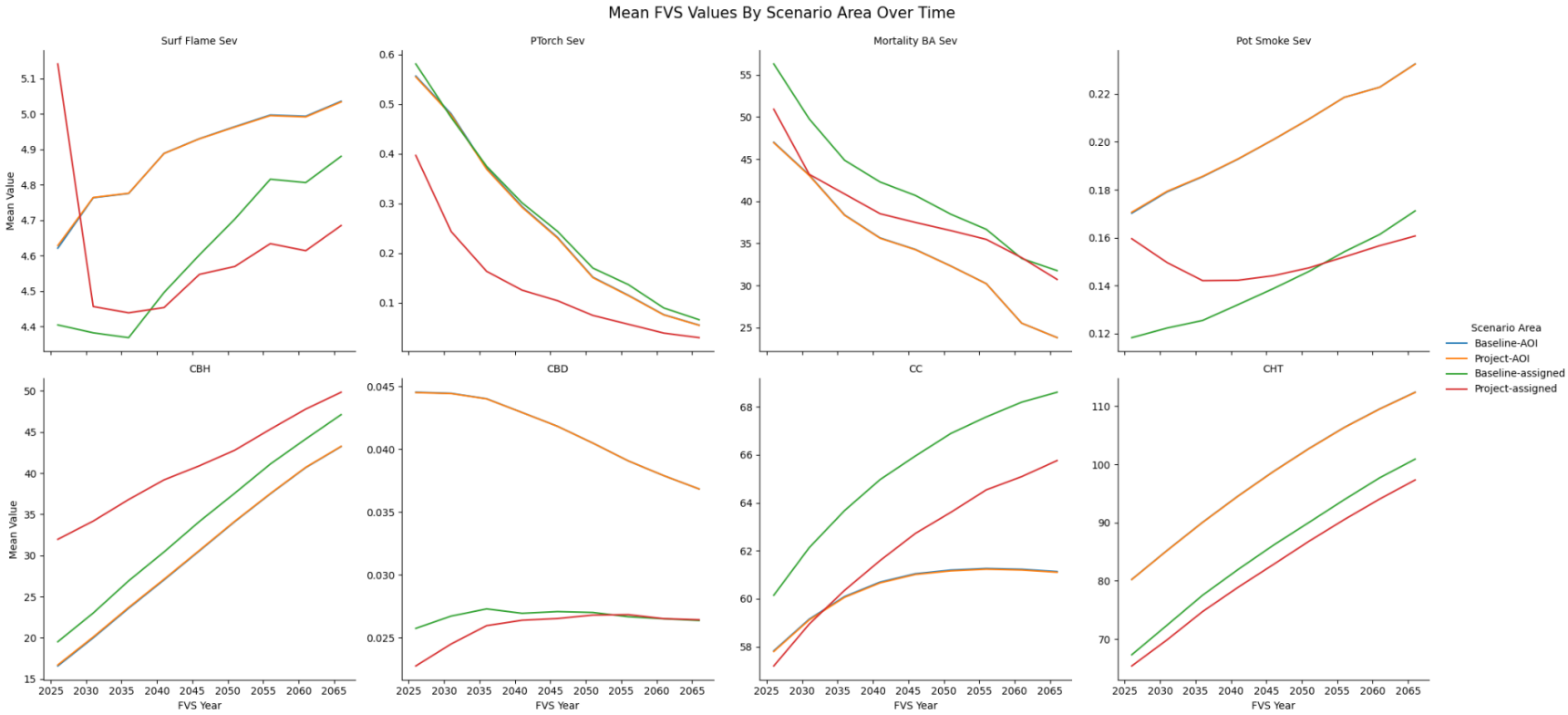
The initial increase in potential smoke severity over the project period is likely due to biomass that is lopped, scattered, and chipped. By the end of the project period, potential smoke severity is lowest in the project-assigned scenario. Overall, these results highlight the effectiveness of active management in reducing fire hazards and promoting resilient forest, as compared to unmanaged baseline scenarios.

Figure 9-8 Fire Behavior Metrics From the Landscape Level Fuel Treatments



Source: SIG FCAT Analysis 2024

Figure 9-9 Fire Behavior Metrics From the Defensible Space and Roadside Clearance Treatments.

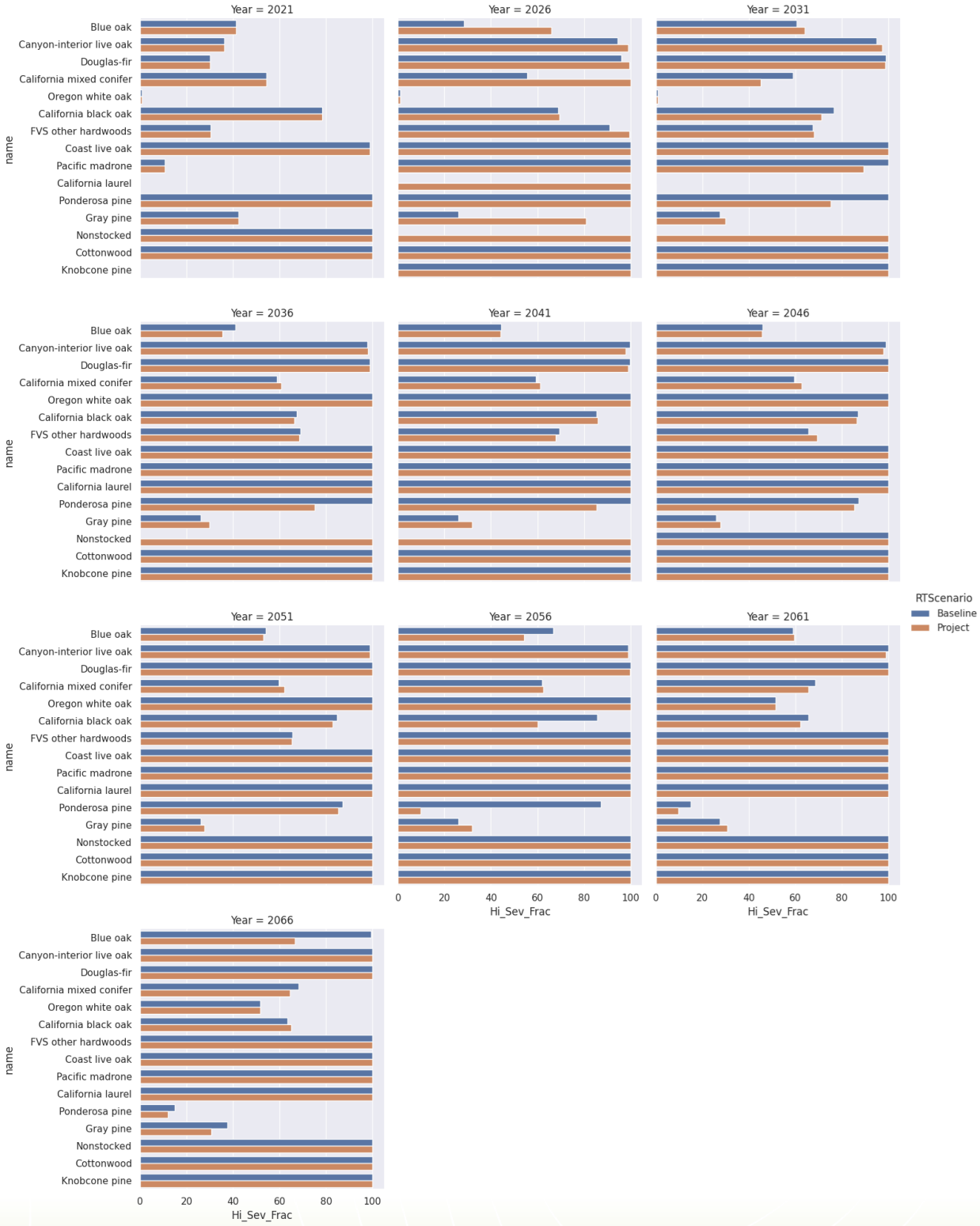


Source: SIG FCAT Analysis 2024

9.5.4. Forest Type Change likely to experience High Severity Fire

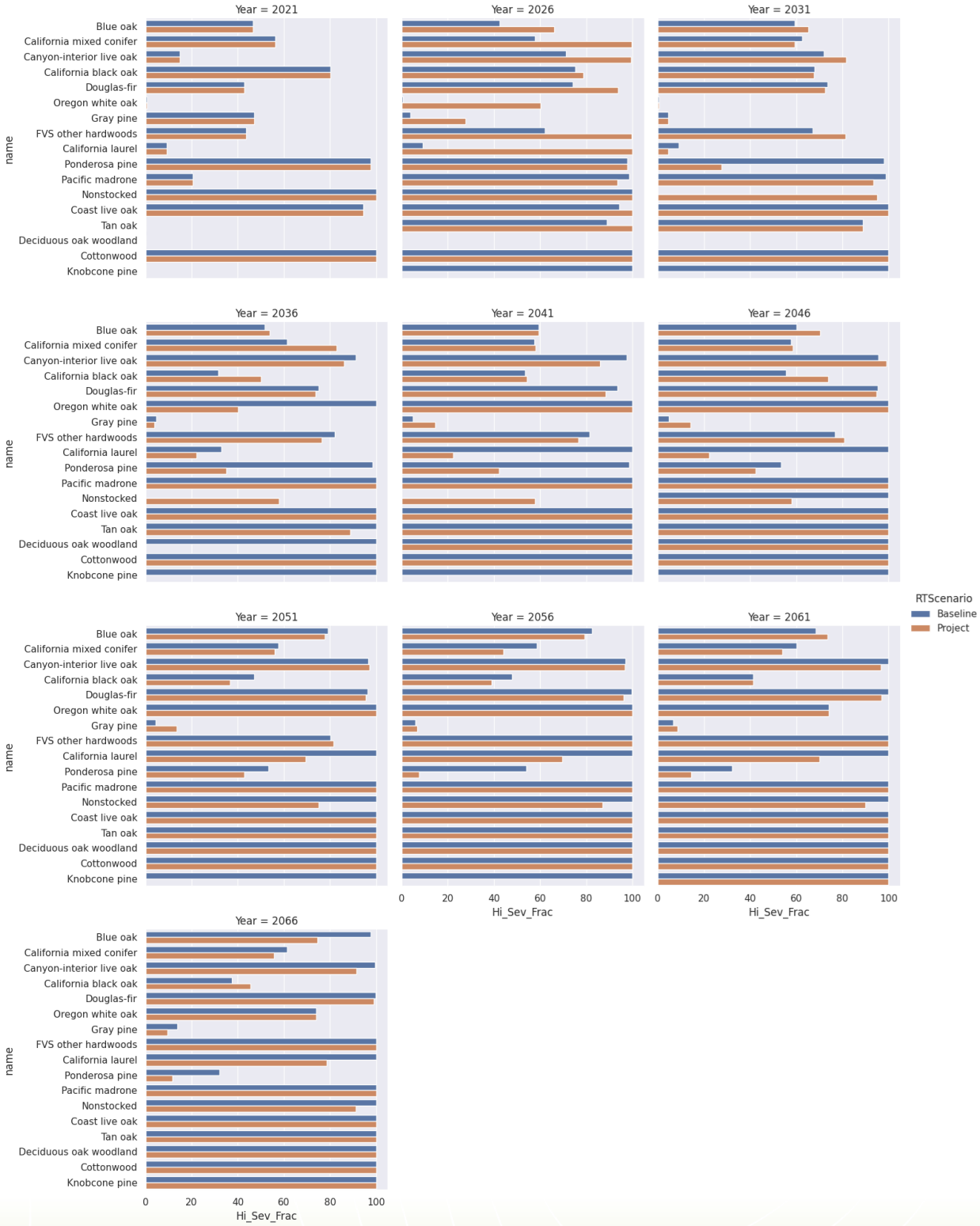
Figure 9-10 and Figure 9-11 show the fraction of forest types in the potentially treated project areas that are likely to experience high severity fire behavior following the proposed treatment in 2026. The results indicate that the project scenario with the treatment applied, could potentially increase the risk of high severity fire behavior. This increase is likely due to the biomass left in the area as a result of lop and scatter and chipping treatments. However, over the project period, the proposed treatments tend to align more closely with the trends seen within the baseline scenarios of treatment.

Figure 9-10 Forest Types Likely to Experience High Severity Fire By Fraction of the Area



Source: SIG FCAT Analysis 2024

Figure 9-11 Forest Types Likely to Experience High Severity Fire By Fraction of the Area.

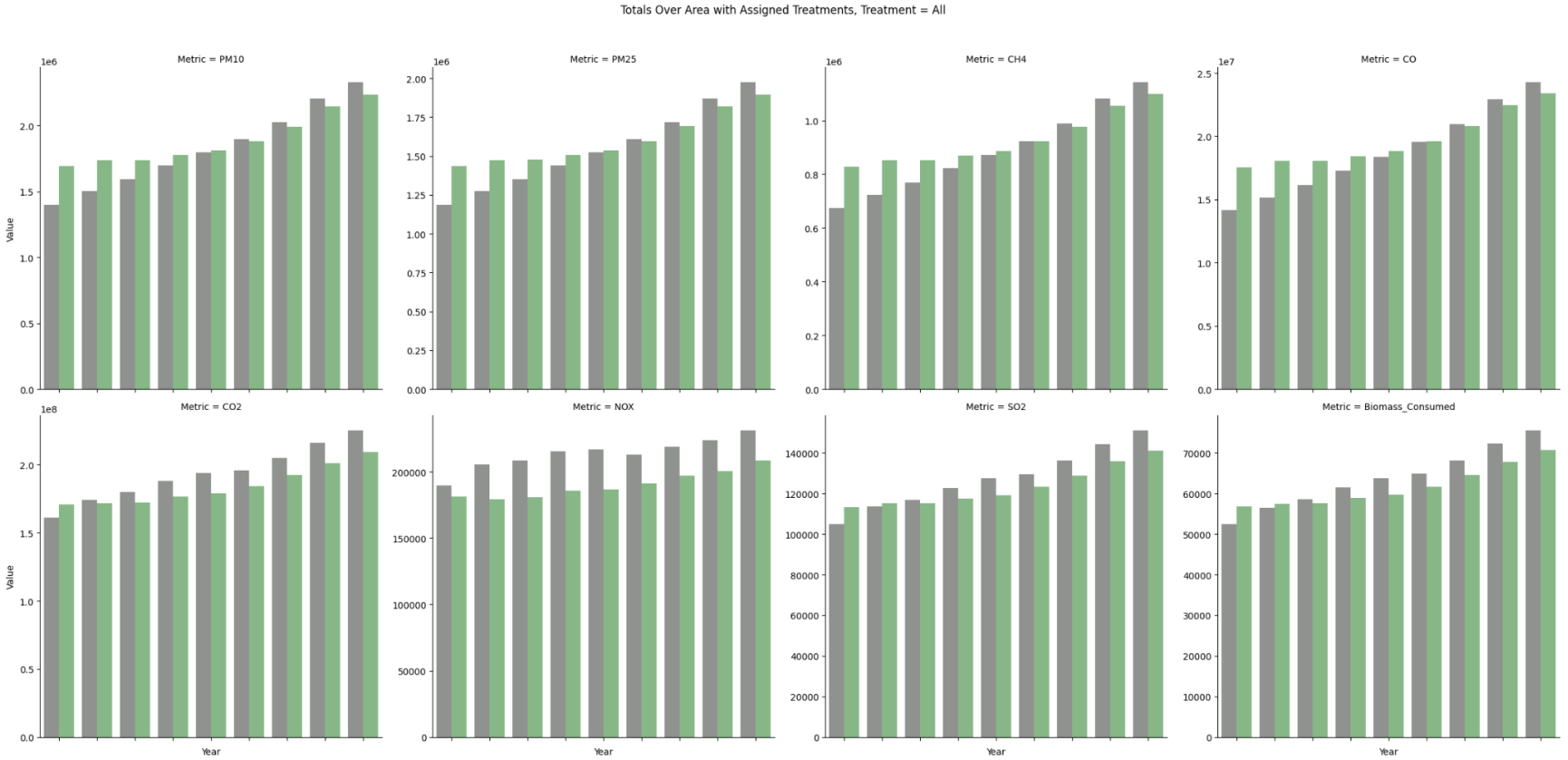


Source: SIG FCAT Analysis 2024

9.5.5. Emissions Results

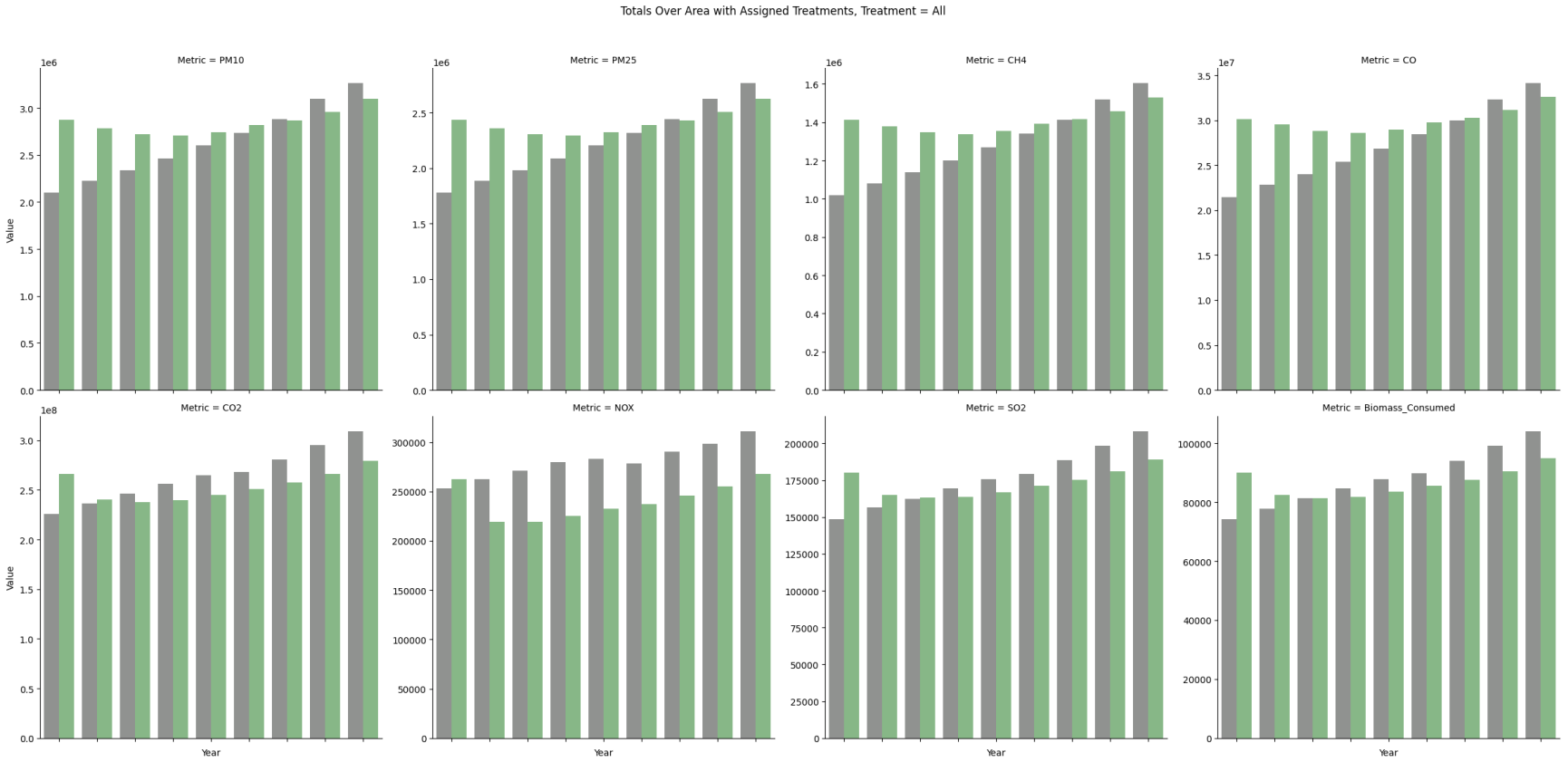
In Figure 9-12 and Figure 9-13, the green bars represent the project-assigned scenarios, and the gray bars represent the baseline-assigned scenarios. Both the landscape and defensible space and roadside clearance treatments show similar overall emission patterns. As the project treatments are implemented in 2026, they cause an initial increase in treatments, particularly when each stand is modeled to burn. The higher emissions in the project scenario compared to baseline scenarios emissions are likely due to the fuels left on the floor from the lop-and-scatter and mastication treatments, which have been shown to increase fire behavior in FVS models. However, over the 40-year project period, the project stands ultimately result in lower emissions compared to the baseline scenarios.

Figure 9-12 Emissions Resulting From Landscape Treatments



Source: SIG FCAT Analysis 2024

Figure 9-13 Emissions Resulting From Defensible Space and Roadside Clearance Treatments



Source: SIG FCAT Analysis 2024

9.5.6. Forecasted Mitigation Units

Table 9-1 shows the FMUs from proposed landscape treatments over the PPSA. Using Kearns et al. (2022), which provides an annual burn probability (ABP) of 1.58%, the proposed landscape level treatments released emissions of approximately 25,000 FMUs, or about 9 FMUs per acre. Further, the breakeven ABP was determined by testing incremental increases until FMUs were generated. This analysis revealed that an ABP of 4% was required to generate 12,000 FMUs, around 4 FMUs per acre.

Table 9-1 FMUs Generated From the Landscape Level Proposed Treatments.

	Total Metric Tons CO2e	Metric Tons CO2e per acre	Total Metric Tons CO2e	Metric Tons CO2e per acre
2031	19,426	6	18,556	6
2036	26,042	9	22,521	8
2041	30,569	10	23,761	8
2046	33,421	11	22,669	8
2051	35,882	12	21,303	7
2056	34,941	12	13,616	5
2061	33,175	11	7,108	2
2066	25,649	9	12,133	4

Source: SIG FCAT Analysis 2024

Table 9-2 shows the FMUs from the proposed treatments combined with the defensible space and roadside treatment. Using Kearns et al. (2022) with an annual burn probability (ABP) of 1.58%, the proposed treatments released emissions of approximately 78,000 FMUs, or about 17 FMUs per acre. Further, the breakeven ABP was determined by testing incremental increases until FMUs were generated. This analysis found that an ABP of 5% to generate 8,000 FMUs, or around 2 FMUs per acre.

Table 9-2 FMUs Generated From Defensible Space and Roadside Clearance Treatments

	Total Metric Tons CO2e	Metric Tons CO2e per acre	Total Metric Tons CO2e	Metric Tons CO2e per acre
2031	46,001	10	48,792	11
2036	62,613	14	63,647	14
2041	72,977	16	64,255	14
2046	83,968	18	72,240	16
2051	89,237	19	66,258	14
2056	89,262	20	47,179	10
2061	88,494	19	31,956	7
2066	78,455	17	8,534	2

Source: SIG FCAT Analysis 2024

10. Implementation Plan

This chapter describes how the city and the El Dorado RCD will implement the CWRS. It outlines roles and responsibilities, prioritizes actions, and establishes a framework for tracking progress, reporting, and adapting the plan over time. The city's implementation approach aligns with regional, state, city, and county plans while remaining tailored to the city's specific needs and capacity.

10.1. Implementation Framework

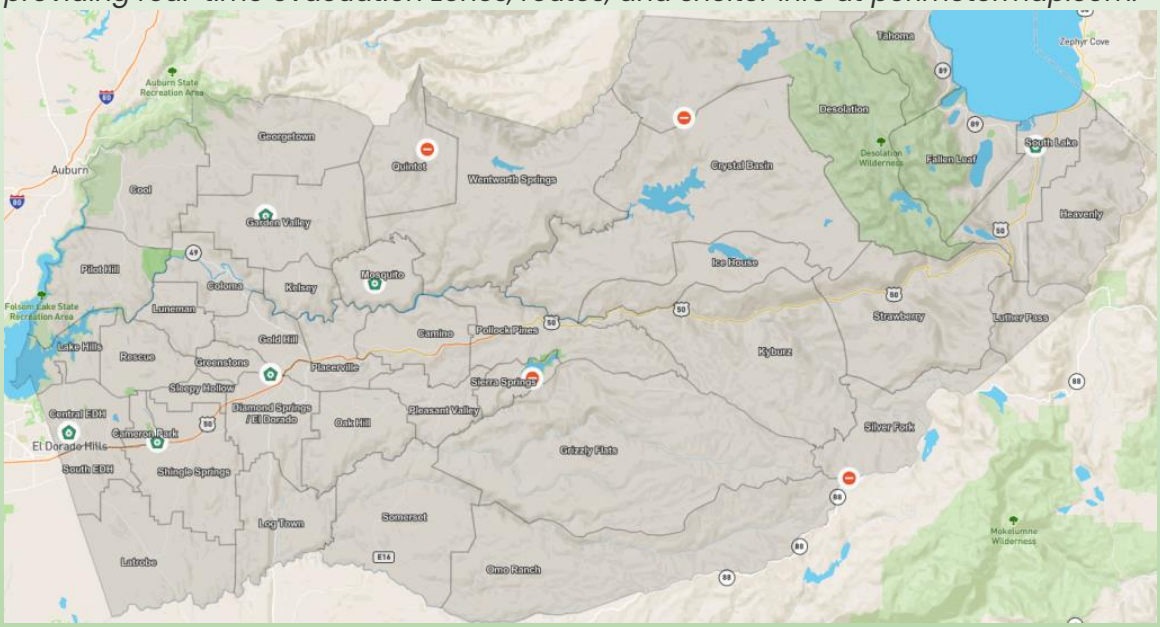
The Placerville CWRS implementation will be managed through a coordinated effort between city departments, regional partners, state agencies, and community organizations. It will also be managed concurrently by El Dorado RCD staff. The city and El Dorado RCD will prioritize implementation based on wildfire risk, resource availability, and community needs.

10.1.1. Roles and Responsibilities

The successful implementation of the CWRS relies on clear responsibilities and coordination among stakeholders. Each entity has specific roles in achieving the plan's objectives:

- **City of Placerville**
    a. City Manager's Office
        i. Coordinates CWRS implementation.
        ii. Serves as the primary contact for state and federal agencies.

> *The El Dorado County OES now uses the Perimeter Platform for wildfire preparedness, providing real-time evacuation zones, routes, and shelter info at perimetermap.com.*



Source: El Dorado County Sheriff

iii. Communicates progress to the City Council and community.

b. Police Department:
   i. Manages emergency communication systems and evacuation alerts.
   ii. Coordinates with regional law enforcement for public safety during wildfire events.

c. Public Works and Community Services Departments:
   i. Maintains critical infrastructure, including roads, water, and sewer systems.
   ii. Supports vegetation management near public facilities and rights-of-way.
   iii. Manage parks and special events.

d. Development Services Department:
   i. Ensures compliance with wildfire safety codes for new developments.
   ii. Updates zoning and land-use planning as needed.
   iii. Conducts public outreach and education on defensible space and home hardening.
   iv. Integrates CWRS actions into the city's General Plan and capital improvement projects.

» **Regional and County Partners**

e. EDC RCD
   i. Prepare the CWRS for the city which includes integrating existing assessments, plans, and reports to ensure plan alignment; promoting data exchange; prioritizing landscape-level forest health and wildfire resiliency projects; and adopting a multi-year schedule for implementation-ready projects.
   ii. The District Manager will assist the city by coordinating potential projects identified as mitigation actions and help to secure funding for these projects. The District Manager will also prepare annual reports to share progress with the city on CWRS implementation.
   iii. The Outreach Coordinator will ensure that TAC members and partner organizations are kept informed of the CWRS implementation progress. The Outreach Coordinator will also ensure that active collaboration among stakeholders occurs for project implementation.

f. FSCs (includes FSC partners such as the Placerville FSC and EDCFSC):
   i. Administers programs such as hazard tree removal, chipping services, and defensible space assistance for vulnerable populations.

   - EDC OES:
     ii. Coordinates Countywide emergency response and evacuation planning.
     iii. Provides mutual aid to Placerville.
     iv. Leads the EDC MJHMP.

   - EDC EID:
     v. Ensures water availability for firefighting operations.

vi. Collaborates on fuel management near critical water resources.

g. EDC OWPR
   i. Leads the *Western EDC CWPP*.
   ii. Manages the County's Defensible Space Program and provides education on other programs such as home hardening.

» **Federal and State Agencies**

h. BLM:
   i. Oversees fire prevention and vegetation management on BLM-managed lands.
   ii. Funds hazardous fuels reduction projects through programs like the Wildland Fire Community Assistance Program.
   - BIA
     - Works with tribal governments on wildfire prevention, suppression, and mitigation efforts.
     - Provides funding for hazardous fuels reduction, fire-adapted community planning, and tribal wildfire resilience programs.
   - USBR:
     - Manages wildfire risk on federal water infrastructure lands, including reservoirs, watersheds, and irrigation districts.
     - Supports fuels management, fire prevention, and restoration projects to protect critical water resources.
     - Collaborates with federal, state, and local agencies to enhance wildfire resilience in water-dependent ecosystems.

i. USFS:
   i. Manages national forests and grasslands, overseeing wildfire prevention, suppression, and restoration efforts.
   ii. Provides funding and technical support through grant programs like the Landscape Scale Restoration grant program.
   - U.S. Fish and Wildlife Service (USFWS):
     - Manages wildfire mitigation efforts in national wildlife refuges and other protected habitats.
     - Implements hazardous fuels reduction projects and collaborates on habitat restoration to reduce fire risks.

j. FEMA:
   i. Provides funding through Hazard Mitigation Assistance (HMA) programs to support proactive wildfire risk reduction efforts.
   ii. Offers expert guidance to help integrate local wildfire mitigation strategies with broader regional and federal initiatives for a cohesive, multi-level approach.

k. CAL FIRE:
   i. Provides funding and technical support for wildfire mitigation projects.
   ii. Oversees vegetation management and prescribed burning programs.

l. California OES:
    i. Supports training, funding opportunities, and technical assistance for hazard mitigation.

» **Community and Private Partners**

m. Firewise Communities and Neighborhood Associations:
    i. Organize local mitigation efforts, such as vegetation clearing and fire safety inspections.
    ii. Educate residents on wildfire preparedness and evacuation protocols.

n. EDC Chamber of Commerce:
    i. Engages local businesses in wildfire preparedness and supports economic recovery after wildfire events.

o. Nonprofit Organizations and Special Interest Groups:
    i. Collaborate on outreach to underserved populations, including low-income and Spanish-speaking residents.
    ii. Provide resources such as evacuation assistance and shelter services.

10.2. Monitoring and Reporting

The city and the El Dorado RCD will establish a monitoring and reporting framework that integrates local and state tools to track wildfire mitigation progress. This approach will enhance transparency for the public and improve project management for city staff.

Progress Tracking

The city will use a combination of tracking tools to monitor wildfire mitigation projects and provide real-time updates to the strategy. Key elements include:

» Action Tracker:
    - A dynamic tool that logs and tracks the status of mitigation actions, including defensible space compliance, fuel treatment projects, and public outreach efforts. The Action Tracker will provide a centralized database for all CWRS activities.

» Integration with State and Local GIS Mapping Systems:
    - EDC OWPR Fuels Treatment Mapper: A County-level system managed by OWPR that tracks fuel treatment projects. Placerville will input local project data into this platform to ensure alignment with state priorities and to increase visibility of efforts within the region.
    - CAL FIRE Management Activity Project Planning & Event Reporter (CalMAPPER): This mapper is the CAL FIRE's mechanism to capture map-based data about project activities. This information can then be distributed to internal or external stakeholders for purposes of planning, accountability, management, and emergency response.
    - Local/County Project Mapper: A customized mapper for Placerville that will display active and completed projects within the city limits. This tool will allow

the public to view real-time updates, such as treated acreage, project timelines, and areas prioritized for future action.

- Public-Facing and Internal Tracking Platforms:
  - The public-facing mapper will focus on transparency, showing project locations, updates, and timelines for the community.
  - The internal project mapper will include more detailed information for city staff, such as resource allocation, inter-agency coordination, and project-specific documentation.
- Performance Metrics (key performance indicators will be used to assess the effectiveness of the CWRS actions):
  - Acres treated through fuel reduction projects.
  - Number of defensible space inspections completed.
  - Community participation in education and outreach programs.
  - Reduction in wildfire risk within identified high-priority areas.
- Treatment Implementation Form:
  - Provides a standardized framework for tracking fuel treatment projects, ensuring consistency and efficiency in wildfire mitigation efforts. The form documents treatment prescriptions, acreage, methodologies, and objectives for each mitigation area while detailing species removal, spacing requirements, environmental considerations, and cost estimates to guide implementation. The form will also be used to monitor progress, adjust treatment strategies in real-time, and maintain alignment with broader mitigation goals.
  - Incorporating this form into tracking systems enhances coordination among agencies, optimizes resource allocation, and improves the overall effectiveness of wildfire risk reduction. Additionally, the structured documentation supports performance evaluation, funding justification, and long-term adaptation planning, ensuring a data-driven approach to resilience and hazard mitigation.

Reporting

To ensure accountability and transparency, the city and El Dorado RCD will conduct regular reporting on the implementation of the CWRS. Reporting will occur annually and as needed to track progress, address challenges, and refine future actions. The reporting framework includes the following components:

- Annual Progress Reports
  - The city and El Dorado RCD will prepare a formal annual report summarizing completed actions, ongoing projects, and challenges encountered.
  - Reports will detail key achievements, including total acreage treated, completed projects, and community engagement outcomes.
- City Council Updates
  - Annual progress reports will be formally presented to the City Council to ensure oversight, assess effectiveness, and secure continued support for

implementation efforts.

- Community Transparency
  - The public will have access to an interactive project mapper, allowing residents to track wildfire mitigation projects in real time.
  - The city and El Dorado RCD will share progress updates through public meetings, newsletters, the city's website, and El Dorado RCD communications with FSCs.
- Adaptive Feedback Loop
  - Reports will identify lessons learned and areas for improvement, ensuring an adaptive approach to wildfire resilience planning.
  - Findings will inform updates to the CWRS and future project planning to enhance effectiveness.

Action Implementation Prioritization

The city will prioritize mitigation actions based on wildfire risk assessments, community vulnerability, and available resources. Initial efforts will focus on:

- Increasing defensible space compliance in high-risk neighborhoods.
- Implementing vegetation management and fuel reduction projects.
- Expanding community education and outreach on wildfire resilience.

The city and RCD will prioritize projects as an iterative process through quarterly or annual reviews/reports with the understanding that fuels treatment and land use policy/plans may change.

10.3. Adaptive Management

The CWRS will take an adaptive management decision-making approach where actions are continually adjusted based on new information and monitoring results. This makes the overall process effective because it allows for flexibility, promotes learning through ongoing evaluation, and can better address funding needs.

As a result, the CWRS will be reviewed annually to ensure it remains effective. The review process will:

- Incorporate new data, technologies, and best practices.
- Address changes in wildfire risk and community needs.
- Include community feedback to ensure local priorities are reflected.
- Review existing actions and assess priorities.

10.4. Integration with State and Regional Plans

On top of the local plans previously discussed, Placerville's CWRS aligns with the *California Wildfire and Forest Resilience Action Plan*; El Dorado County *General Plan Public Health, Safety, and Noise Element*; *El Dorado County MJHMP* (including the City of Placerville Annex and the *Wildfire Evacuation Study*), and the *Greater Placerville Wildfire Evacuation Preparedness, Community Safety, and Resilience Study*.

The city and El Dorado RCD will:

- Use CAL FIRE's Regional Forest and Fire Capacity Program (RFFCP) to access technical and financial resources.
- Leverage the California Forest Improvement Program (CFIP) and California Vegetation Treatment Program (CalVTP) for streamlined project approvals under the California Environmental Quality Act (CEQA).
- Collaborate with El Dorado County OWPR to align implementation efforts with regional priorities.
- Maintain good standing with FEMA compliance for FEMA grant program funding by completing a thorough update of the MJHMP every five years.

CAL FIRE Operations Section Chief Jeff Loveless refers to a map to show where the Crozier Fire is active during a town hall meeting at Sutter's Mill School in Placerville.

Source: Lezlie Sterling for the Sacramento Bee

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El Dorado County RCD's District Manager, Mark Egbert shares recent success stories about completed and active fuel treatment projects in the Placerville area during a well-attended City Council public workshop in the Placerville Town Hall.

Source: WSG 2025